

Description

The SD4002 is CMOS LSI chips developed for world-wide FM / MW / LW tuning with PLL frequency synthesizer system. The SD4002 can make a compact and high performance FM / MW / LW tuner with clock function for high-end car stereo, home stereo and so on because these CMOS LSIs are in 64-pin QFP package with built-in PLL frequency synthesizer, controller, 200 MHz prescaler, LCD driver and IF counter.

Functions

Radio Functions

- (1) Manual tuning
Manual tuning up/down Stepped tuning and rapid tuning.
- (2) Auto tuning
Seek up/down Retaining the frequency of a station received.
Scan up/down Receiving in intervals of 5 seconds.
- (3) Preset memory scanning Receiving the contents of preset memories on the FM, MW, and LW bands for 5 seconds each.
- (4) VF auto – tuning
SK seek up/down Retaining the frequency of a SK signal received.
SK scan up/down Receiving a station with SK signal in intervals of 5 seconds.
- (5) Preset memories
FM band FM 1:6 stations, RW 2:6 stations, FM 3:6 stations
MW band ... MW 1:6 stations, MW 2:6 stations
LW band ... 6 stations
VF band 6 stations
MW2 cannot be used while the LW band is used.
- (6) Last-preset memories 1 station on the FM1, FM2, FM3, MW1, MW2, LW and VF bands each.
- (7) LOC (local) control signal outputs and indications.
- (8) FM MONO (monaural) control signal output and indication.(For VF bands, same as for FM)
- (9) "ST" (stereo) indicator Enabled on the FM and VF bands.
- (10) Auto-preset memories
- (11) DK stand-by and SK alarm function

Tape Functions

- (1) Tape transport direction indicators Can flash at 2 HZ during fast forward.
- (2) AMS (auto music search) control signal output and indication.
- (3) MTL (metal) control signal output and indication.
- (4) NR1 (noise reduction) and NR2 control outputs and indications.

Functions (Continued)**CLOCK Functions**

- (1) Selectable 12-hour(with AM and PM indicators) of 24-hour display.
- (2) Selectable flashing colon(;) (1Hz)
- (3) Low-power (400nA) backup available in the NOCLK(no-clock)mode.

Others


- (1) LOUD (loudness) control signal output and indication common to radio, tape and CD modes.
- (2) Key acknowledge(beep) signal outputs (2.25 kHz, 40ms) Enabled by valid momentary keys.
- (3) Display selector and priority display function.
- (4) "  " (compact disk) indicator.

Table) Receiving frequency, channel spacing, reference frequency, intermediate frequency

| Item | | Receiving Frequency | Channel Space | Reference Frequency | Intermediate Frequency |
|------------------------------------|------|---------------------|---------------|---------------------|------------------------|
| Area | Band | | | | |
| Europe 1 | FM | 87.5 to 108.0 MHz | 50KHz | 25KHz | 10.7MHz |
| | MW | 522 to 1620 KHz | 9KHz | 9KHz | 450KHz |
| | LW | 144 to 281 KHz | 1KHz | 1KHz | 450KHz |
| Europe 2 | FM | 87.5 to 108.0 MHz | 50KHz | 25KHz | 10.7MHz |
| | MW | 522 to 1620 KHz | 9KHz | 9KHz | 459KHz |
| | LW | 144 to 281 KHz | 1KHz | 1KHz | 459KHz |
| U.S.A 1 | FM | 87.5 to 108.0 MHz | 100KHz | 25KHz | 10.7MHz |
| | MW | 530 to 1620 KHz | 10KHz | 10KHz | 450KHz |
| U.S.A 2 | FM | 87.5 to 107.9 MHz | 200KHz | 25KHz | 10.7MHz |
| | MW | 530 to 1620 KHz | 10KHz | 10KHz | 450KHz |
| U.S.A 3 | FM | 87.5 to 107.9 MHz | 200KHz | 25KHz | 10.7MHz |
| | MW | 530 to 1710 KHz | 10KHz | 10KHz | 450KHz |
| Australia and Middle and Near East | FM | 87.5 to 108.0 MHz | 100KHz | 25KHz | 10.7MHz |
| | MW | 531 to 1602 KHz | 9KHz | 9KHz | 450KHz |
| Japan | FM | 76.0 to 90.0 MHz | 100KHz | 25KHz | -10.7MHz |
| | MW | 522 to 1629 KHz | 9KHz | 9KHz | 450KHz |
| Latin America | FM | 87.5 to 108.0 MHz | 100KHz | 25KHz | 10.7MHz |
| | MW | 520 to 1620 KHz | 5KHz | 5KHz | 450KHz |

Features

Single power supply of $5V \pm 10\%$

Built-in prescaler (200MHz MAX. $V_{in} = 0.3V_{pp}$), IF counter and LCD driver (1/2 duty, 1/2 bias, frame frequency: 100Hz)

Capable of receiving FM and MW in the whole world and LW in Europe.

Tuning function Manual tuning, auto-tuning (seek and scan) and preset memory scan.

Independent preset memory programming by six buttons for up to 18FM stations (six FM1, FM2 and FM3 stations each), up to 12 MW stations (six MW1 and MW2 stations each), up to six LW stations and VF broadcasting stations.

Each last channel memory for FM : 3, MW:1 and VF : 1

VF auto-tuning (SK signal search) with DK stand-by function.

Control output of MTL (METAL), NR1 (NOISE REDUCTION), NR2 and AMS (AUTO MUSIC SEARCH) and its display.

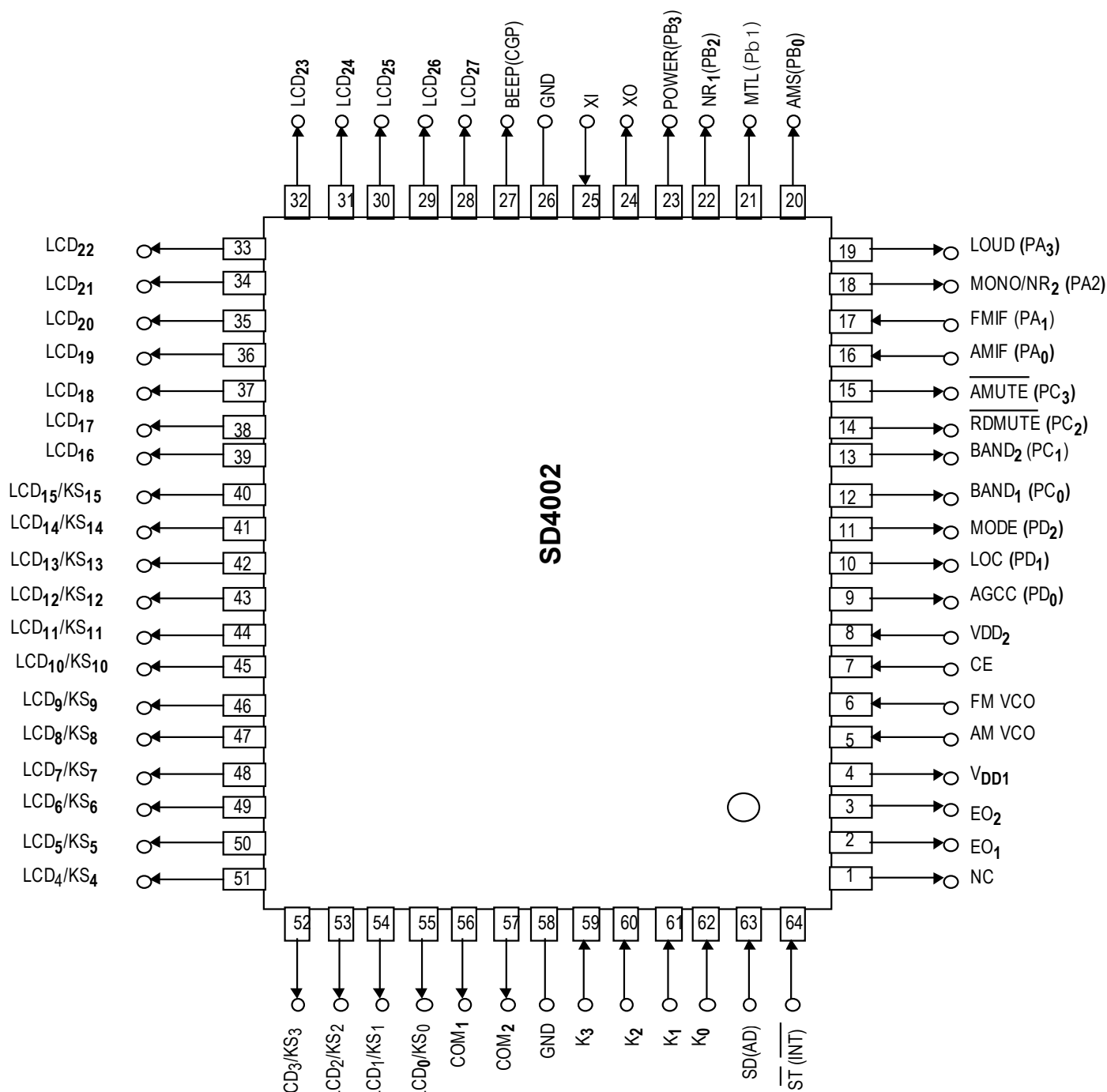
Automatic preset station memory function

Compact disc display (Cd)

Loudness control output and its display

Built-in 12 hour/24 hour clock display function (possible to set no clock)

Pin Configuration

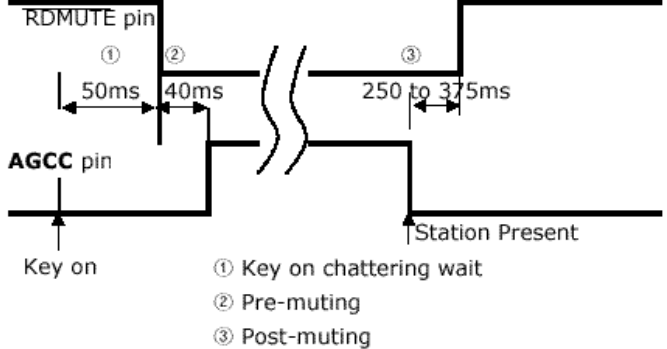


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1. Pin Description

| Pin No. | Symbol | Function | Description | Output Type |
|---------|--------------------------------------|----------------------------|--|-----------------|
| 1 | NC | No connection | This pin is not connected to the internal chip. Therefore, leave it open or connect it to GND, VDD, etc. | |
| 2 3 | EO ₁ EO ₂ | Error out | <p>PLL (Phase Locked Loop) error output pins.</p> <p>When the frequency obtained by dividing the local oscillation frequency. (VCO output) is higher than the reference frequency. High level is output from these pins. When it is lower than the reference frequency.</p> <p>Low level is output from these pins . When the two frequencies are the same, these pins are floated.</p> <p>This output is input to an external LPF (Low Pass Filter) and is applied to a varactor diode through the LPF. EO1 and EO2 output the same waveform so that the pin to be used can be freely selected. When the radio is OFF, these pins are floated.</p> | CMOS 3-state |
| 4 8 | V _{DD1} V _{DD2} | Power supply input | <p>Device power supply input pin.</p> <p>This pin supplies 5V ± 10% power voltage during device operation (radio, tape, and CD modes). When the diode matrix NOCLK switch is 1 (shorted by diode), when the CE pin (pin 7) is made Low level, this pin drops to 2.5V and data hold is enabled. When is a voltage of 0 → 4.5V is supplied to this pin, the data is initialized.</p> <p>Supply 0 → 4.5V to this pin within 500 ms.</p> <p>Always connect pins 4 and 8 to the same potential. V_{DD1}(pin 4) is the analog system (PLL, A/D converter, INT, CE) power supply and V_{DD2}(pin 8) is the digital system (CPU, LCD driver, IF counter) power supply.</p> | |
| 5 | AM | AM local Oscillation input | <p>The AM (MW and LW band) local oscillation output (VCO output) is input to this pin. When the radio is turned on and the MW or LW band is received, this pin becomes active. Otherwise, it is pulled down internally.</p> <p>The input amplitude is 0.3 V_{p-p} MIN.</p> <p>Since there is an on-chip AC amplifier, block the DC component with a capacitor.</p> | Input |
| 6 | FM | FM local oscillation input | <p>The FM local oscillation output (VCO output) is input to this pin.</p> <p>When the radio is turned on and the FM band is received, this pin becomes active. Otherwise, it is pulled down internally.</p> <p>The input amplitude is 0.3 V_{p-p} MIN.</p> <p>Since there is an on-chip AC amplifier, block the DC component of the input signal with a capacitor.</p> | Input |

| Pin No. | Symbol | Function | Description | Output Type |
|---------|--------|----------------|--|---------------|
| 7 | CE | Chip enable | <p>Device select signal input pin.</p> <p>When the device is operated normally (radio, tape, CD, clock display, etc.), High level is input and when the device is not used, Low level is input.</p> <p>However, High and Low levels of 134μs or less are not accepted.</p> <p>When this pin is Low level, the radio, tape, CD and display are turned off and the device enters the data hold state.</p> <p>At this time, data hold at low consumption current (10μA or less) is possible by setting the NOCLK switch of the diode matrix to be described later to 1 (shorted by diode, no-clock mode.)</p> | Input |
| 9 | AGCC | AGC cut output | <p>Radio mode AGC(AUTOMATIC GAIN CONTROL) cut signal output pin.</p> <p>During auto tuning, the High level shown below is output.</p>  <p>① Key on chattering wait ② Pre-muting ③ Post-muting</p> | CMOS pushpull |
| 10 | LOC | Local output | <p>This pin works as a LOCAL signal output pin when in the radio.</p> <p>The output is inverted each time <input type="checkbox"/> LOC key is pressed. When the LOCAL state is enable with <input type="checkbox"/> LOC key, the "LOC" indicator on the LCD panel turns on, with an output high on this pin.</p> <p>The local state can be set in common on FM, VF, MW and LW bands.</p> <p>This pin low at power-on time.</p> | CMOS pushpull |

| Pin No. | Symbol | Function | Description | Output Type | | | | | | | | | | | | | | | | | | | | | |
|---|--|------------------------------|---|-------------|-------|--------|----|---------------------------------|---|------------|---|-----------|----|---------|---|---|---|--------------------|------------|---------------|------------|----|---|---|---------------|
| 11 | MODE | Mode signal Output | <p>Mode switching signal output pin. Its output in each mode is shown below.</p> <table border="1"> <thead> <tr> <th>MODE</th> <th>MODE</th> </tr> </thead> <tbody> <tr> <td>CE=Low</td> <td>0</td> </tr> <tr> <td>CE=High; radio, tape and CD OFF</td> <td>0</td> </tr> <tr> <td>Radio Mode</td> <td>1</td> </tr> <tr> <td>Tape Mode</td> <td>0</td> </tr> <tr> <td>CD Mode</td> <td>0</td> </tr> <tr> <td>Tape DK standby CD DK standby DK On</td> <td>1</td> </tr> <tr> <td>Radio monitor mode</td> <td>1</td> </tr> </tbody> </table> <p>(0:Low level, 1:High level)</p> <p>That is, when the PLL is operated, High level is output from this pin. Therefore, use it to turn the tuner power on and off, etc.</p> | MODE | MODE | CE=Low | 0 | CE=High; radio, tape and CD OFF | 0 | Radio Mode | 1 | Tape Mode | 0 | CD Mode | 0 | Tape DK standby CD DK standby DK On | 1 | Radio monitor mode | 1 | CMOS pushpull | | | | | |
| MODE | MODE | | | | | | | | | | | | | | | | | | | | | | | | |
| CE=Low | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| CE=High; radio, tape and CD OFF | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| Radio Mode | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Tape Mode | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| CD Mode | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| Tape DK standby CD DK standby DK On | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Radio monitor mode | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 13 | BAND ₁ , BAND ₂ | Band Switching Signal Output | <p>Radio mode band switching signal output pin. Its operation is described below.</p> <ul style="list-style-type: none"> - Radio mode When the receiving band is switched by band switching key, the following is output on each band: - DK standby mode <table border="1"> <thead> <tr> <th rowspan="2">BAND \ Pin</th> <th>BAND1</th> <th>BAND2</th> </tr> </thead> <tbody> <tr> <td>MW</td> <td>0</td> <td>0</td> </tr> <tr> <td>LW</td> <td>0</td> <td>1</td> </tr> <tr> <td>FM</td> <td>1</td> <td>0</td> </tr> <tr> <td>VF</td> <td>1</td> <td>1</td> </tr> </tbody> </table> <p>(0:Low Level, 1:High Level)</p> <ul style="list-style-type: none"> - DK standby mode - DK ON mode <table border="1"> <thead> <tr> <th rowspan="2">BAND \ Pin</th> <th>BAND1</th> <th>BAND2 /OPT</th> </tr> </thead> <tbody> <tr> <td>VF</td> <td>1</td> <td>1</td> </tr> </tbody> </table> <ul style="list-style-type: none"> - Radio monitor mode Same as radio mode. - Tape mode - CD mode Low level output | BAND \ Pin | BAND1 | BAND2 | MW | 0 | 0 | LW | 0 | 1 | FM | 1 | 0 | VF | 1 | 1 | BAND \ Pin | BAND1 | BAND2 /OPT | VF | 1 | 1 | CMOS pushpull |
| BAND \ Pin | BAND1 | BAND2 | | | | | | | | | | | | | | | | | | | | | | | |
| | MW | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | |
| LW | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| FM | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | |
| VF | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| BAND \ Pin | BAND1 | BAND2 /OPT | | | | | | | | | | | | | | | | | | | | | | | |
| | VF | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | |

| Pin No. | Symbol | Function | Description | Output Type |
|---------|---------------|-------------------|---|---------------|
| 14 | <u>RDMUTE</u> | Radio mute output | <p>Radio mute signal output pin. This pin operates as follows:</p> <ul style="list-style-type: none"> - Radio mode Low level is output at radio ON/OFF, band switching, and receiving frequency switching. - Tape and CD modes High level or Low level can be selected by MUTESEL switch of the diode matrix to be described later. However, when using the DK standby or radio monitor function, set the MUTESEL switch to 0 and select low level output. <p>For more information, see "Mute Output Timing Chart".</p> | CMOS pushpull |
| 15 | <u>AMUTE</u> | Audio mute output | <p>Tape and CD mute signal output pin at DK ON and radio monitor ON.</p> <p>In the radio mode, Low level is output and in the tape and CD modes, High level is output. When DK is turned on during DK standby and in the radio monitor mode, Low level is output.</p> <p>For more information, see "Mute Output Timing Chart".</p> | CMOS pushpull |

| Pin No. | Symbol | Function | Description | Output Type | | | | | | | | | | | | | | | | |
|------------------|-------------------------|---------------------------------|---|------------------|-------------------------|-------------------------|----------|-----------------|-------------------|-------|-----------|---------|----|---------|----|-----------|--------|----|---------|-------|
| 16 | AM IF | AM intermediate frequency input | <p>AM (MW and LW bands) intermediate frequency (IF) input pin.</p> <p>The input amplitude is 0.1 V_{p.p.}. Since there is an on-chip AC amplifier, block the DC component of the input signal with a capacitor. This pin is valid when the initialized diode matrix DISAMIF switch is 0.</p> <p>This pin is used for detecting the presence of a broadcast station during MW and LW band autotuning. The input frequency ranges and input conditions for determining the presence of a broadcast station are shown below.</p> <table border="1"> <thead> <tr> <th>Item Area \ Band</th> <th>Input Freq. Range①[kHz]</th> <th>Input Freq. Range②[kHz]</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Europe1</td> <td>MW</td> <td>450 ± 5</td> </tr> <tr> <td>LW</td> <td>450 ± 0.5</td> </tr> <tr> <td rowspan="2">Europe2</td> <td>MW</td> <td>459 ± 5</td> </tr> <tr> <td>LW</td> <td>459 ± 0.5</td> </tr> <tr> <td>Others</td> <td>MW</td> <td>450 ± 5</td> </tr> </tbody> </table> <p>Input frequency range ① is the frequency that must be input within 20 ms after the PLL is locked.</p> <p>Input frequency range ② is the frequency that must be input within 40 ms after ① was input.</p> <p>When both input frequency ranges ① and ② are satisfied, a broadcast station is judged to be present and autotuning stops.</p> | Item Area \ Band | Input Freq. Range①[kHz] | Input Freq. Range②[kHz] | Europe1 | MW | 450 ± 5 | LW | 450 ± 0.5 | Europe2 | MW | 459 ± 5 | LW | 459 ± 0.5 | Others | MW | 450 ± 5 | Input |
| Item Area \ Band | Input Freq. Range①[kHz] | Input Freq. Range②[kHz] | | | | | | | | | | | | | | | | | | |
| Europe1 | MW | 450 ± 5 | | | | | | | | | | | | | | | | | | |
| | LW | 450 ± 0.5 | | | | | | | | | | | | | | | | | | |
| Europe2 | MW | 459 ± 5 | | | | | | | | | | | | | | | | | | |
| | LW | 459 ± 0.5 | | | | | | | | | | | | | | | | | | |
| Others | MW | 450 ± 5 | | | | | | | | | | | | | | | | | | |
| 17 | FM IF | FM intermediate frequency input | <p>FM band intermediate frequency (IF) input.</p> <p>The input amplitude is 0.1 V_{p.p.}. Since there is an AC amplifier on the chip, block the DC component of the input signal with a capacitor. This pin is valid when the initialized diode matrix switch ENFMIF is 1.</p> <p>This pin is used for detecting the presence of a broadcast station during FM band auto tuning. The input frequency ranges and input conditions for determining the presence of a broadcast station are shown below.</p> <table border="1"> <thead> <tr> <th>Item Area</th> <th>Input Frequency Range①</th> <th>Input Frequency Range②</th> </tr> </thead> <tbody> <tr> <td>All Area</td> <td>10.7MHz ± 50kHz</td> <td>10.7MHz ± 12.5kHz</td> </tr> </tbody> </table> <p>Input frequency range ① is the frequency that must be input within 20 ms after the PLL is locked.</p> <p>Input frequency range ② is the frequency that must be input within 40 ms after ① was input.</p> <p>When both input frequency ranges ① and ② are satisfied, a broadcast station is judged to be present and auto tuning stops.</p> | Item Area | Input Frequency Range① | Input Frequency Range② | All Area | 10.7MHz ± 50kHz | 10.7MHz ± 12.5kHz | Input | | | | | | | | | | |
| Item Area | Input Frequency Range① | Input Frequency Range② | | | | | | | | | | | | | | | | | | |
| All Area | 10.7MHz ± 50kHz | 10.7MHz ± 12.5kHz | | | | | | | | | | | | | | | | | | |

| Pin No. | Symbol | Function | Description | Output Type |
|---------|----------------------|-------------------------------------|--|---------------|
| 18 | MONO/NR ₂ | Monaural and noise reduction output | <p>In the radio mode. this pin operates as the MONO signal output pin and in the tape mode, this pin operates as the NOISE REDUCTION signal output pin.</p> <p>- Radio mode Each time the <input type="button" value="MONO"/> key is pressed on the FM and VF bands, the output is inverted. When the device is set to the MONO state by <input type="button" value="MONO"/> key. the LCD panel "MONO" display lights and high level is output from this pin. On the MW and LW bands, this pin becomes low. When the power is turned on, this pin becomes low.</p> <p>-Tape mode This pin is valid when the diode matrix ENNR₂ switch to be described later is 1. When NOISE REDUCTION NR₂ is selected by pressing the <input type="button" value="NR"/> key or NOISE REDUCTION function key (selected by diode matrix), high level is output. At this time. the LCD panel "NR₂" display lights. When the power is turned on. this pin becomes low.</p> | CMOS pushpull |
| 19 | LOUD | LOUD output | <p>LOUDNESS signal output pin, In the radio, tape and CD modes, the output is inverted each time the <input type="button" value="LOUD"/> key is pressed. When the LOUDNESS state is selected by <input type="button" value="LOUD"/> key, the LCD panel "LOUD" display lights and high level is output from this pin. When the power is turned on, this pin becomes low.</p> | CMOS pushpull |
| 20 | AMS | AMS signal output | <p>Tape mode AMS(AUTO MUSIC SEARCH) control signal output pin. Its output is inverted each time the <input type="button" value="AMS"/> key is passed. High level is output while the LCD panel "AMS" display is lit.</p> | CMOS pushpull |

| Pin No. | Symbol | Funtion | Description | Output Type |
|----------|--------------------------------------|------------------------|---|---------------------------|
| 21 | MTL | Metal output | <p>Tape mode metal signal output pin.</p> <p>Its output is inverted each time the <input type="checkbox"/> MTL key and METAL function key (selected by diode matrix) is pressed.</p> <p>When the METAL state is selected with these keys, the LCD panel" MTL"display lights and high level is output from this pin.</p> <p>When the power is turned on, this pin becomes low.</p> | CMOS Pushpull |
| 22 | NR ₁ | Noise reduction output | <p>Tape mode noise reduction (NR) signal output pin,</p> <p>When NR₁ is selected by the <input type="checkbox"/> NR key or NOISE REDUCTION function key (selected by diode matrix), the LCD panel "NR₁" display lights and high level is output from this pin.</p> | CMOS Pushpull |
| 23 | POWER | Power output | <p>When the CE pin is high level, the output of this pin is inverted each time the <input type="checkbox"/> POWER key is pressed.</p> <p>When the power is turned on, low level is output.</p> <p>This pin can be used to turn the set power on and off, etc.</p> <p>See "Application Circuits".</p> | CMOS Pushpull |
| 24 25 | XO XI | Crystal oscillator | <p>Crystal oscillator connection pin. It connects to a 4.5MHz crystal oscillator.</p> <p>When the clock function is used, the accuracy of the clock is effected by the oscillation frequency accuracy only.</p> <p>Adjust the oscillation frequency while observing the LCD oscillation waveform and PLL local oscillation frequency.</p> | CMOS (XO) Input(XI) |
| 26 58 | GND ₂ GND ₁ | Ground | <p>Device ground pins.</p> <p>These pins connect to the internal chip, Therefore one of these two should be a ground.(Not all these two should not be.)</p> | - |

| Pin No. | Symbol | Function | Description | Output Type |
|--------------------------------------|--|-----------------------------------|---|------------------|
| 27 | BEEP | Beep output | <p>Beep output pin when momentary key pressed. A 2.25 kHz and 50% duty square wave is output for approximately 40 ms. This time is equal to the premuting time.</p> <p>When a momentary key is pressed and the state of the LCD panel display or output port is changed (valid key) and at the end of 5 seconds hold during preset memory scan and scan operations, a beep is output.</p> <p>To disable the beep. float (leave open) this pin.</p> <p>The beep output is also used at SK alarm at DK standby.</p> | CMOS Pushpull |
| 28 to 39 40 to 55 | LCD ₂₇ to LCD ₁₆ LCD ₁₅ /KS ₁₅ to LCD ₀ /KS ₀ | LCD segment and key source output | <p>LCD panel segment signal output (pins 28 to 55) and key matrix key source signal output (pins 40 to 55) pins.</p> <p>56-dot display is performed at the LCD panel by matrix with the COM₁ pin(pin 56) and COM₂ pin (pin 57).</p> <p>Since LCD₁₅ / KS₁₅(pin 40) to LCD₀/ KS₀(pin 55) share the key source signal and LCD segment signal, to use them as key source signals, a reverse current prevention diode is necessary. For the connection method, see "Key Matrix Connection" and "Application Circuits".</p> | CMOS Pushpull |
| 56 57 | COM ₁ COM ₂ | LCD common Signal output | <p>Common signal output to LCD panel.</p> <p>56-dot display is performed at the LCD panel by matrix with LCD₂₇(pin 28) to LCD₀/KS₀(pin 55)</p> | CMOS Pushpull |
| 59 to 62 | K ₃ to K ₀ | Key return signal input | <p>Key matrix key return signal input pin.</p> <p>Since the key source signal output is shared with the LCD segment signal, do not connect a pull-down resistor to this pin.</p> | CMOS Pushpull |

| Pin No. | Symbol | Function | Description | Output Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|------------------|----------------------------|---|-------------|------------|------------|--------|----|-------|----------------------------|--------|----|----------------------------|--------|----|-------|----------------------------|--------|----|----|----------------------------|--------|------|------------|------------|--------|----|------------------|----------------------------|--------|------------------|----------------------------|--------|---------------|----------------------------|--------|----|------------------|----------------------------|--------|----|------------------|----------------------------|--------|---------------|----------------------------|--------|-------|
| 63 | SD | SD input | <p>Autotuning SD (Station Detector) signal input pin. When the voltage shown below is applied to this pin during the seek operation, a broadcast station is judged to be present.</p> <table border="1"> <thead> <tr> <th>BAND</th> <th>LOCAL Mode</th> <th>SD Voltage</th> <th>VDD=5V</th> </tr> </thead> <tbody> <tr> <td rowspan="2">FM</td> <td>LOCAL</td> <td>$28.5/64 \times V_{DDmin}$</td> <td>2.227V</td> </tr> <tr> <td>DX</td> <td>$12.5/64 \times V_{DDmin}$</td> <td>0.977V</td> </tr> <tr> <td>MW</td> <td>LOCAL</td> <td>$15.5/64 \times V_{DDmin}$</td> <td>1.211V</td> </tr> <tr> <td>LW</td> <td>DX</td> <td>$12.5/64 \times V_{DDmin}$</td> <td>0.977V</td> </tr> </tbody> </table> <p>In the auto preset memory mode, search is performed twice in the LOCAL mode and once in the DX mode. The voltage to determine the presence of a broadcast station at this time is shown below.</p> <table border="1"> <thead> <tr> <th>BAND</th> <th>LOCAL Mode</th> <th>SD Voltage</th> <th>VDD=5V</th> </tr> </thead> <tbody> <tr> <td rowspan="3">FM</td> <td>LOCAL (1st time)</td> <td>$44.5/64 \times V_{DDmin}$</td> <td>3.447V</td> </tr> <tr> <td>LOCAL (2nd time)</td> <td>$28.5/64 \times V_{DDmin}$</td> <td>2.227V</td> </tr> <tr> <td>DX (3rd time)</td> <td>$12.5/64 \times V_{DDmin}$</td> <td>0.977V</td> </tr> <tr> <td>MW</td> <td>LOCAL (1st time)</td> <td>$18.5/64 \times V_{DDmin}$</td> <td>1.445V</td> </tr> <tr> <td rowspan="2">LW</td> <td>LOCAL (2nd time)</td> <td>$15.5/64 \times V_{DDmin}$</td> <td>1.211V</td> </tr> <tr> <td>DX (3rd time)</td> <td>$12.5/64 \times V_{DDmin}$</td> <td>0.977V</td> </tr> </tbody> </table> <p>When using the IF count, a broadcast station is detected when a broadcast station is judged to be present by both IF and SD pins</p> | BAND | LOCAL Mode | SD Voltage | VDD=5V | FM | LOCAL | $28.5/64 \times V_{DDmin}$ | 2.227V | DX | $12.5/64 \times V_{DDmin}$ | 0.977V | MW | LOCAL | $15.5/64 \times V_{DDmin}$ | 1.211V | LW | DX | $12.5/64 \times V_{DDmin}$ | 0.977V | BAND | LOCAL Mode | SD Voltage | VDD=5V | FM | LOCAL (1st time) | $44.5/64 \times V_{DDmin}$ | 3.447V | LOCAL (2nd time) | $28.5/64 \times V_{DDmin}$ | 2.227V | DX (3rd time) | $12.5/64 \times V_{DDmin}$ | 0.977V | MW | LOCAL (1st time) | $18.5/64 \times V_{DDmin}$ | 1.445V | LW | LOCAL (2nd time) | $15.5/64 \times V_{DDmin}$ | 1.211V | DX (3rd time) | $12.5/64 \times V_{DDmin}$ | 0.977V | Input |
| | | | BAND | LOCAL Mode | SD Voltage | VDD=5V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FM | LOCAL | $28.5/64 \times V_{DDmin}$ | 2.227V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | DX | $12.5/64 \times V_{DDmin}$ | 0.977V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW | LOCAL | $15.5/64 \times V_{DDmin}$ | 1.211V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LW | DX | $12.5/64 \times V_{DDmin}$ | 0.977V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BAND | LOCAL Mode | SD Voltage | VDD=5V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FM | LOCAL (1st time) | $44.5/64 \times V_{DDmin}$ | 3.447V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LOCAL (2nd time) | $28.5/64 \times V_{DDmin}$ | 2.227V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | DX (3rd time) | $12.5/64 \times V_{DDmin}$ | 0.977V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW | LOCAL (1st time) | $18.5/64 \times V_{DDmin}$ | 1.445V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LW | LOCAL (2nd time) | $15.5/64 \times V_{DDmin}$ | 1.211V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | DX (3rd time) | $12.5/64 \times V_{DDmin}$ | 0.977V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | — ST | Stereo signal input | <p>Radio mode "ST" (STEREO) display input pin. When low level is input to this pin, the LCD panel "ST" display lights. This pin is valid only on the FM and VF bands, In the MONO mode, "ST" is not displayed.</p> | Input | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

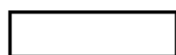
2. Key Matrix


2.1 Key Matrix Layout

| Input Pin Output Pin | K ₃ (59) | K ₂ (60) | K ₁ (61) | K ₀ (62) |
|--|---------------------|---------------------|---------------------|---------------------|
| LCD ₁₅ /KS ₁₅ (40) | M1(TP1) | M2(TP2) | M3(TP3) | M4 |
| LCD ₁₄ /KS ₁₄ (41) | M5 | M6 | VF | VF |
| LCD ₁₃ /KS ₁₃ (42) | SEEK DWN | SEEK UP | SEEK DWN | SEEK UP |
| LCD ₁₂ /KS ₁₂ (43) | BAND | - | - | - |
| LCD ₁₁ /KS ₁₁ (44) | ME(DISP) | MAN DWN | MAN UP | PSCAN AMEMO |
| LCD ₁₀ /KS ₁₀ (45) | LOUD | LOC(TP4) | MONO(TP5) | - |
| LCD ₉ /KS ₉ (46) | AMS | NR | MTL | RDMONI |
| LCD ₈ /KS ₈ (47) | - | - | - | DISP |
| LCD ₇ /KS ₇ (48) | CD SET | TP SET | RD SET | POWER |
| LCD ₆ /KS ₆ (49) | SK | DK | FF | RL |
| LCD ₅ /KS ₅ (50) | AUTO500 | MUTESEL | AUTOLOC | ENNR2 |
| LCD ₄ /KS ₄ (51) | KAMS | KNR | KMTL | ENTPK |
| LCD ₃ /KS ₃ (52) | NOCLK | CLK DISP | FLASH | NOCLK |
| LCD ₂ /KS ₂ (53) | ENFMIF | DISAMIF | PRIO2 | DISAMEMO |
| LCD ₁ /KS ₁ (54) | DISFM3 | ENMW2 | DISLW | M2S |
| LCD ₀ /KS ₀ (55) | AREA3 | AREA2 | AREA1 | RDON |

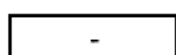
() : Pin No.

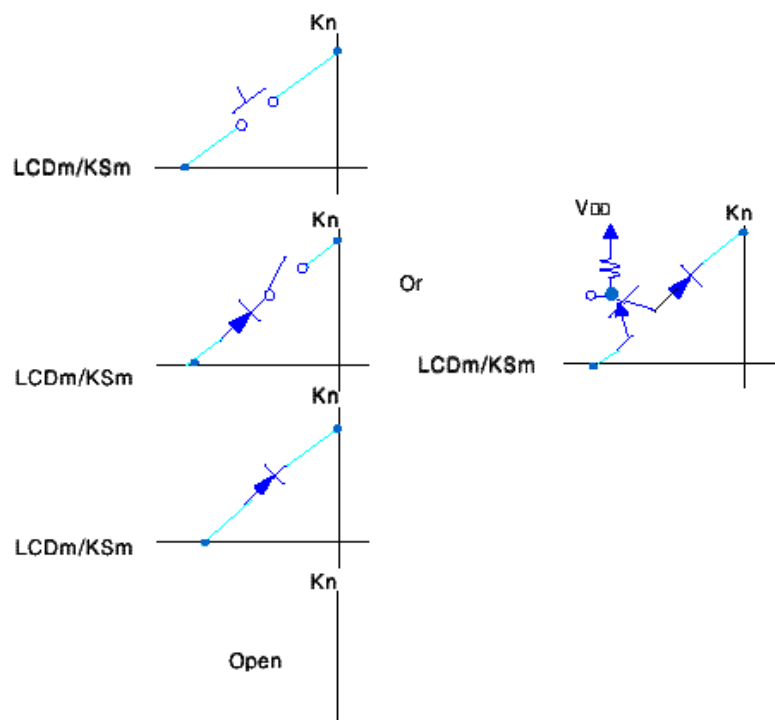
2.2 Switch Connection

 : Momentary switch

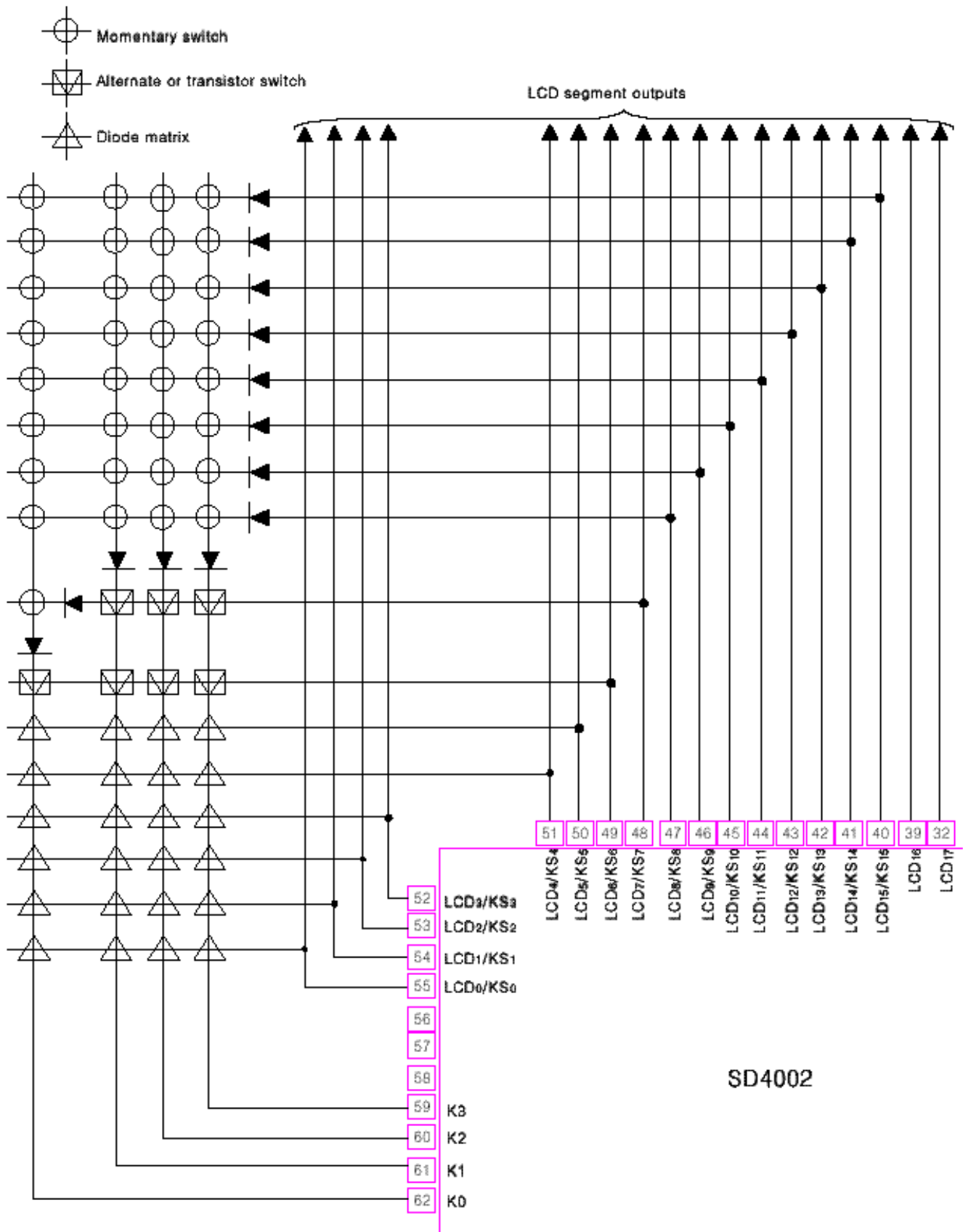
 : Alternate or transistor switch

 : Diode matrix

 : Open



2.3 KEY MATRIX CONNECTOR



2.4 Discription of Key Matrix

2.4.1 Momentary Switch

| Symbol | Function | | | | | | |
|--|--|-----|-------------|--|--|---|---|
| | <p>In the radio mode, these keys are used to call and write preset memory. In the tape mode, these are used as tape function keys by initialized diode (ENTPK, KAMS, KNR, KMTL).</p> <p>- Radio mode</p> <p>Preset memory call and write keys.</p> <p>One key can memorize the FM1, FM2, FM3, VF, MW1, MW2 and LW bands independently (max. 6 bands).</p> <p>The following operations are performed according to the state of M2S of the initialized diodes :</p> | | | | | | |
| <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="border: 1px solid black; padding: 2px; width: 80px; text-align: center;">M1(TP1)</div> <div style="border: 1px solid black; padding: 2px; width: 80px; text-align: center;">M2(TP2)</div> <div style="border: 1px solid black; padding: 2px; width: 80px; text-align: center;">M3(TP3)</div> <div style="border: 1px solid black; padding: 2px; width: 80px; text-align: center;">M4</div> <div style="border: 1px solid black; padding: 2px; width: 80px; text-align: center;">M5</div> <div style="border: 1px solid black; padding: 2px; width: 80px; text-align: center;">M6</div> </div> | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">M2S</th> <th style="width: 90%;">Description</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center;"> W <div style="border: 1px solid black; padding: 5px; width: 100px;">ME</div> </div> <div style="display: flex; align-items: center;"> R <div style="border: 1px solid black; padding: 5px; width: 100px;">M1(TP1)</div> </div> <div style="display: flex; align-items: center;"> I <div style="border: 1px solid black; padding: 5px; width: 100px;">M2(TP2)</div> </div> <div style="display: flex; align-items: center;"> T <div style="border: 1px solid black; padding: 5px; width: 100px;">M3(TP3)</div> </div> <div style="display: flex; align-items: center;"> E <div style="border: 1px solid black; padding: 5px; width: 100px;">M4</div> </div> <div style="display: flex; align-items: center;"> E <div style="border: 1px solid black; padding: 5px; width: 100px;">M5</div> </div> <div style="display: flex; align-items: center;"> O <div style="border: 1px solid black; padding: 5px; width: 100px;">M6</div> </div> </div> </td> <td> <p>The device is placed into the 5 seconds preset memory write mode by pressing the ME key during frequency display. When one of the keys M1(TP1) to M6 is pressed during this 5 seconds, the current receiving frequency is written to the preset memory corresponding to the pressed key. When the ME key is held down, writing is not performed. During writing, radio muting is not output.</p> <p>Example</p> <p>When the same preset memory key is pressed while the current preset memory contents are being received, the same operation is performed.</p> </td> </tr> <tr> <td style="vertical-align: top;"> <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center;"> C <div style="border: 1px solid black; padding: 5px; width: 100px;">M1(TP1)</div> </div> <div style="display: flex; align-items: center;"> A <div style="border: 1px solid black; padding: 5px; width: 100px;">M2(TP2)</div> </div> <div style="display: flex; align-items: center;"> L <div style="border: 1px solid black; padding: 5px; width: 100px;">M3(TP3)</div> </div> <div style="display: flex; align-items: center;"> L <div style="border: 1px solid black; padding: 5px; width: 100px;">M4</div> </div> </div> </td> <td> <p>In the radio mode, when the device is in the memory unwritable state, when one of the M1(TP1) to M6 keys is pressed, the preset memory contents corresponding to the pressed key can be called.</p> <p>Example</p> <p>When the same preset memory key is pressed while the current preset memory contents are being received, no operation is performed. However, if the clock is being displayed. BEEP is output and the display switches to frequency display. Radio muting is not output.</p> </td> </tr> </tbody> </table> | M2S | Description | <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center;"> W <div style="border: 1px solid black; padding: 5px; width: 100px;">ME</div> </div> <div style="display: flex; align-items: center;"> R <div style="border: 1px solid black; padding: 5px; width: 100px;">M1(TP1)</div> </div> <div style="display: flex; align-items: center;"> I <div style="border: 1px solid black; padding: 5px; width: 100px;">M2(TP2)</div> </div> <div style="display: flex; align-items: center;"> T <div style="border: 1px solid black; padding: 5px; width: 100px;">M3(TP3)</div> </div> <div style="display: flex; align-items: center;"> E <div style="border: 1px solid black; padding: 5px; width: 100px;">M4</div> </div> <div style="display: flex; align-items: center;"> E <div style="border: 1px solid black; padding: 5px; width: 100px;">M5</div> </div> <div style="display: flex; align-items: center;"> O <div style="border: 1px solid black; padding: 5px; width: 100px;">M6</div> </div> </div> | <p>The device is placed into the 5 seconds preset memory write mode by pressing the ME key during frequency display. 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During writing, radio muting is not output.</p> <p>Example</p> <p>When the same preset memory key is pressed while the current preset memory contents are being received, the same operation is performed.</p> | <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center;"> C <div style="border: 1px solid black; padding: 5px; width: 100px;">M1(TP1)</div> </div> <div style="display: flex; align-items: center;"> A <div style="border: 1px solid black; padding: 5px; width: 100px;">M2(TP2)</div> </div> <div style="display: flex; align-items: center;"> L <div style="border: 1px solid black; padding: 5px; width: 100px;">M3(TP3)</div> </div> <div style="display: flex; align-items: center;"> L <div style="border: 1px solid black; padding: 5px; width: 100px;">M4</div> </div> </div> | <p>In the radio mode, when the device is in the memory unwritable state, when one of the M1(TP1) to M6 keys is pressed, the preset memory contents corresponding to the pressed key can be called.</p> <p>Example</p> <p>When the same preset memory key is pressed while the current preset memory contents are being received, no operation is performed. However, if the clock is being displayed. BEEP is output and the display switches to frequency display. Radio muting is not output.</p> |
| M2S | Description | | | | | | |
| <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center;"> W <div style="border: 1px solid black; padding: 5px; width: 100px;">ME</div> </div> <div style="display: flex; align-items: center;"> R <div style="border: 1px solid black; padding: 5px; width: 100px;">M1(TP1)</div> </div> <div style="display: flex; align-items: center;"> I <div style="border: 1px solid black; padding: 5px; width: 100px;">M2(TP2)</div> </div> <div style="display: flex; align-items: center;"> T <div style="border: 1px solid black; padding: 5px; width: 100px;">M3(TP3)</div> </div> <div style="display: flex; align-items: center;"> E <div style="border: 1px solid black; padding: 5px; width: 100px;">M4</div> </div> <div style="display: flex; align-items: center;"> E <div style="border: 1px solid black; padding: 5px; width: 100px;">M5</div> </div> <div style="display: flex; align-items: center;"> O <div style="border: 1px solid black; padding: 5px; width: 100px;">M6</div> </div> </div> | <p>The device is placed into the 5 seconds preset memory write mode by pressing the ME key during frequency display. When one of the keys M1(TP1) to M6 is pressed during this 5 seconds, the current receiving frequency is written to the preset memory corresponding to the pressed key. When the ME key is held down, writing is not performed. During writing, radio muting is not output.</p> <p>Example</p> <p>When the same preset memory key is pressed while the current preset memory contents are being received, the same operation is performed.</p> | | | | | | |
| <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center;"> C <div style="border: 1px solid black; padding: 5px; width: 100px;">M1(TP1)</div> </div> <div style="display: flex; align-items: center;"> A <div style="border: 1px solid black; padding: 5px; width: 100px;">M2(TP2)</div> </div> <div style="display: flex; align-items: center;"> L <div style="border: 1px solid black; padding: 5px; width: 100px;">M3(TP3)</div> </div> <div style="display: flex; align-items: center;"> L <div style="border: 1px solid black; padding: 5px; width: 100px;">M4</div> </div> </div> | <p>In the radio mode, when the device is in the memory unwritable state, when one of the M1(TP1) to M6 keys is pressed, the preset memory contents corresponding to the pressed key can be called.</p> <p>Example</p> <p>When the same preset memory key is pressed while the current preset memory contents are being received, no operation is performed. However, if the clock is being displayed. BEEP is output and the display switches to frequency display. Radio muting is not output.</p> | | | | | | |

| Symbol | Function |
|--|--|
| <p>M1(TP1)</p> <p>M2(TP2)</p> <p>M3(TP3)</p> <p>M4</p> <p>M5</p> <p>M6</p> | <p>M2S Description</p> <p>When one of the key M1(TP1) to M6 is pressed for more than 2 seconds, the preset memory corresponding to the pressed key is written. At the end of writing to the preset memory, radio muting is output as acknowledgment.</p> <p>W R I T E</p> <p>1</p> |
| | <p>When a M1(TP1) to M6 key is pressed and released within 2 seconds, the preset memory contents at the time the key was released are called.</p> <p>C A L L</p> |

| Symbol | Function | | | | | | | |
|---------|--|-------------|------|------|------|-------|-------|------|
| | When the power is turned on, the frequency shown below are written to M1 to M6 to facilitate set adjustment. | | | | | | | |
| | Area | Memory Band | M1 | M2 | M3 | M4 | M5 | M6 |
| M1(TP1) | Europe 1 Europe 2 | FM1 | 87.5 | 87.7 | 92.3 | 96.3 | 105.9 | 87.5 |
| M2(TP2) | | MW1 | 522 | 603 | 954 | 1386 | 522 | 522 |
| M3(TP3) | | MW2 | 522 | 621 | 1098 | 1530 | 522 | 522 |
| | | LW | 144 | 155 | 208 | 256 | 144 | 144 |
| | U.S.A 1 U.S.A 2 U.S.A 3 | FM1 | 87.5 | 87.9 | 97.1 | 105.1 | 87.5 | 87.5 |
| M4 | | MW1 | 530 | 620 | 1010 | 1490 | 530 | 530 |
| M5 | Australia, Middle East | FM1 | 87.5 | 87.9 | 97.1 | 105.1 | 87.5 | 87.5 |
| M6 | | MW1 | 531 | 612 | 963 | 1395 | 531 | 531 |
| | Japan | FM1 | 76 | 76.4 | 85.6 | 76 | 76 | 76 |
| | | MW1 | 522 | 603 | 954 | 1386 | 522 | 522 |
| | Central and South America | FM1 | 87.5 | 87.9 | 97.1 | 105.1 | 87.5 | 87.5 |
| | | MW1 | 520 | 565 | 760 | 1000 | 1400 | 520 |
| | The lowest frequency of each area is M1 to M6 of the FM2, FM3, VF and MW2 bands of other than Europe 1 and 2. | | | | | | | |
| | - Tape mode | | | | | | | |
| | These keys can be used as tape function keys by means of initialized diode matrix switches ENTPK, KAMS and KMTL | | | | | | | |
| | For the keys that can be used, see the diode matrix. For a description of each key operation, see the <input type="text" value="AMS"/> , <input type="text" value="NR"/> an <input type="text" value="MTL"/> key items. | | | | | | | |
| | VF(traffic information) broadcast station search key. Its operation is described below. | | | | | | | |
| | When this key is pressed in the radio mode (FM, MW or LW band), the LCD panel "VF" display and Band2 pin output are inverted. | | | | | | | |
| | When this key is pressed, the VF band is selected and 375 to 500 ms later, whether or not there is a broadcast station(IF count and SD check) and SK signal are detected. If no VF broadcast station is judged not to be present (The presence of a VF broadcast station is determined by the an IF count, SD signal and SK signal),autotuning starts from that frequency. | | | | | | | |
| | When the first broadcast station is detected, that frequency is held until the autotuning key is pressed thereafter, even when there is no SK signal. | | | | | | | |
| | When the IF count and SD check are judged to be present, the autotuning operation is the same as normal autotuning, except that the SK signal is detected after 375 to 500 ms. | | | | | | | |
| | Autotuning(seek up) is performed automatically only when VF band is selected by <input type="text" value="VF"/> key for the first time. Autotuning is not performed automatically even if another tuning key (other than autotuning) is pressed. | | | | | | | |
| VF | | | | | | | | |

| Symbol | Function |
|--|---|
| <p style="text-align: center;">VF</p> | <p>To reset the VF band, press the [VF] key or [BAND] key. The VF band has 6 independent memories. The last channel is also independent. When the device is set to the tape or CD mode by TPSET or CDSET switch while on the VF band, it switches to the DK standby mode. The device also switches to the DK standby mode when the [VF] key is pressed in the tape or CD mode. In the DK standby mode, all the keys, other than the [BAND] key, are valid. When the DK switch is set to ON in the DK standby mode, the device switches to the DK ON mode. In the DK ON mode, radio muting (RDMUTE pin) is turned off and audio muting (AMUTE pin) is turned on.</p> <p>When both the SD and SK signals or one of signals are lost during VF band reception(including TAPE or CD DK standby mode), BEEP is output.</p> <p>The SD and SK signals are checked 512 times once every 30 ms and if there are no SD and SK signals for 256 times or more, BEEP is output.</p> <p>For BEEP, 120 ms ON and 120 ms OFF are output 5 times, respectively.</p> |
| <p style="text-align: center;">PSCAN AMEMO</p> | <p>Preset memory scan and auto store memory key.</p> <p>The auto store memory function is enabled when initialized diode DISAMEMO is 0.</p> <p>When the auto store memory is used (DISAMEMO = 0), when this key is pressed and released within 2 seconds, preset memory Scanning is performed. When this key is held down for more than 2 seconds, operation switches to auto store memory operation.</p> <p>When the auto store memory is not used (DISAMEMO = 1), the preset memory scanning operation starts the moment the button is pressed.</p> <p>The preset memory scan and auto store memory operations are described below.</p> <p>(1) Preset memory scan operation</p> <p>The preset memory contents are called automatically every 5 seconds.</p> <p>If other than the current preset memory is being received, the preset memories are called from M1, and if a present memory is being received the preset memories are called from the next preset memory (for instance , from M4 if M3 is being received) sequentially every 5 seconds.</p> <p>This operation is shown below.</p> <p>Example When FM1 band being received.</p> <div style="text-align: center;"> <pre> graph LR FM1 --> M1 --> M2 --> M3 --> M4 --> M5 --> M6 subgraph "Other than preset memory being received on FM1 band" M1 M2 M3 M4 M5 M6 end subgraph "M3 being received on FM1 band" M3 end </pre> </div> <p>This operation is the same for the MW bands (MW1,MW2) and LW band.</p> |

| Symbol | Function | | | | | | |
|--|--|-------------|-------------|---|--|---|---|
| <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">PSACN AMEMO</div> | <p>When the next preset memory is called at the end of 5 second hold, BEEP is output. During 5 second hold, the preset memory number display flashes at 1 Hz (duty 50%). The "ch" display does not flash.</p> <p>To stop at that preset memory during 5 second hold, press this key again, or press the same preset memory key as the preset memory being received. Writing of preset memory (for example, writing to M5 during M1 hold) is also possible, but the preset memory scan operation ends when the preset memory was written.</p> <p>The preset memory write operation during 5 second hold is described below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%; text-align: center;">M2S</th> <th style="text-align: center;">Description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: top;">0</td> <td> <p>When the ME key is pressed, the device enters the 5 second memory write mode. Writing is performed by pressing a M1 (TP1) to M6 key in the memory writable mode. At the end of writing, auto preset memory scanning stops. In the memory writable mode, the "ch" display flashes. If no operation is performed within 5 seconds, the next preset memory channel is called and auto preset scanning continues.</p> <p>If the ME key is pressed again in the memory writable mode, the memory writable mode is canceled and the next channel is called 5 seconds after the key was pressed.</p> </td> </tr> <tr> <td style="text-align: center; vertical-align: top;">1</td> <td> <p>When a M1 (TP1) to M6 key is pressed for more than 2 seconds, the frequency currently being received is written to the preset memory corresponding to the pressed key.</p> <p>Auto preset scanning ends when the frequency was written to the preset memory (2 seconds after the key was pressed).</p> </td> </tr> </tbody> </table> | M2S | Description | 0 | <p>When the ME key is pressed, the device enters the 5 second memory write mode. Writing is performed by pressing a M1 (TP1) to M6 key in the memory writable mode. At the end of writing, auto preset memory scanning stops. In the memory writable mode, the "ch" display flashes. If no operation is performed within 5 seconds, the next preset memory channel is called and auto preset scanning continues.</p> <p>If the ME key is pressed again in the memory writable mode, the memory writable mode is canceled and the next channel is called 5 seconds after the key was pressed.</p> | 1 | <p>When a M1 (TP1) to M6 key is pressed for more than 2 seconds, the frequency currently being received is written to the preset memory corresponding to the pressed key.</p> <p>Auto preset scanning ends when the frequency was written to the preset memory (2 seconds after the key was pressed).</p> |
| | M2S | Description | | | | | |
| 0 | <p>When the ME key is pressed, the device enters the 5 second memory write mode. Writing is performed by pressing a M1 (TP1) to M6 key in the memory writable mode. At the end of writing, auto preset memory scanning stops. In the memory writable mode, the "ch" display flashes. If no operation is performed within 5 seconds, the next preset memory channel is called and auto preset scanning continues.</p> <p>If the ME key is pressed again in the memory writable mode, the memory writable mode is canceled and the next channel is called 5 seconds after the key was pressed.</p> | | | | | | |
| 1 | <p>When a M1 (TP1) to M6 key is pressed for more than 2 seconds, the frequency currently being received is written to the preset memory corresponding to the pressed key.</p> <p>Auto preset scanning ends when the frequency was written to the preset memory (2 seconds after the key was pressed).</p> | | | | | | |
| <p>When one of the following keys is pressed during preset memory scanning, preset memory scanning stops and the operation of the pressed key is performed.</p> <div style="display: flex; flex-wrap: wrap; justify-content: space-around; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">MAN UP</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">MAN DWN</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">SEEK UP</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">SEEK DWN</div> </div> <div style="display: flex; flex-wrap: wrap; justify-content: space-around; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">SEEK UP</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">SEEK DWN</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">VF</div> </div> <p>Memory call key other than memory being received (held) Band switching key</p> <p>When one of the following keys is pressed during preset memory scanning, after the operation of the pressed key is performed, preset memory scanning is continued.</p> <div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">LOUD</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">LOC(TP4)</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">MONO(TP5)</div> </div> | | | | | | | |

| Symbol | Function | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-----------|------------------------|------------------------|------------------------|------------------------|------------------------|---------------------|---------------------|------|------|---------|-----|-----|-----|-----|-----|-----|-----|------------------|------------------|-----------|----------------|--|------------------------|------------------------|------------------------|------------------------|------------------------|---------------------|---------------------|-----------|------|------|------|------|------|------|------|---------|-----|-----|---------------|-----|-----|-----|------------------|-----------|----------------|--|---------------|-----------------------|-----------------------|-----------------------|---------------------|
| <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 10px;">PSCAN AMEMO</div> | <p>Example) FM band (FM1, M1 = 89.1MHz, M2 = 91.9MHz, M3 = 93.1MHz, M4 = 95.1MHz) M2S=0</p> <p>(2) Auto store memory</p> <p>This operation searches for a broadcast station and writes it to preset memory automatically. Broadcast station search is performed in the up direction, starting from the frequency currently being received.</p> <p>If the preset memory channel which is written is receiving the current preset memory, it is incremented from the preset memory channel being received (from M3 if M3 is being received). If a channel other than a preset memory channel is being received, the preset memory channel which is written is incremented from M1. When broadcast stations are stored up to M6, the auto store memory operation ends. The auto store memory operation broadcast station search method, in the LOCAL mode and DX mode differs as shown below.</p> <p>- DX mode</p> <p>The frequencies are searched in the up direction, starting from the frequency currently received, and ends when the preset memories are written up to M6 or all the search frequencies were searched once.</p> <p>Example 1) USA1, FM band 89.5MHz (M3) reception</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">Frequency</td> <td style="text-align: center;">89.5</td> <td style="text-align: center;">89.6</td> <td style="text-align: center;">Seek</td> <td style="text-align: center;">91.5</td> <td style="text-align: center;">91.9</td> <td style="text-align: center;">94.0</td> <td style="text-align: center;">96.2</td> <td style="text-align: center;">99.5</td> <td style="text-align: center;">91.5</td> </tr> <tr> <td style="text-align: left;">Display</td> <td style="text-align: center;">ch3</td> <td style="text-align: center;">ch3</td> <td style="text-align: center;">ch3</td> <td style="text-align: center;">ch4</td> <td style="text-align: center;">ch4</td> <td style="text-align: center;">ch5</td> <td style="text-align: center;">ch6</td> <td style="text-align: center;">Auto Memory Stop</td> <td style="text-align: center;">Auto Memory Stop</td> </tr> <tr> <td style="text-align: left;">Operation</td> <td colspan="2" style="text-align: center;">PSCAN AMEND</td> <td style="text-align: center;">Station M3 Write</td> <td style="text-align: center;">Station M4 Write</td> <td style="text-align: center;">Station M5 Write</td> <td style="text-align: center;">Station M6 Write</td> <td style="text-align: center;">Station M6 Write</td> <td style="text-align: center;">Auto Memory Stop</td> <td style="text-align: center;">Auto Memory Stop</td> </tr> </table> <p>Example 2) Japan, FM band 78.0 MHz reception</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">Frequency</td> <td style="text-align: center;">78.0</td> <td style="text-align: center;">78.1</td> <td style="text-align: center;">Seek</td> <td style="text-align: center;">90.0</td> <td style="text-align: center;">76.0</td> <td style="text-align: center;">77.9</td> <td style="text-align: center;">78.0</td> </tr> <tr> <td style="text-align: left;">Display</td> <td style="text-align: center;">ch1</td> <td style="text-align: center;">ch1</td> <td style="text-align: center;">NO Station</td> <td style="text-align: center;">ch1</td> <td style="text-align: center;">ch1</td> <td style="text-align: center;">ch1</td> <td style="text-align: center;">Auto Memory Stop</td> </tr> <tr> <td style="text-align: left;">Operation</td> <td colspan="2" style="text-align: center;">PSCAN AMEND</td> <td style="text-align: center;">NO Station</td> <td style="text-align: center;">1 Cycle No Station</td> <td style="text-align: center;">1 Cycle No Station</td> <td style="text-align: center;">1 Cycle No Station</td> <td style="text-align: center;">Auto Memory Stop</td> </tr> </table> <p>For auto store memory in the DX mode. the SD pin broadcast station detection level is :</p> | Frequency | 89.5 | 89.6 | Seek | 91.5 | 91.9 | 94.0 | 96.2 | 99.5 | 91.5 | Display | ch3 | ch3 | ch3 | ch4 | ch4 | ch5 | ch6 | Auto Memory Stop | Auto Memory Stop | Operation | PSCAN AMEND | | Station M3 Write | Station M4 Write | Station M5 Write | Station M6 Write | Station M6 Write | Auto Memory Stop | Auto Memory Stop | Frequency | 78.0 | 78.1 | Seek | 90.0 | 76.0 | 77.9 | 78.0 | Display | ch1 | ch1 | NO Station | ch1 | ch1 | ch1 | Auto Memory Stop | Operation | PSCAN AMEND | | NO Station | 1 Cycle No Station | 1 Cycle No Station | 1 Cycle No Station | Auto Memory Stop |
| Frequency | 89.5 | 89.6 | Seek | 91.5 | 91.9 | 94.0 | 96.2 | 99.5 | 91.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Display | ch3 | ch3 | ch3 | ch4 | ch4 | ch5 | ch6 | Auto Memory Stop | Auto Memory Stop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operation | PSCAN AMEND | | Station M3 Write | Station M4 Write | Station M5 Write | Station M6 Write | Station M6 Write | Auto Memory Stop | Auto Memory Stop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Frequency | 78.0 | 78.1 | Seek | 90.0 | 76.0 | 77.9 | 78.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Display | ch1 | ch1 | NO Station | ch1 | ch1 | ch1 | Auto Memory Stop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operation | PSCAN AMEND | | NO Station | 1 Cycle No Station | 1 Cycle No Station | 1 Cycle No Station | Auto Memory Stop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Symbol | Function | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|---|---|---|--|----|--|--|----|----|----|------|------|---|--|----------|-------------------|---------------------------|-----------------------|-------------------|---------------------------|-----------------------|----------------|---------------------------|-----------------------|----------|-------------------|---------------------------|-----------------------|-------------------|---------------------------|-----------------------|----------------|---------------------------|-----------------------|
| | <table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width:15%;">Band</th> <th colspan="2">Lowest voltage to Determine the Presence of Station</th> </tr> </thead> <tbody> <tr> <td>FM</td> <td colspan="2" rowspan="4" style="text-align: center; vertical-align: middle;"> $12.5 / 64 \times V_{DD}$ 0.977 V at $V_{DD} = 5V$ </td> </tr> <tr><td>MW</td></tr> <tr><td>LW</td></tr> <tr><td>VF</td></tr> </tbody> </table> <p>- LOCAL mode</p> <p>The frequencies are searched in the up direction, starting from the frequency currently being received. In the LOCAL mode, the SD detection level is changed and the frequencies are searched twice. In the DX mode, the frequencies are searched once.</p> <p>When the preset memories are written up to M6 during this time or at the end of 3 searches, the auto store memory operation ends.</p> <p>Example) Europe, AM band 1422 kHz reception</p> <div style="display: flex; align-items: flex-start;"> <div style="width: 10%; padding-right: 10px;"> Frequency Display Operation </div> <div style="flex-grow: 1;"> </div> </div> <p style="margin-left: 100px;">Station M1 Write</p> <p style="margin-left: 100px;">(LOCAL, 1st Time)</p> <p style="margin-left: 100px;">(LOCAL, 2nd Time)</p> <p style="margin-left: 100px;">(DX 1st Time)</p> <p style="margin-left: 100px;">Station M2 Write</p> <p style="margin-left: 100px;">Auto Memory Stop</p> <p>The SD detection level for LOCAL mode auto store memory is :</p> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width:10%;">Band</th> <th style="width:10%;">Mode</th> <th colspan="2">Lowest voltage judged a broadcast station</th> </tr> </thead> <tbody> <tr> <td rowspan="3">FM VF</td> <td>LOCAL 1st time</td> <td style="text-align: center;">$44.5 / 64 \times V_{DD}$</td> <td style="text-align: center;">3.447V at $V_{DD}=5V$</td> </tr> <tr> <td>LOCAL 2nd time</td> <td style="text-align: center;">$28.5 / 64 \times V_{DD}$</td> <td style="text-align: center;">2.227V at $V_{DD}=5V$</td> </tr> <tr> <td>DX 1st time</td> <td style="text-align: center;">$12.5 / 64 \times V_{DD}$</td> <td style="text-align: center;">0.977V at $V_{DD}=5V$</td> </tr> <tr> <td rowspan="3">MW LW</td> <td>LOCAL 1st time</td> <td style="text-align: center;">$18.5 / 64 \times V_{DD}$</td> <td style="text-align: center;">1.445V at $V_{DD}=5V$</td> </tr> <tr> <td>LOCAL 2nd time</td> <td style="text-align: center;">$15.5 / 64 \times V_{DD}$</td> <td style="text-align: center;">1.211V at $V_{DD}=5V$</td> </tr> <tr> <td>DX 1st time</td> <td style="text-align: center;">$12.5 / 64 \times V_{DD}$</td> <td style="text-align: center;">0.997V at $V_{DD}=5V$</td> </tr> </tbody> </table> | Band | Lowest voltage to Determine the Presence of Station | | FM | $12.5 / 64 \times V_{DD}$ 0.977 V at $V_{DD} = 5V$ | | MW | LW | VF | Band | Mode | Lowest voltage judged a broadcast station | | FM VF | LOCAL 1st time | $44.5 / 64 \times V_{DD}$ | 3.447V at $V_{DD}=5V$ | LOCAL 2nd time | $28.5 / 64 \times V_{DD}$ | 2.227V at $V_{DD}=5V$ | DX 1st time | $12.5 / 64 \times V_{DD}$ | 0.977V at $V_{DD}=5V$ | MW LW | LOCAL 1st time | $18.5 / 64 \times V_{DD}$ | 1.445V at $V_{DD}=5V$ | LOCAL 2nd time | $15.5 / 64 \times V_{DD}$ | 1.211V at $V_{DD}=5V$ | DX 1st time | $12.5 / 64 \times V_{DD}$ | 0.997V at $V_{DD}=5V$ |
| Band | Lowest voltage to Determine the Presence of Station | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FM | $12.5 / 64 \times V_{DD}$ 0.977 V at $V_{DD} = 5V$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Band | Mode | Lowest voltage judged a broadcast station | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FM VF | LOCAL 1st time | $44.5 / 64 \times V_{DD}$ | 3.447V at $V_{DD}=5V$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| MW LW | LOCAL 1st time | $18.5 / 64 \times V_{DD}$ | 1.445V at $V_{DD}=5V$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LOCAL 2nd time | $15.5 / 64 \times V_{DD}$ | 1.211V at $V_{DD}=5V$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | DX 1st time | $12.5 / 64 \times V_{DD}$ | 0.997V at $V_{DD}=5V$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

PSCAN
AMEMO

| Symbol | Function | | | | | | |
|---|--|---------|-----------|--|--|--|--|
| <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 10px;">PSCAN AMEMO</div> | <p>When the auto local function is used, each time the PSCAN AMEMO key is pressed, the local mode is switched as shown below.</p> <p>LOCAL1 --> LOCAL2 --> DX --> auto memory stop</p> <p>When the local mode is switched, the auto memory operation is repeated from the frequency at which is started. When the auto memory operation was stopped, if even one broadcast station was written, operation shifts automatically from the preset memory when the auto memory operation started to preset scan operation.</p> | | | | | | |
| <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 10px;">SEEK UP</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-top: 10px;">SEEK DWN</div> | <p>Autotuning (seek operation) key.</p> <p>The frequencies are incremented (SEEK UP key) or decremented (SEEK DOWN key) in 1 channel space and whether or not there is a broadcast station (IF count and SD signal) is detected at each receiving frequency and when there is a broadcast station, that frequency is held. On the VF band, when there is judged to be a broadcast station by IF count and SD signal the SK switch is checked 250 to 375 ms later and if there is an SK signal, that frequency is held. When seek up (seek down) reaches the highest (lowest) frequency, it, returns to the lowest (highest) frequency and, that is, sawtooth wave mode tuning is performed. The channel seek up (seek down) operation is shown below:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center; border-bottom: 1px solid black;">Seek Up</th> <th style="width: 50%; text-align: center; border-bottom: 1px solid black;">Seek Down</th> </tr> </thead> <tbody> <tr> <td style="border-right: 1px solid black; vertical-align: top; padding: 5px;"> </td> <td style="vertical-align: top; padding: 5px;"> </td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 10px;"> <p>For the S(slow) and F(fast) IF count conditions, see the FMIF pin and AMIF pin above. For the 1 channel space frequency width, see the receiving frequencies above.</p> </td> </tr> </tbody> </table> </div> | Seek Up | Seek Down | | | <p>For the S(slow) and F(fast) IF count conditions, see the FMIF pin and AMIF pin above. For the 1 channel space frequency width, see the receiving frequencies above.</p> | |
| Seek Up | Seek Down | | | | | | |
| | | | | | | | |
| <p>For the S(slow) and F(fast) IF count conditions, see the FMIF pin and AMIF pin above. For the 1 channel space frequency width, see the receiving frequencies above.</p> | | | | | | | |

| Symbol | Function | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|-----------|---|---|---------|--|----------|--|---------------------|---|---------------------|--|------|---|----------------------|---|----|--|---------------|--|---------------------------------|---|
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">SEEK UP</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">SEEK DWN</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">SEEK UP</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">SEEK DWN</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">MAN UP</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">MAN DWN</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">BAND</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">M1 (TP1) to M6</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">VF</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">PSCAN MEMO</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">LOUD</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">LOC (TP4)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">MONO (TP5)</div> | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Key</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td> <p>Even if the presence of a station is determined, tuning does not stop at its frequency when the keys are held down.</p> <p>Example : FM band</p> <p>RDMUTE pin</p> <p>Tuned-in frequency (MHz)</p> <p>Auto-tuning does not stop even when a station is detected.</p> <p>Auto-tuning stops when a station is detected</p> </td> </tr> <tr> <td style="text-align: center;">SEEK UP</td> <td>- SEEK UP Key during Seek-up and SEEK DWN Key during seek-down The seek stops and auto-tuning returns to the frequency with which the seek started.</td> </tr> <tr> <td style="text-align: center;">SEEK DWN</td> <td>- SEEK DWN key during seek-up and SEEK UP key during seek-down The operation of the key pressed (seek-down if pressed during seek-up) is initiated, starting with the frequency tuned in when the key is pressed. The between-key operation is also enabled.</td> </tr> <tr> <td style="text-align: center;">SEEK UP SEEK DWN</td> <td>Scan-up(Scan-down) with the frequency tuned in when the key is pressed.</td> </tr> <tr> <td style="text-align: center;">SEEK UP SEEK DWN</td> <td>The seek stops and auto-tuning returns to the frequency with which the seek started.</td> </tr> <tr> <td style="text-align: center;">BAND</td> <td>The seek stops and the new band is selected in the following sequence. <p>The bands inhibited in the particular reception area and by DISFM3, ENMW2, DISLW switches are skipped. Tuning returns to the frequency with which the seek started when the original band is selected.</p> </td> </tr> <tr> <td style="text-align: center;">M1 (TP1) to M6</td> <td>Regardless of the setting of the M2S switch, the contents are called for the preset memory associated with any key pressed.</td> </tr> <tr> <td style="text-align: center;">VF</td> <td>The seek stops and the key operation starts.</td> </tr> <tr> <td style="text-align: center;">PSCAN MEMO</td> <td>The seek stops and the preset-scan starts.</td> </tr> <tr> <td style="text-align: center;">LOUD LOC (TP4) MONO (TP5)</td> <td>The operations of the keys pressed are initiated. The seek continues.</td> </tr> </tbody> </table> | Key | Operation | 1 | <p>Even if the presence of a station is determined, tuning does not stop at its frequency when the keys are held down.</p> <p>Example : FM band</p> <p>RDMUTE pin</p> <p>Tuned-in frequency (MHz)</p> <p>Auto-tuning does not stop even when a station is detected.</p> <p>Auto-tuning stops when a station is detected</p> | SEEK UP | - SEEK UP Key during Seek-up and SEEK DWN Key during seek-down The seek stops and auto-tuning returns to the frequency with which the seek started. | SEEK DWN | - SEEK DWN key during seek-up and SEEK UP key during seek-down The operation of the key pressed (seek-down if pressed during seek-up) is initiated, starting with the frequency tuned in when the key is pressed. The between-key operation is also enabled. | SEEK UP SEEK DWN | Scan-up(Scan-down) with the frequency tuned in when the key is pressed. | SEEK UP SEEK DWN | The seek stops and auto-tuning returns to the frequency with which the seek started. | BAND | The seek stops and the new band is selected in the following sequence. <p>The bands inhibited in the particular reception area and by DISFM3, ENMW2, DISLW switches are skipped. Tuning returns to the frequency with which the seek started when the original band is selected.</p> | M1 (TP1) to M6 | Regardless of the setting of the M2S switch, the contents are called for the preset memory associated with any key pressed. | VF | The seek stops and the key operation starts. | PSCAN MEMO | The seek stops and the preset-scan starts. | LOUD LOC (TP4) MONO (TP5) | The operations of the keys pressed are initiated. The seek continues. |
| | Key | Operation | | | | | | | | | | | | | | | | | | | | | |
| | 1 | <p>Even if the presence of a station is determined, tuning does not stop at its frequency when the keys are held down.</p> <p>Example : FM band</p> <p>RDMUTE pin</p> <p>Tuned-in frequency (MHz)</p> <p>Auto-tuning does not stop even when a station is detected.</p> <p>Auto-tuning stops when a station is detected</p> | | | | | | | | | | | | | | | | | | | | | |
| | SEEK UP | - SEEK UP Key during Seek-up and SEEK DWN Key during seek-down The seek stops and auto-tuning returns to the frequency with which the seek started. | | | | | | | | | | | | | | | | | | | | | |
| | SEEK DWN | - SEEK DWN key during seek-up and SEEK UP key during seek-down The operation of the key pressed (seek-down if pressed during seek-up) is initiated, starting with the frequency tuned in when the key is pressed. The between-key operation is also enabled. | | | | | | | | | | | | | | | | | | | | | |
| | SEEK UP SEEK DWN | Scan-up(Scan-down) with the frequency tuned in when the key is pressed. | | | | | | | | | | | | | | | | | | | | | |
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| | VF | The seek stops and the key operation starts. | | | | | | | | | | | | | | | | | | | | | |
| PSCAN MEMO | The seek stops and the preset-scan starts. | | | | | | | | | | | | | | | | | | | | | | |
| LOUD LOC (TP4) MONO (TP5) | The operations of the keys pressed are initiated. The seek continues. | | | | | | | | | | | | | | | | | | | | | | |


| Symbol | Function | | | | | | | | | | |
|---|---|-----|-----------|--|---|--|--|--|---|--|---|
| <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="border: 1px solid black; padding: 2px; width: fit-content;">SCAN UP</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;">SCAN DWN</div> </div> | <p>Auto tuning (scan operation) key.</p> <p>The frequencies are searched up (SCAN UP key) or down (SCAN DWN key) in 1 channel steps and whether or not there is a broadcast station (IF count and SD signal) is detected at each receiving frequency and when a broadcast station is judged to be present, that frequency is held for 5 seconds. On the VF band, whether or not there is an SK signal is detected as well as seek operation. If no operation is performed during this 5 seconds, the seek operation is repeated and the next broadcast station is received sequentially every 5 seconds (scan operation). During this 5 seconds hold, the frequency display flashes at 1 Hz (duty 50%). At the end of the 5 seconds hold. BEEP is output.</p> <p>Seek operations (channel up/down method, AUTOSTP switch and IF count, SD detection, SK signal detection) are the same as the SEEK UP and SEEK DWN keys. When the radio is turned off (including mode switching) and then turned on, the frequency held last (when there is not even 1 broadcast station, the frequency when the scan operation started) is received.</p> <p>The operation of each key during seek operation (other than at 5 seconds hold) is shown below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%; text-align: center;">Key</th> <th style="text-align: center;">Operation</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="border: 1px solid black; padding: 2px; width: fit-content;">SCAN UP</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;">SCAN DWN</div> </div> </td> <td> <p>- SCAN UP key during scan up and SCAN DWN key during scan down</p> <p>Scanning stops and returns to the frequency held last.</p> <p>However, when the auto local function is used, the local mode is switched</p> <p>- SCAN DWN key during scan up and SCAN UP key during scan down</p> <p>Operation shifts to operation of the pressed key from the frequency when the key was pressed.</p> </td> </tr> <tr> <td style="vertical-align: top;"> <div style="display: flex; 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| | <p>When a M1(TP1) to M6 key is pressed in the memory writable state, data is written to the present memory corresponding to the pressed key.</p> | | | | | | | | | | | | | | |
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; width: fit-content;">VF</div> | Scanning is canceled and the key operation is performed. | | | | | | | | | | | | | | |
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; width: fit-content;">PSCAN</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; width: fit-content;">AMEMO</div> | Scanning is canceled and the key operation is performed. | | | | | | | | | | | | | | |
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; width: fit-content;">LOUD</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; width: fit-content;">LOC(TP4)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; width: fit-content;">MONO(TP5)</div> | The operation of the pressed key is performed. Scanning continues. | | | | | | | | | | | | | | |

| Symbol | Function | | | | |
|---|--|-----|-----------|---|---|
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">SCAN UP</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">SCAN DWN</div> | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Key</th> <th style="width: 85%;">Operation</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top; padding: 5px;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M1 (TP1)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M2 (TP2)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M3 (TP3)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M4</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M5</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M6</div> </td> <td style="padding: 5px;"> <ul style="list-style-type: none"> • When M2S switch = 0 <ul style="list-style-type: none"> - Memory unwritable state. The scanning operation is canceled and the preset memory contents corresponding to the pressed key is called. - Memory writable state (See the ME Key below.) The held frequency is written to the preset memory corresponding to the pressed key and the memory writable state is canceled. Then, the hold state is held for 2 seconds. If an operation is not performed during this time, the next station is searched. <div style="margin-top: 10px;"> <p>(Example)</p> </div> <ul style="list-style-type: none"> • When M2S switch = 1 <ul style="list-style-type: none"> - When key released within 2 seconds The preset memory contents corresponding to the pressed key are called and the scan operation is reset the moment the key is released. <div style="margin-top: 10px;"> <p>(Example)</p> </div> <ul style="list-style-type: none"> - When key pressed for more than 2 seconds <p>The held frequency is written to the preset memory corresponding to the pressed key 2 seconds after the key has been passed for 2 seconds. 2 seconds after the end of writing, hold ends and the next station is searched (seek operation).</p> <div style="margin-top: 10px;"> <p>(Example)</p> </div> </td> </tr> </tbody> </table> | Key | Operation | <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M1 (TP1)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M2 (TP2)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M3 (TP3)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M4</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M5</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M6</div> | <ul style="list-style-type: none"> • When M2S switch = 0 <ul style="list-style-type: none"> - Memory unwritable state. The scanning operation is canceled and the preset memory contents corresponding to the pressed key is called. - Memory writable state (See the ME Key below.) The held frequency is written to the preset memory corresponding to the pressed key and the memory writable state is canceled. Then, the hold state is held for 2 seconds. If an operation is not performed during this time, the next station is searched. <div style="margin-top: 10px;"> <p>(Example)</p> </div> <ul style="list-style-type: none"> • When M2S switch = 1 <ul style="list-style-type: none"> - When key released within 2 seconds The preset memory contents corresponding to the pressed key are called and the scan operation is reset the moment the key is released. <div style="margin-top: 10px;"> <p>(Example)</p> </div> <ul style="list-style-type: none"> - When key pressed for more than 2 seconds <p>The held frequency is written to the preset memory corresponding to the pressed key 2 seconds after the key has been passed for 2 seconds. 2 seconds after the end of writing, hold ends and the next station is searched (seek operation).</p> <div style="margin-top: 10px;"> <p>(Example)</p> </div> |
| Key | Operation | | | | |
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M1 (TP1)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M2 (TP2)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M3 (TP3)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M4</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M5</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">M6</div> | <ul style="list-style-type: none"> • When M2S switch = 0 <ul style="list-style-type: none"> - Memory unwritable state. The scanning operation is canceled and the preset memory contents corresponding to the pressed key is called. - Memory writable state (See the ME Key below.) The held frequency is written to the preset memory corresponding to the pressed key and the memory writable state is canceled. Then, the hold state is held for 2 seconds. If an operation is not performed during this time, the next station is searched. <div style="margin-top: 10px;"> <p>(Example)</p> </div> <ul style="list-style-type: none"> • When M2S switch = 1 <ul style="list-style-type: none"> - When key released within 2 seconds The preset memory contents corresponding to the pressed key are called and the scan operation is reset the moment the key is released. <div style="margin-top: 10px;"> <p>(Example)</p> </div> <ul style="list-style-type: none"> - When key pressed for more than 2 seconds <p>The held frequency is written to the preset memory corresponding to the pressed key 2 seconds after the key has been passed for 2 seconds. 2 seconds after the end of writing, hold ends and the next station is searched (seek operation).</p> <div style="margin-top: 10px;"> <p>(Example)</p> </div> | | | | |

| Symbol | Function | | | | |
|---|---|-----|-----------|---|---|
| <p style="text-align: center;">BAND</p> | <p>Receiving band selection switch It is valid only in the radio mode. Each time this switch is pressed, the band is switched sequentially as shown below.</p> <div style="text-align: center;"> </div> <p>However, bands disabled by receiving area and DISFM3, ENMW2, and DISLW switches are skipped. When the band is switched (FM1 , FM2 , FM3 , MW1 , MW2) in the same band (FM, MW), the band display and last channel change.</p> <p>When the BAND key is pressed during VF band reception, the VF band is reset and the device returns to the band received last.</p> | | | | |
| <p style="text-align: center;">ME</p> | <p>In the radio mode, during frequency display, this key is used as the preset memory writable state setting key and during clock display (CE = High), this key is used with the MAN UP and MAN DWN keys as the clock adjustment key.</p> <p>When the M2S = 0, this key operates as the preset memory writable state and clock adjustment key.</p> <p>When M2S = 1, this key operates as the preset memory writable state and clock adjustment key.</p> <p>When M2S = 0, use the DISP key to switch the display.</p> <ul style="list-style-type: none"> • Radio mode frequency display <ul style="list-style-type: none"> This key is used as the preset memory writable state setting key. It is valid only when the initialized diode M2S switch is 0. When this key is pressed, the device enters the preset memory writable state for 5 seconds and the current receiving frequency is written to the preset memory corresponding to the pressed key by pressing the M1(TP1) to M6 key. If the ME key is pressed continuously at this time, the write operation is not performed. During the preset memory writable state, the "ch" display flashes at 1 Hz (duty 50%). If preset memory is being received, the preset memory number flashes also. This key is invalid during the seek operation (including seek operation at scanning). However, it is valid at 5 seconds hold during the preset memory scan and scan operations. Each key operation in the preset memory writable state is shown below. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Key</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; display: inline-block;">M1(TP1)</div> to <div style="border: 1px solid black; padding: 2px; display: inline-block;">M6</div> </td> <td>The frequency being received when a key is pressed is written to the preset memory corresponding to the pressed key. Muting is not output.</td> </tr> </tbody> </table> | Key | Operation | <div style="border: 1px solid black; padding: 2px; display: inline-block;">M1(TP1)</div> to <div style="border: 1px solid black; padding: 2px; display: inline-block;">M6</div> | The frequency being received when a key is pressed is written to the preset memory corresponding to the pressed key. Muting is not output. |
| Key | Operation | | | | |
| <div style="border: 1px solid black; padding: 2px; display: inline-block;">M1(TP1)</div> to <div style="border: 1px solid black; padding: 2px; display: inline-block;">M6</div> | The frequency being received when a key is pressed is written to the preset memory corresponding to the pressed key. Muting is not output. | | | | |

| Symbol | Function | | | | | | | | | | | | | |
|--|---|--|---|----------|--|----------------|---------|----------|---------|------|--------|---------|------|--|
| | <table border="1"> <thead> <tr> <th>Key</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>VF</td> <td rowspan="9">Preset memory write mode is reset and each key operation is performed.</td> </tr> <tr> <td>PSCAN AMEMO</td> </tr> <tr> <td>SEEK UP</td> </tr> <tr> <td>SEEK DWN</td> </tr> <tr> <td>SCAN UP</td> </tr> <tr> <td>SCAN</td> </tr> <tr> <td>MAN UP</td> </tr> <tr> <td>MAN DWN</td> </tr> <tr> <td>DISP</td> </tr> </tbody> </table> | Key | Operation | VF | Preset memory write mode is reset and each key operation is performed. | PSCAN AMEMO | SEEK UP | SEEK DWN | SCAN UP | SCAN | MAN UP | MAN DWN | DISP | <p>The preset memory writable state is reset and the band is switched sequentially as shown below.</p>  <p>However, bands disabled by receiving area and DISFM3, ENMW2 and DISLW switches are skipped.</p> |
| Key | Operation | | | | | | | | | | | | | |
| VF | Preset memory write mode is reset and each key operation is performed. | | | | | | | | | | | | | |
| PSCAN AMEMO | | | | | | | | | | | | | | |
| SEEK UP | | | | | | | | | | | | | | |
| SEEK DWN | | | | | | | | | | | | | | |
| SCAN UP | | | | | | | | | | | | | | |
| SCAN | | | | | | | | | | | | | | |
| MAN UP | | | | | | | | | | | | | | |
| MAN DWN | | | | | | | | | | | | | | |
| DISP | | | | | | | | | | | | | | |
| ME | ME | The preset memory writable state is reset. | | | | | | | | | | | | |
| | <table border="1"> <tbody> <tr> <td>LOUD</td> <td rowspan="3">The preset memory writable state is held and each key operation is performed.</td> </tr> <tr> <td>LOC(TP4)</td> </tr> <tr> <td>MONO(TP)</td> </tr> </tbody> </table> | LOUD | The preset memory writable state is held and each key operation is performed. | LOC(TP4) | MONO(TP) | | | | | | | | | |
| LOUD | The preset memory writable state is held and each key operation is performed. | | | | | | | | | | | | | |
| LOC(TP4) | | | | | | | | | | | | | | |
| MONO(TP) | | | | | | | | | | | | | | |
| <p>Keys other than those described above (except the POWER key) are invalid.</p> <p>When the radio is turned off and then turned back on (including tape and CD mode switching) in the preset memory writable state, the writable state is released.</p> <ul style="list-style-type: none"> • Clock display <ul style="list-style-type: none"> This key is used as the time adjustment key. The minute and hour digits are adjusted as shown below by pressing the MAN UP and MAN DWN keys while pressing the ME key - Hour adjustment <ul style="list-style-type: none"> The hour is advanced one hour each time the MAN DWN key is pressed. When the key is held down for more than 0.5 seconds, the hour changes continuously at a speed of 4 hours/sec (1 hour in 250 ms) until the key is released. The minute digit and seconds count are not affected. - Minute digit adjustment <ul style="list-style-type: none"> The minute digit is advanced one minute each time the MAN UP key is pressed. When the key held down for more than 0.5 seconds, the minute digit changes at a speed of 8 minutes/sec (1 minute in 125 ms) until the key is released. Carry to the hour digit is not performed. Each time the minute digit is adjusted, the seconds count is reset. | | | | | | | | | | | | | | |

| Symbol | Function | | | | |
|--|---|---------|-------------|---|---|
| <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; width: fit-content;">MAN UP</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; width: fit-content;">MAN DWN</div> | <p>In the radio mode, these keys are used as the receiving frequency up/down keys. During clock display these keys are used with the ME key as the clock adjustment keys. Their operation is shown below.</p> <ul style="list-style-type: none"> • Radio mode <ul style="list-style-type: none"> These keys operate as shown below, depending on the setting of the initialized diode matrix AUTO 500 switch. - Operation by AUTO 500 switch <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 15%; text-align: center;">AUTO500</th> <th style="text-align: center;">Description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: top;">0</td> <td style="padding: 5px;"> <p>Each time a key is pressed, the frequency is incremented (MAN UP key) or decremented (MAN DWN key) one step (1 channel space). When the key is held down for approx. 0.5 seconds, the frequency changes continuously at a speed of approx. 50 ms per step until the key is released.</p> <p>Example 1) When key released within 0.5 seconds</p> <p>Example 2) When key held down for more than 0.5 seconds</p> </td> </tr> </tbody> </table> | AUTO500 | Description | 0 | <p>Each time a key is pressed, the frequency is incremented (MAN UP key) or decremented (MAN DWN key) one step (1 channel space). When the key is held down for approx. 0.5 seconds, the frequency changes continuously at a speed of approx. 50 ms per step until the key is released.</p> <p>Example 1) When key released within 0.5 seconds</p> <p>Example 2) When key held down for more than 0.5 seconds</p> |
| AUTO500 | Description | | | | |
| 0 | <p>Each time a key is pressed, the frequency is incremented (MAN UP key) or decremented (MAN DWN key) one step (1 channel space). When the key is held down for approx. 0.5 seconds, the frequency changes continuously at a speed of approx. 50 ms per step until the key is released.</p> <p>Example 1) When key released within 0.5 seconds</p> <p>Example 2) When key held down for more than 0.5 seconds</p> | | | | |

| Symbol | Function |
|---|--|
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">AUTO500</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">1</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">MAN UP</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">MAN DWN</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; width: fit-content;">LOUD</div> | <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;">Function</p> <p style="margin: 5px 0;">DESCRIPTION</p> <p>Each time a key is pressed, the frequency is incremented (MAN UP Key) or decremented (MAN DWN key) one step. When the key is held down for more than 0.5 seconds, the seek operation (seek up for MAN UP and seek down for MAN DWN) starts at the point after 0.5 seconds. This seek operation is the same as that of the SEEK UP and SEEK DWN keys. After the key was held down for more than 0.5 seconds, the seek operation continues even if the key is released.</p> <p>Example 1) When key released within 0.5 seconds</p> <p>Example 2) When key held down for more than 0.5 seconds</p> <p>IF and SD check is not performed at the first 1 channel up.</p> <p>When the AUTO 500 switch was set to 1, do not use the SEEK UP and SEEK DWN keys.</p> <p>. During clock display When the clock is displayed and the ME key was pressed and held, the minute and hour digits are adjusted by pressing the MAN UP and MAN DWN keys. For a description of the minute and hour digits adjustment method, see the ME key above.</p> <p>LOUD (LOUDNESS) control key. It is valid in the radio, tape and CD modes. Each time this key is pressed, the LCD panel "LOUD" display and the LOUD pin (pin 19) output are inverted. The LOUD state is held even when radio, tape and CD mode switching is performed. When the power is turned on, the OFF state is set ("LOUD" display OFF, LOUD pin Low level).</p> </div> |

| Symbol | Function |
|-----------|---|
| LOC(TP4) | <p>The LOC(TP4) key is used as a LOCAL(LOCAL/DX) control key when in the radio mode and as a tape function key when in the tape mode in conjunction with initialization diode switches.</p> <ul style="list-style-type: none"> - In the radio mode <p>The LCD Panel "LOC" indicator and the output on the LOC pin(pin 10) are inverted each time the key is pressed.</p> <p>A high is output on the LOC pin while the "LOC" indicator is on.</p> <ul style="list-style-type: none"> - In the tape mode <p>The LOC(TP4) key can be used as an AMS, NR(NOISE REDUCTION) or MTL(METAL) function key when the initialization diode switch ENTPK is "i". For the choice between AMS,NR and MTL functions, see the description of the initialization diode switches KAMS, KNR and KMTL.</p> <p>When the AMS, MTL or NR function is selected, the LOC(TP4) key operates the same way as</p> <p style="text-align: center;"> <input type="button" value="AMS"/> , <input type="button" value="MTL"/> , <input type="button" value="NR"/> key </p> <p>See the description of these keys.</p> |
| MONO(TP5) | <p>In the radio mode, this key is used as the MONO control key. In the tape mode, this key is used as the tape function key by the initialized diode.</p> <ul style="list-style-type: none"> - Radio mode <p>This key is valid only in FM and VF bands.</p> <p>Each time this key is pressed, the LCD panel "MONO" display and the MONO/NR₂ pin (pin 18) output the inverted. High level is output from the MONO/NR₂ pin while "MONO" is displayed. When the power is turned on, the OFF state is set ("MONO" display OFF, MONO/NR₂ pin Low level).</p> <ul style="list-style-type: none"> - Tape mode <p>This key can be used as the AMS , MTL or NR function key by the initialized diode ENTPK, KAMS, KNR, and KMTL switches.</p> <p>See the ENTPK, KAMS and KMTL switches items.</p> <p>When the AMS or MTL function is selected, this key operates the same as the <input type="button" value="MTL"/> <input type="button" value="AMS"/> or <input type="button" value="NR"/> key. See the description of each key.</p> <p>In the radio monitor and DK ON modes, this key operates as the MONO control key.</p> |
| MTL | <p>MTL (METAL) control key.</p> <p>This key is valid in the tape mode.</p> <p>Each time this key is pressed, the LCD panel "MTL" display and the MTL pin (pin 21) output are inverted. High level is output from the LOC/MTL pin while "MTL" is displayed.</p> <p>When the power is turned on, the OFF state is set (" MTL" display OFF, MTL pin Low level).</p> |

| Symbol | Function | | | | | | |
|---------------|--|-------|---------------|---|--|---|---|
| <p>MR</p> | <p>NR₁ (NOISE REDUCTION) and NR₂ control key. This key is valid in the tape mode. Its operation depends on the setting of the initialized diode ENNR₂ switch as shown below.</p> <table border="1"> <thead> <tr> <th>ENNR2</th> <th>Key Operation</th> </tr> </thead> <tbody> <tr> <td>0</td> <td> <p>Each time this key is pressed, the LCD panel "NR₁" display and the NR₁ pin (pin 22) output are inverted. High level is output from the NR1 pin while "NR₁" is displayed. When the power is turned on, the OFF state is set ("NR₁ "display OFF, NR₁ pin Low level).</p> </td> </tr> <tr> <td>1</td> <td> <p>Each time this key is pressed, the display and output are switched as shown below.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>*NR₁" display OFF NR₁ pin Low *NR₂" display OFF MONO/NR₂ pin LOW</p> </div> <div style="text-align: center;"> <p>"NR₁" display ON NR₁ pin LOW "NR₂" display ON MONO/NR₂ pin HIGH</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>*NR₁" display ON NR₁ pin High *NR₂" display OFF MONO/NR₂ pin LOW</p> </div> </div> <p>When the power is turned on, NR₁ and NR₂ are both turned off.</p> </td> </tr> </tbody> </table> | ENNR2 | Key Operation | 0 | <p>Each time this key is pressed, the LCD panel "NR₁" display and the NR₁ pin (pin 22) output are inverted. High level is output from the NR1 pin while "NR₁" is displayed. When the power is turned on, the OFF state is set ("NR₁ "display OFF, NR₁ pin Low level).</p> | 1 | <p>Each time this key is pressed, the display and output are switched as shown below.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>*NR₁" display OFF NR₁ pin Low *NR₂" display OFF MONO/NR₂ pin LOW</p> </div> <div style="text-align: center;"> <p>"NR₁" display ON NR₁ pin LOW "NR₂" display ON MONO/NR₂ pin HIGH</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>*NR₁" display ON NR₁ pin High *NR₂" display OFF MONO/NR₂ pin LOW</p> </div> </div> <p>When the power is turned on, NR₁ and NR₂ are both turned off.</p> |
| ENNR2 | Key Operation | | | | | | |
| 0 | <p>Each time this key is pressed, the LCD panel "NR₁" display and the NR₁ pin (pin 22) output are inverted. High level is output from the NR1 pin while "NR₁" is displayed. When the power is turned on, the OFF state is set ("NR₁ "display OFF, NR₁ pin Low level).</p> | | | | | | |
| 1 | <p>Each time this key is pressed, the display and output are switched as shown below.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>*NR₁" display OFF NR₁ pin Low *NR₂" display OFF MONO/NR₂ pin LOW</p> </div> <div style="text-align: center;"> <p>"NR₁" display ON NR₁ pin LOW "NR₂" display ON MONO/NR₂ pin HIGH</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>*NR₁" display ON NR₁ pin High *NR₂" display OFF MONO/NR₂ pin LOW</p> </div> </div> <p>When the power is turned on, NR₁ and NR₂ are both turned off.</p> | | | | | | |
| <p>AMS</p> | <p>AMS (AUTO MUSIC SEARCH) control key. This key is valid in the tape mode. Each time this key is pressed, the LCD panel "AMS" display and the AMS pin (pin 20) output are inverted. High level is output from the AMS pin while "AMS" is displayed. When the AMS pin is high level (AMS mode), if the TPSET switch is ON. the AMS pin holds the high level output even if the mode is switched to the CD or radio mode. When the power is turned on, AMS is turned off ("AMS" display OFF, AMS pin Low level).</p> | | | | | | |
| <p>RDMONI</p> | <p>Radio monitor key. This key is valid in the tape and CD modes. Each time this key is pressed, the radio monitor mode is inverted. In the radio monitor mode, the LCD panel "RDMONI" display lights. In the radio monitor mode. all band tuning operations are possible and radio muting (RDMUTE pin) is turned off and audio muting (AMUTE pin) is turned on.</p> | | | | | | |

| Symbol | Function | | | |
|---|---|--|---|---|
| <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 10px;">DISP</div> | <p>Display switching key.</p> <p>This key is valid when the initialized diode NOCLK = 0 (clock), M2S = 0</p> <p>The display switching operation is shown below.</p> <ul style="list-style-type: none"> • Radio mode <p>Each time this key is pressed, the frequency display and clock display are switched.</p> <p>This key is invalid at seek, scan and auto preset scan.</p> <p>Operation according to the setting of the initialized diode PRIO1 and PRIO2 switches is shown below.</p> | | | |
| | PRIO1 | PRIO2 | Priority Display | Description |
| | 0 | 0 | None | Each time the DISP key is pressed, the frequency display and clock display are switched. |
| | 0 | 1 | Frequency display | When the DISP key is pressed during frequency display, the clock is displayed for 5 seconds. When the DISP key is pressed during the 5 seconds clock display, the display returns to the frequency display. |
| 1 | 0 | Clock display | When the DISP key is pressed during clock display, the frequency display is displayed for 5 seconds. When the DISP key is pressed during the 5 seconds frequency display, the display returns to the clock display. | |
| <p>When the device is switched to the radio mode, display starts from frequency display.</p> <ul style="list-style-type: none"> • Tape mode <p>The DISP Key is invalid.</p> <ul style="list-style-type: none"> • CD mode <p>Each time this key is pressed, the " Cd " display and clock display are switched.</p> <p>Operation according to the setting of the initialized diodes PRIO1 and PRIO2 is shown below.</p> | | | | |
| PRIO1 | PRIO1 | Priority Display | Description | |
| 0 | 0 | None | Each time the DISP key is pressed, the " Cd " display and clock display are switched. | |
| 0 | 1 | " Cd " display | When the DISP key is pressed, during " Cd " display, the clock is displayed for 5 seconds. When the DISP key is pressed during the 5 seconds clock display, the display returns to the " Cd " display. | |
| 1 | 0 | Clock | When the DISP key is pressed during clock display, the " Cd " display is displayed for 5 seconds. When the DISP key is pressed during the 5 seconds " Cd " display, the display returns to the " Cd " display. | |
| <p>When the device is switched to the CD mode, display starts from " Cd " display.</p> | | | | |

| Symbol | Function |
|--|---|
| <p>POWER</p> | <p>This key is used when turning the radio ON and OFF momentary key, controlling the illumination, etc.</p> <p>This key is valid only when the CE pin is High.</p> <p>The POWER pin (pin 23) output is inverted by pressing this key.</p> <p>When using this key, set the RDON switch (diode matrix) to 0.</p> <p>The radio is turned on and off by turning the transistor switch RDON ON and OFF with the output of the POWER pin.</p> <p>For details, see "Mode Transition" and "Application Circuits".</p> |

2.4.2 Alternate or transistor Switch

| Symbol | Function | | | | | | | | | | | | | |
|--------|--|---------|----|---------|---|---|---|---|---|---|---|---|---|---|
| CDSET | <p>CD mode setting switch. This switch is valid only when the CE pin is high level. The CD mode can be set by setting this switch to ON. For details, see "Mode Transition".</p> | | | | | | | | | | | | | |
| TPSET | <p>Tape mode setting switch. This switch is valid only when the CE pin is high level. When this switch is set to ON when the CDSET is OFF, the device is set to the tape mode. For details, see "Mode Transition".</p> | | | | | | | | | | | | | |
| RDSET | <p>Radio mode setting switch. This switch is valid only when the CE pin is high level. When this switch is set to ON when the CDSET and TPSET switches are OFF, the device is set to the radio mode. For details, see "Mode Transition". When using this switch, set the RDON switch (diode matrix) to 0.</p> | | | | | | | | | | | | | |
| FF | <p>Tape mode fast forward signal input switch. The tape fast forward display (◀ ▶) lights as shown below according to the state of the RL switch.</p> <table border="1"> <thead> <tr> <th>FF</th> <th>RL</th> <th>Display</th> </tr> </thead> <tbody> <tr> <td rowspan="2">0</td> <td>0</td> <td>◀</td> </tr> <tr> <td>1</td> <td>▶</td> </tr> <tr> <td rowspan="2">1</td> <td>0</td> <td>◁</td> </tr> <tr> <td>1</td> <td>▷</td> </tr> </tbody> </table> <p>◀: Light ON, ◁:Flash(2Hz) 0:OFF, 1:ON</p> | FF | RL | Display | 0 | 0 | ◀ | 1 | ▶ | 1 | 0 | ◁ | 1 | ▷ |
| FF | RL | Display | | | | | | | | | | | | |
| 0 | 0 | ◀ | | | | | | | | | | | | |
| | 1 | ▶ | | | | | | | | | | | | |
| 1 | 0 | ◁ | | | | | | | | | | | | |
| | 1 | ▷ | | | | | | | | | | | | |
| SK | <p>VF broadcast station SK signal input switch. When this switch is set to ON on the FM and VF bands, the LCD panel "SK" display lights. On the FM and VF bands this signal is also used as the auto tuning stop signal. At this time, 250 to 375 ms after the broadcast station is judged to be present by IF and SD pin, this switch is checked and if it is ON, a traffic information station is judged to be present and autotuning stops.</p> | | | | | | | | | | | | | |
| RL | <p>Tape mode travel direction signal input switch. The tape display (◁ ▷) lights according to the state of the FF switch. For the lighting contents, see the FF switch above.</p> | | | | | | | | | | | | | |
| DK | <p>VF broadcast station DK signal input switch. When this switch is set to ON in the tape DK standby and CD DK standby models, the device enters the tape DK ON and CD DK ON mode.</p> | | | | | | | | | | | | | |
| ST | <p>Switch used to enable "ST" display in the radio mode. "ST" display on the LCD panel lights by turning on the switch</p> | | | | | | | | | | | | | |

2.4.3 Diode Matrix

| Symbol | Function | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------|--|-------|---------------------------|---------------------|-------|-----------------|--------------------|---|---------|---|--------------------|---|---------|---|-----------------|---|---------|---|---------------------|---|---------|---|----------------|---|---------|---|--------------|---|------------------------|---|-----------------|-------------|-------|---|---|-----------------|---------------------------|---|---|---------------------|---|---|---|-------------|---|---|---|-----------------|
| AREA1 AREA2 AREA3 | <p>Receiving area setting switch. Its setting is shown below. For the receiving frequencies, etc, at each area, see page 2.</p> <table border="1"> <thead> <tr> <th>AREA3</th> <th>AREA3</th> <th>AREA3</th> <th>MODE</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>Europe1</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>Europe2</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>U.S.A 1</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>U.S.A 2</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>U.S.A 3</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>Australia, Middle East</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>Japan</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> <td>Central and South America</td> </tr> </tbody> </table> | AREA3 | AREA3 | AREA3 | MODE | 0 | 0 | 0 | Europe1 | 0 | 0 | 1 | Europe2 | 0 | 1 | 0 | U.S.A 1 | 0 | 1 | 1 | U.S.A 2 | 1 | 0 | 0 | U.S.A 3 | 1 | 0 | 1 | Australia, Middle East | 1 | 1 | 0 | Japan | 1 | 1 | 1 | Central and South America | | | | | | | | | | | |
| AREA3 | AREA3 | AREA3 | MODE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | 0 | Europe1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | 1 | Europe2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 0 | U.S.A 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 1 | U.S.A 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | 0 | U.S.A 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | 1 | Australia, Middle East | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | 0 | Japan | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | 1 | Central and South America | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DISFM3 ENMW2 DISLW | <p>Receiving band setting switch. Its setting is shown below</p> <ul style="list-style-type: none"> . DISFM3 FM3 band is disabled by setting to 1. . ENMW2..... MW2 band is enabled by setting to 1. . DISLW..... In Europe, the LW band is disabled by setting to 1. <p style="text-align: center;">The DISLW switch is invalid in areas outside of Europe.</p> <p>The receiving bands for each area are set with these switches as shown below.</p> <table border="1"> <thead> <tr> <th>AREA</th> <th>DISFM3</th> <th>ENMW2</th> <th>DISLW</th> <th>Receiving Bands</th> </tr> </thead> <tbody> <tr> <td rowspan="6">Europe1 Europe2</td> <td>0</td> <td>0</td> <td>0</td> <td>FM1,FM2,FM3,MW1,LW</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>FM1,FM2,FM3,MW1</td> </tr> <tr> <td>0</td> <td>1</td> <td>-</td> <td>FM1,FM2,FM3,MW1,MW2</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>FM1,FM2,MW1,LW</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>FM1,FM2,,MW1</td> </tr> <tr> <td>1</td> <td>1</td> <td>-</td> <td>FM1,FM2,MW1,MW2</td> </tr> <tr> <td rowspan="4">Other areas</td> <td>0</td> <td>0</td> <td>-</td> <td>FM1,FM2,FM3,MW1</td> </tr> <tr> <td>0</td> <td>1</td> <td>-</td> <td>FM1,FM2,FM3,MW1,MW2</td> </tr> <tr> <td>1</td> <td>0</td> <td>-</td> <td>FM1,FM2,MW1</td> </tr> <tr> <td>1</td> <td>1</td> <td>-</td> <td>FM1,FM2,MW1,MW2</td> </tr> </tbody> </table> <p style="text-align: right;">-:Don't care</p> | AREA | DISFM3 | ENMW2 | DISLW | Receiving Bands | Europe1 Europe2 | 0 | 0 | 0 | FM1,FM2,FM3,MW1,LW | 0 | 0 | 1 | FM1,FM2,FM3,MW1 | 0 | 1 | - | FM1,FM2,FM3,MW1,MW2 | 1 | 0 | 0 | FM1,FM2,MW1,LW | 1 | 0 | 1 | FM1,FM2,,MW1 | 1 | 1 | - | FM1,FM2,MW1,MW2 | Other areas | 0 | 0 | - | FM1,FM2,FM3,MW1 | 0 | 1 | - | FM1,FM2,FM3,MW1,MW2 | 1 | 0 | - | FM1,FM2,MW1 | 1 | 1 | - | FM1,FM2,MW1,MW2 |
| AREA | DISFM3 | ENMW2 | DISLW | Receiving Bands | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Europe1 Europe2 | 0 | 0 | 0 | FM1,FM2,FM3,MW1,LW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0 | 0 | 1 | FM1,FM2,FM3,MW1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0 | 1 | - | FM1,FM2,FM3,MW1,MW2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | 0 | FM1,FM2,MW1,LW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | 1 | FM1,FM2,,MW1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 1 | - | FM1,FM2,MW1,MW2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other areas | 0 | 0 | - | FM1,FM2,FM3,MW1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0 | 1 | - | FM1,FM2,FM3,MW1,MW2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | - | FM1,FM2,MW1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 1 | - | FM1,FM2,MW1,MW2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Symbol | Function | | | | | | |
|----------|--|----------|---|---|---|---|--|
| M2S | <p>Preset memory write method setting switch. Its setting is shown below.</p> <table border="1"> <thead> <tr> <th>M2S</th> <th>Write Method</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Preset memory is written by pressing a <input type="text" value="M1(TP1)"/> to <input type="text" value="M6"/> key in the 5 seconds memory write state by <input type="text" value="ME"/> key</td> </tr> <tr> <td>1</td> <td>Preset memory is written by holding down a <input type="text" value="M1(TP1)"/> to <input type="text" value="M6"/> key for more than 2 seconds. The <input type="text" value="ME"/> key is invalid.</td> </tr> </tbody> </table> <p>For more information, see the <input type="text" value="ME"/> and <input type="text" value="M1(TP1)"/> to <input type="text" value="M6"/> items.</p> | M2S | Write Method | 0 | Preset memory is written by pressing a <input type="text" value="M1(TP1)"/> to <input type="text" value="M6"/> key in the 5 seconds memory write state by <input type="text" value="ME"/> key | 1 | Preset memory is written by holding down a <input type="text" value="M1(TP1)"/> to <input type="text" value="M6"/> key for more than 2 seconds. The <input type="text" value="ME"/> key is invalid. |
| M2S | Write Method | | | | | | |
| 0 | Preset memory is written by pressing a <input type="text" value="M1(TP1)"/> to <input type="text" value="M6"/> key in the 5 seconds memory write state by <input type="text" value="ME"/> key | | | | | | |
| 1 | Preset memory is written by holding down a <input type="text" value="M1(TP1)"/> to <input type="text" value="M6"/> key for more than 2 seconds. The <input type="text" value="ME"/> key is invalid. | | | | | | |
| AUTO 500 | <p><input type="text" value="MAN UP"/> and <input type="text" value="MAN DWN"/> keys function setting switch. The <input type="text" value="MAN UP"/> and <input type="text" value="MAN DWN"/> keys can also be used as autotuning (seek operation) keys by means of this switch. The settings of this switch are shown below.</p> <table border="1"> <thead> <tr> <th>AUTO 500</th> <th><input type="text" value="MAN UP"/> , <input type="text" value="MAN DWN"/> Key Function</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Manual tuning only. Each time the key is pressed, the channel is incremented or decremented by one. When the key is held down for more than 0.5 seconds, the channel is changed continuously and rapidly.</td> </tr> <tr> <td>1</td> <td>Manual tuning and autotuning. Each time the key is pressed, the channel is incremented or decremented by one. When the key is held down for more than 0.5 seconds, autotuning (seek operation) is performed from the next channel.</td> </tr> </tbody> </table> | AUTO 500 | <input type="text" value="MAN UP"/> , <input type="text" value="MAN DWN"/> Key Function | 0 | Manual tuning only. Each time the key is pressed, the channel is incremented or decremented by one. When the key is held down for more than 0.5 seconds, the channel is changed continuously and rapidly. | 1 | Manual tuning and autotuning. Each time the key is pressed, the channel is incremented or decremented by one. When the key is held down for more than 0.5 seconds, autotuning (seek operation) is performed from the next channel. |
| AUTO 500 | <input type="text" value="MAN UP"/> , <input type="text" value="MAN DWN"/> Key Function | | | | | | |
| 0 | Manual tuning only. Each time the key is pressed, the channel is incremented or decremented by one. When the key is held down for more than 0.5 seconds, the channel is changed continuously and rapidly. | | | | | | |
| 1 | Manual tuning and autotuning. Each time the key is pressed, the channel is incremented or decremented by one. When the key is held down for more than 0.5 seconds, autotuning (seek operation) is performed from the next channel. | | | | | | |

| Symbol | Function | |
|---------|---|--|
| AUTOSTP | Switch used to set the condition to stop auto-tuning. The switch also allows auto-tuning to continue further when the presence of a station is determined during auto-tuning. The switch sets the auto-tuning stop conditions as follows; | |
| | AUTOLOC | Local Function |
| | 0 | Whenever the presence of a station is determined from the IF counter(along with an SK signal from the station when in the VF mode), tuning locks in that station even if auto-tuning keys are held down. |
| 1 | Auto-tuning stops when the presence of a station is determined from the IF counter (along with an SK signal from the station when in the VF mode.) and when auto-tuning keys are released ; that is, auto-tuning won't stop as long as an auto-tuning key is pressed even when the presence of a station is detected. This switch is operative with all the auto-tuning keys. During the first auto-tuning with <input type="checkbox"/> VF key, however, tuning stops an detection of the presence of a station (along with an SK signal from the station) even while <input type="checkbox"/> VF key is pressed. | |

| Symbol | Function | | | |
|----------------|--|-----------------|--|--|
| PRIO1 PRIO2 | <p>Priority display setting switch.</p> <p>"Priority display" is display that returns to the previous display if no operation is performed within 5 seconds after the display was switched.</p> <p>These switches are valid only when the NOCLK switch is set to 0 (clock mode) when the device is not in the DK standby mode and radio monitor is not used. Their settings are shown below.</p> | | | |
| | PRIO1 | PRIO2 | Priority Display | Description |
| | 0 | 0 | None | <p>Display switching is performed when the <input type="checkbox"/>DISP key and melody selection key (during clock display) was operated.</p> <p>- Radio mode The display switches between frequency display and clock display each time the <input type="checkbox"/>DISP key is pressed. When the melody selection key is pressed during clock display, the display switches to frequency display.</p> <p>- Time mode The <input type="checkbox"/>DISP key is disabled.</p> <p>- CD mode The display is switched between " <input type="checkbox"/>d " display and clock display each time the <input type="checkbox"/>DISP key is pressed.</p> |
| 1 | 0 | Frequency CD | <p>When the display switched from frequency or " <input type="checkbox"/>d " display to clock display by <input type="checkbox"/>DISP key, if no operation is performed within 5 seconds, the display returns to the original display</p> <p>- Radio mode Normally the frequency is displayed, The display is switched to 5 seconds clock display by pressing the <input type="checkbox"/>DISP key. When the <input type="checkbox"/>DISP key is pressed again, or the melody selection key is pressed., during 5 seconds clock display, the display returns to frequency display.</p> <p>- Tape mode Clock display. The <input type="checkbox"/>DISP key is invalid.</p> <p>- CD mode Normally " <input type="checkbox"/>d " is displayed. The display is switched to 5 seconds clock display by pressing the <input type="checkbox"/>DISP key. When the <input type="checkbox"/>DISP key is pressed again during 5 seconds clock display, the display returns to CD display.</p> | |

| Symbol | Function | | | |
|----------------|----------|-------|------------------|--|
| PRIO1 PRIO2 | PRIO1 | PRIO2 | Priority Display | Description |
| | 0 | 1 | Clock | <p>In the radio and CE modes, clock display has priority.</p> <ul style="list-style-type: none"> - Radio mode <p>Normally the clock is displayed.</p> <p>The display is switched to 5 seconds frequency display by pressing the [DISP] key or melody selection key.</p> <p>When the [DISP] key is pressed again during 5 seconds frequency display, the display returns to clock display.</p> <ul style="list-style-type: none"> - Tape mode <p>The [DISP] key is invalid.</p> <ul style="list-style-type: none"> -CD mode <p>Normally the clock is displayed.</p> <p>The display is switched to 5 seconds "[Cd]" display by pressing the [DISP] key.</p> <p>When the [DISP] key is pressed again during 5 seconds "[Cd]" display, the display returns to clock display.</p> |
| | 1 | 1 | — | Do not set to this mode. |

"Frequency display" in the above means receiving frequency, receiving band, and preset memory display. Therefore, during radio reception, the "PSCAN", "SK", "VF", "ST", "MONO".

"LOCAL" and "LOUD" displays light even at clock display.

In the tape mode, the "LOUD", "MTL", "NR1", "NR2", "AMS" and ">", "<" displays also light at clock display.

| Symbol | Function | | | |
|----------------|----------|-------|---------------------|---|
| | PRI01 | PRI02 | Priority Display | Description |
| PRI01 PRI02 | 0 | 0 | None | <ul style="list-style-type: none"> - Type DK standby - Radio monitor <p>The display switches between frequency display and clock display each time the [DISP] key is pressed.</p> <p>When the melody selection key is pressed during clock display, the display switches to frequency display</p> <p>When the device entered the tape DK standby and radio monitor standby mode, frequency is displayed first.</p> <ul style="list-style-type: none"> - CD DK standby - Radio monitor <p>The display switches between frequency display, "[d]" display and clock display each time the [DISP] key is pressed.</p> <p>When the melody selection key is pressed during "[d]" display and clock display, the display switches to frequency display.</p> <p>When the device entered the CD DK standby and radio monitor mode, frequency is displayed first.</p> <ul style="list-style-type: none"> - DK ON <p>Frequency displayed.</p> <p>The [DISP] key is invalid.</p> |
| | 1 | 0 | Frequen cy CD | <ul style="list-style-type: none"> - Tape DK standby - Radio monitor <p>Normally the frequency is displayed. The display is switched to 5 seconds clock display by pressing the [DISP] key.</p> <p>When the [DISP] key or the melody selection key is pressed during 5 seconds clock display, the display returns to frequency display.</p> <ul style="list-style-type: none"> - CD DK standby - Radio Monitor <p>Normally "[d]" is displayed. When the [DISP] key is pressed, the display switches to 5 seconds frequency display</p> <p>When the [DISP] key is pressed during frequency display, the display switches to 5 seconds clock display</p> <p>When the [DISP] key is pressed during clock display, the display returns to "[d]" display</p> <p>When the melody selection key is pressed during "[d]" and clock display, the display switches to 5 seconds frequency display</p> <ul style="list-style-type: none"> - DK ON <p>Frequency display</p> <p>The [DISP] key is invalid.</p> |



| Symbol | Function | | | |
|--|--|---|----------------------------------|--|
| PRIO1 PRIO2 | PRIO1 0 | PRIO2 1 | Priority Display Clock | Description - Tape DK standby Radio monitor Normally the clock is displayed. When the [DISP] key or melody selection key is pressed, the display switches to 5 seconds frequency display. When the [DISP] key is pressed during 5 seconds frequency display the display returns to clock display. - CD DK standby - Radio monitor Normally the clock is displayed. When the [DISP] key is pressed, the display switches 5 seconds " [d] " display. When the [DISP] key is pressed during this " [d] " display, the display switches to 5 seconds frequency display. When the [DISP] key is pressed during frequency display, the display returns to clock display. When the melody selection key is pressed during clock display or " [d] " display, the display switches to 5 seconds frequency display. - DK ON Frequency display. The [DISP] key is invalid. |
| | 1 | 1 | - | Do not set to this mode. |
| At no clock (NOCLK = 1), the following is displayed and the [DISP] key becomes invalid without regard to the setting of the PRIO1 and PRIO2 switches. | | | | |
| And the [DISP] key is invalid. | | | | |
| Mode | | Display | | |
| Radio | | Frequency | | |
| Tape | | None | | |
| CD | | [d] | | |
| Tape DK standby CD DK standby DK ON Radio monitor | | Frequency | | |
| RDON | Radio ON/OFF method setting switch. Its setting is shown below. | | | |
| RDON | | Radio ON/OFF Method | | |
| 0 | | Radio is turned on and off by RDSET switch | | |
| 1 | | Radio is turned on by making the CE pin High. | | |
| When this switch was set to 1, do not use the RDSET switch. | | | | |

| Symbol | Function | | | | | | |
|---------|--|---------|-------------------|---|----------------------|---|--|
| NOCLK | <p>Clock specified setting switch. Its setting is shown below.</p> <table border="1"> <thead> <tr> <th>NOCLK</th> <th>Clock</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Yes</td> </tr> <tr> <td>1</td> <td>No</td> </tr> </tbody> </table> <p>In the no clock mode, low consumption current (10 uA max) backup is possible by making the CE pin Low.</p> | NOCLK | Clock | 0 | Yes | 1 | No |
| NOCLK | Clock | | | | | | |
| 0 | Yes | | | | | | |
| 1 | No | | | | | | |
| CLKDISP | <p>Clock time system setting switch. Its setting is shown below.</p> <table border="1"> <thead> <tr> <th>CLKDISP</th> <th>Time System</th> </tr> </thead> <tbody> <tr> <td>0</td> <td> <p>12-hour clock</p> </td> </tr> <tr> <td>1</td> <td> <p>24-hour clock</p> </td> </tr> </tbody> </table> | CLKDISP | Time System | 0 | <p>12-hour clock</p> | 1 | <p>24-hour clock</p> |
| CLKDISP | Time System | | | | | | |
| 0 | <p>12-hour clock</p> | | | | | | |
| 1 | <p>24-hour clock</p> | | | | | | |
| FLASH | <p>Clock colon(:) display setting switch. Its setting is shown below.</p> <table border="1"> <thead> <tr> <th>FLASH</th> <th>Colon (:) Display</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Steady light</td> </tr> <tr> <td>1</td> <td>Flashing Frequency : 1Hz Duty → 6(ON): 4 (OFF)</td> </tr> </tbody> </table> | FLASH | Colon (:) Display | 0 | Steady light | 1 | Flashing Frequency : 1Hz Duty → 6(ON): 4 (OFF) |
| FLASH | Colon (:) Display | | | | | | |
| 0 | Steady light | | | | | | |
| 1 | Flashing Frequency : 1Hz Duty → 6(ON): 4 (OFF) | | | | | | |

| Symbol | Function | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|-------------|-------------|-------------------|---------|-------------------|-----------|---|--|-------------------|------------|--|---------|---|---------|-----|----|---|------|-----|------|-------------------|---|---|---------|---------|---------|---|---|---|-----|-----|-----|---|---|----|-----|----|---|---|-----|---|-----|-----|---|---|---|---|-----|---|---|---|---|---|-----|-----|---|---|---|---|----|---|---|---|---|---|-----|---|---|---|---|---|---|---|---|--|--|--|--|--|
| ENTPK KAMS KNR KMTL | <p>Switches for using the tape functions (AMS, NR, MTL) in common with the radio function keys. The keys that can be used in common can be selected as shown below.</p> <table border="1"> <thead> <tr> <th>ENTPK</th> <th colspan="5">Description</th> </tr> </thead> <tbody> <tr> <td rowspan="9">0</td> <td colspan="5"> The M1(TP1) , M2(TP2) and M3(TP3) keys can be used as the AMS , NR, MTL function keys. The keys that can be selected as shown below. </td> </tr> <tr> <td colspan="5"> <table border="1"> <thead> <tr> <th rowspan="2">KAMS</th> <th rowspan="2">KNR</th> <th rowspan="2">KMTL</th> <th colspan="3">Dual Function Key</th> </tr> <tr> <th>M1(TP1)</th> <th>M2(TP2)</th> <th>M3(TP3)</th> </tr> </thead> <tbody> <tr><td>1</td><td>1</td><td>1</td><td>AMS</td><td>NR</td><td>MTL</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>AMS</td><td>NR</td><td>–</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>AMS</td><td>MTL</td><td>–</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>AMS</td><td>–</td><td>–</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>NR</td><td>MTL</td><td>–</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>NR</td><td>–</td><td>–</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>MTL</td><td>–</td><td>–</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>–</td><td>–</td><td>–</td></tr> </tbody> </table> </td> </tr> <tr> <td colspan="5"> That is, the functions selected by 1 are left-justified and used at the M1(TP1) to M3(TP3) keys. </td> </tr> </tbody> </table> | ENTPK | Description | | | | | 0 | The M1(TP1) , M2(TP2) and M3(TP3) keys can be used as the AMS , NR, MTL function keys. The keys that can be selected as shown below. | | | | | <table border="1"> <thead> <tr> <th rowspan="2">KAMS</th> <th rowspan="2">KNR</th> <th rowspan="2">KMTL</th> <th colspan="3">Dual Function Key</th> </tr> <tr> <th>M1(TP1)</th> <th>M2(TP2)</th> <th>M3(TP3)</th> </tr> </thead> <tbody> <tr><td>1</td><td>1</td><td>1</td><td>AMS</td><td>NR</td><td>MTL</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>AMS</td><td>NR</td><td>–</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>AMS</td><td>MTL</td><td>–</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>AMS</td><td>–</td><td>–</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>NR</td><td>MTL</td><td>–</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>NR</td><td>–</td><td>–</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>MTL</td><td>–</td><td>–</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>–</td><td>–</td><td>–</td></tr> </tbody> </table> | | | | | KAMS | KNR | KMTL | Dual Function Key | | | M1(TP1) | M2(TP2) | M3(TP3) | 1 | 1 | 1 | AMS | NR | MTL | 1 | 1 | 0 | AMS | NR | – | 1 | 0 | 1 | AMS | MTL | – | 1 | 0 | 0 | AMS | – | – | 0 | 1 | 1 | NR | MTL | – | 0 | 1 | 0 | NR | – | – | 0 | 0 | 1 | MTL | – | – | 0 | 0 | 0 | – | – | – | That is, the functions selected by 1 are left-justified and used at the M1(TP1) to M3(TP3) keys. | | | | |
| | ENTPK | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | The M1(TP1) , M2(TP2) and M3(TP3) keys can be used as the AMS , NR, MTL function keys. The keys that can be selected as shown below. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th rowspan="2">KAMS</th> <th rowspan="2">KNR</th> <th rowspan="2">KMTL</th> <th colspan="3">Dual Function Key</th> </tr> <tr> <th>M1(TP1)</th> <th>M2(TP2)</th> <th>M3(TP3)</th> </tr> </thead> <tbody> <tr><td>1</td><td>1</td><td>1</td><td>AMS</td><td>NR</td><td>MTL</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>AMS</td><td>NR</td><td>–</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>AMS</td><td>MTL</td><td>–</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>AMS</td><td>–</td><td>–</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>NR</td><td>MTL</td><td>–</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>NR</td><td>–</td><td>–</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>MTL</td><td>–</td><td>–</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>–</td><td>–</td><td>–</td></tr> </tbody> </table> | | | | | KAMS | KNR | | KMTL | Dual Function Key | | | M1(TP1) | M2(TP2) | M3(TP3) | 1 | 1 | 1 | AMS | NR | MTL | 1 | 1 | 0 | AMS | NR | – | 1 | 0 | 1 | AMS | MTL | – | 1 | 0 | 0 | AMS | – | – | 0 | 1 | 1 | NR | MTL | – | 0 | 1 | 0 | NR | – | – | 0 | 0 | 1 | MTL | – | – | 0 | 0 | 0 | – | – | – | | | | | | | | | | | | | | | | | |
| | KAMS | KNR | KMTL | Dual Function Key | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | M1(TP1) | M2(TP2) | M3(TP3) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 1 | 1 | AMS | NR | MTL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 1 | 0 | AMS | NR | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | 1 | AMS | MTL | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | 0 | AMS | – | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0 | 1 | 1 | NR | MTL | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 0 | NR | – | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | 1 | MTL | – | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | 0 | – | – | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| That is, the functions selected by 1 are left-justified and used at the M1(TP1) to M3(TP3) keys. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Of the AMS, NR and MTL function keys, two functions can be used at the LOC (TP4) and MONO(TP5) keys. The following can be selected :</p> <table border="1"> <thead> <tr> <th rowspan="2">KAMS</th> <th rowspan="2">KNR</th> <th rowspan="2">KMTL</th> <th colspan="2">Dual Function Key</th> </tr> <tr> <th>LOC (TP4)</th> <th>MONO(TP5)</th> </tr> </thead> <tbody> <tr><td>1</td><td>1</td><td>1</td><td colspan="2">Do not set</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>AMS</td><td>NR</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>AMS</td><td>MTL</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>AMS</td><td>–</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>NR</td><td>MTL</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>NR</td><td>–</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>MTL</td><td>–</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>–</td><td>–</td></tr> </tbody> </table> <p>The functions selected by 1 are left-justified and used at the LOC (TP4) and MONO(TP5) keys.</p> | KAMS | KNR | KMTL | Dual Function Key | | LOC (TP4) | MONO(TP5) | 1 | 1 | 1 | Do not set | | 1 | 1 | 0 | AMS | NR | 1 | 0 | 1 | AMS | MTL | 1 | 0 | 0 | AMS | – | 0 | 1 | 1 | NR | MTL | 0 | 1 | 0 | NR | – | 0 | 0 | 1 | MTL | – | 0 | 0 | 0 | – | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KAMS | | | | KNR | KMTL | Dual Function Key | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LOC (TP4) | MONO(TP5) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | 1 | Do not set | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | 0 | AMS | NR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | 1 | AMS | MTL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | 0 | AMS | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 1 | NR | MTL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 0 | NR | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | 1 | MTL | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | 0 | – | – | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Symbol | Function | | | | | | | | |
|--|---|---|---|--|-------------|-----|-----|-----|-----|
| ENTPK KAMS KNR KMTL | The operation of each key is the same as that of the momentary keys AMS , NR , and MTL . Summarizing the above, the five keys M1(TP1) to M3(TP3) , LOC(TP4) and scan be used as MONO(TP5) tape function keys. Which functions used in common are determined by the ENTPK, KAMS, KNR and KMTL switches. This summarized below. | | | | | | | | |
| | 0 | 1 | 1 | 1 | AMS | NR | MTL | | |
| | | 1 | 1 | 0 | AMS | NR | | | |
| | | 1 | 0 | 1 | AMS | MTL | | | |
| | | 1 | 0 | 0 | AMS | | | | |
| | | 0 | 1 | 1 | NR | MTL | | | |
| | | 0 | 1 | 0 | NR | | | | |
| | | 0 | 0 | 1 | MTL | | | | |
| | | 0 | 0 | 0 | | | | | |
| | 1 | 1 | 1 | 1 | Do not set. | | | | AMS |
| | 1 | 1 | 0 | | | | AMS | NR | |
| | 1 | 0 | 1 | | | | AMS | MTL | |
| | 1 | 0 | 0 | | | | AMS | MTL | |
| | 0 | 1 | 1 | | | | NR | MTL | |
| | 0 | 1 | 0 | | | | NR | | |
| | 0 | 0 | 1 | | | | MTL | | |
| | 0 | 0 | 0 | | | | | | |
| When these functions are used. tuning operations in the tape DK standby, CD DK standby and radio monitor and DK ON modes are restricted as follows : | | | | | | | | | |
| 0 | 0 | 0 | 0 | Normal tuning possible | | | | | |
| 0 | When even switch is 1 | | | Tuning by M1(TP1) to M6 key is possible. | | | | | |
| 1 | - | - | - | The LOC(TP4) and MONO(TP5) keys cannot be used as local and monaural keys. | | | | | |

| Symbol | Function | | | | | |
|---------|--|---------|-------------------|---|---|---|
| ENNR2 | <p>Switch that enables the NR₂ (Noise Reduction) function in the tape mode. Its setting is shown below.</p> | | | | | |
| | <table border="1"> <thead> <tr> <th>ENNR2</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td> <p>NR₂ function cannot be used. When the <input type="checkbox"/> NR key or NR function key (selected by KNR switch) is pressed, the LCD panel "NR₁" display and NR₁ pin output changes as follows :</p> <div style="text-align: center;"> <pre> graph LR A["'NR1' display OFF 'NR1' pin Low output"] --> B["'NR1' display ON 'NR1' pin High output"] </pre> </div> </td> </tr> <tr> <td>1</td> <td> <p>Both the NR₁ and NR₂ functions can be used. When the <input type="checkbox"/> NR key or NR function key (selected by KNR switch) is pressed, the LCD panel "NR₁" and "NR₂" displays and NR₁ and MONO/NR₂ pins output change as follows:</p> <div style="display: flex; justify-content: space-around; text-align: center;"> <div> <p>"NR₁" display OFF NR₁ pin Low output → NR₂" display OFF MONO/NR₂ pin Low output</p> </div> <div> <p>"NR₁" display ON NR₁ pin High output → NR₂" display OFF MONO/NR₂ pin Low output</p> </div> <div> <p>"NR₁" display OFF NR₁ pin Low output → NR₂" display ON MONO/NR₂ pin High output</p> </div> </div> </td> </tr> </tbody> </table> | ENNR2 | Description | 0 | <p>NR₂ function cannot be used. When the <input type="checkbox"/> NR key or NR function key (selected by KNR switch) is pressed, the LCD panel "NR₁" display and NR₁ pin output changes as follows :</p> <div style="text-align: center;"> <pre> graph LR A["'NR1' display OFF 'NR1' pin Low output"] --> B["'NR1' display ON 'NR1' pin High output"] </pre> </div> | 1 |
| ENNR2 | Description | | | | | |
| 0 | <p>NR₂ function cannot be used. When the <input type="checkbox"/> NR key or NR function key (selected by KNR switch) is pressed, the LCD panel "NR₁" display and NR₁ pin output changes as follows :</p> <div style="text-align: center;"> <pre> graph LR A["'NR1' display OFF 'NR1' pin Low output"] --> B["'NR1' display ON 'NR1' pin High output"] </pre> </div> | | | | | |
| 1 | <p>Both the NR₁ and NR₂ functions can be used. When the <input type="checkbox"/> NR key or NR function key (selected by KNR switch) is pressed, the LCD panel "NR₁" and "NR₂" displays and NR₁ and MONO/NR₂ pins output change as follows:</p> <div style="display: flex; justify-content: space-around; text-align: center;"> <div> <p>"NR₁" display OFF NR₁ pin Low output → NR₂" display OFF MONO/NR₂ pin Low output</p> </div> <div> <p>"NR₁" display ON NR₁ pin High output → NR₂" display OFF MONO/NR₂ pin Low output</p> </div> <div> <p>"NR₁" display OFF NR₁ pin Low output → NR₂" display ON MONO/NR₂ pin High output</p> </div> </div> | | | | | |
| MUTESEL | <p>Sets the RDMUTE pin output method in the tape and CD modes. Its setting is shown below.</p> | | | | | |
| | <table border="1"> <thead> <tr> <th>MUTESEL</th> <th>RDMUTE Pin Output</th> </tr> </thead> <tbody> <tr> <td>1</td> <td> <p>In the tape and CD modes, muting is turned off.</p> <div style="text-align: center;"> </div> <p>When MUTESEL = 1 is set, do not use the DK standby and radio monitor functions.</p> </td> </tr> <tr> <td>0</td> <td> <p>In the tape and CD modes, muting remains ON.</p> <div style="text-align: center;"> </div> <p>When MUTESEL = 0 is set, do not use the DK standby and monitor functions.</p> </td> </tr> </tbody> </table> <p>For details, see "Radio Mute Output Timing"</p> | MUTESEL | RDMUTE Pin Output | 1 | <p>In the tape and CD modes, muting is turned off.</p> <div style="text-align: center;"> </div> <p>When MUTESEL = 1 is set, do not use the DK standby and radio monitor functions.</p> | 0 |
| MUTESEL | RDMUTE Pin Output | | | | | |
| 1 | <p>In the tape and CD modes, muting is turned off.</p> <div style="text-align: center;"> </div> <p>When MUTESEL = 1 is set, do not use the DK standby and radio monitor functions.</p> | | | | | |
| 0 | <p>In the tape and CD modes, muting remains ON.</p> <div style="text-align: center;"> </div> <p>When MUTESEL = 0 is set, do not use the DK standby and monitor functions.</p> | | | | | |

| Symbol | Function | | |
|-------------------|---|--|------------------------------------|
| ENFMIF DISAMIF | IF counter use setting switch. Its setting is shown below. | | |
| | ENFMIF | DISAMIF | Broadcast Station Detection Method |
| | 1 | 0 | FM IF counter and 3D system |
| | | | MW,LW IF counter and 3D system |
| | 1 | 1 | FM IF counter and 3D system |
| | | | MW,LW SD system |
| | 0 | 0 | FM SD system |
| | | | MW,LW IF counter and 3D system |
| 0 | 1 | FM SD system | |
| | | MW,LW SD system | |
| DISAMEMO | Auto preset memory function disable switch. Its setting is shown below. | | |
| | DISAMEMO | Description | |
| | 0 | Enables the auto preset memory function. When the  key is pressed for more than 2 seconds, auto preset memory operation begins. | |
| 1 | Disables the auto preset memory function The  key performs the preset scan function only. | | |

3. Mode Transition

With the SD4002, the radio can be turned on and off by the following two methods

- (1) By CE pin when the initialized diode switch RDON = 1
- (2) By turning the transistor or alternate switch RDSET on and off

The mode transition at each operation is described in 3.1, 3.2 and 3.3

3.1 When the Initialized Diode RDON = 1 (Radio ON/OFF by CE Pin)

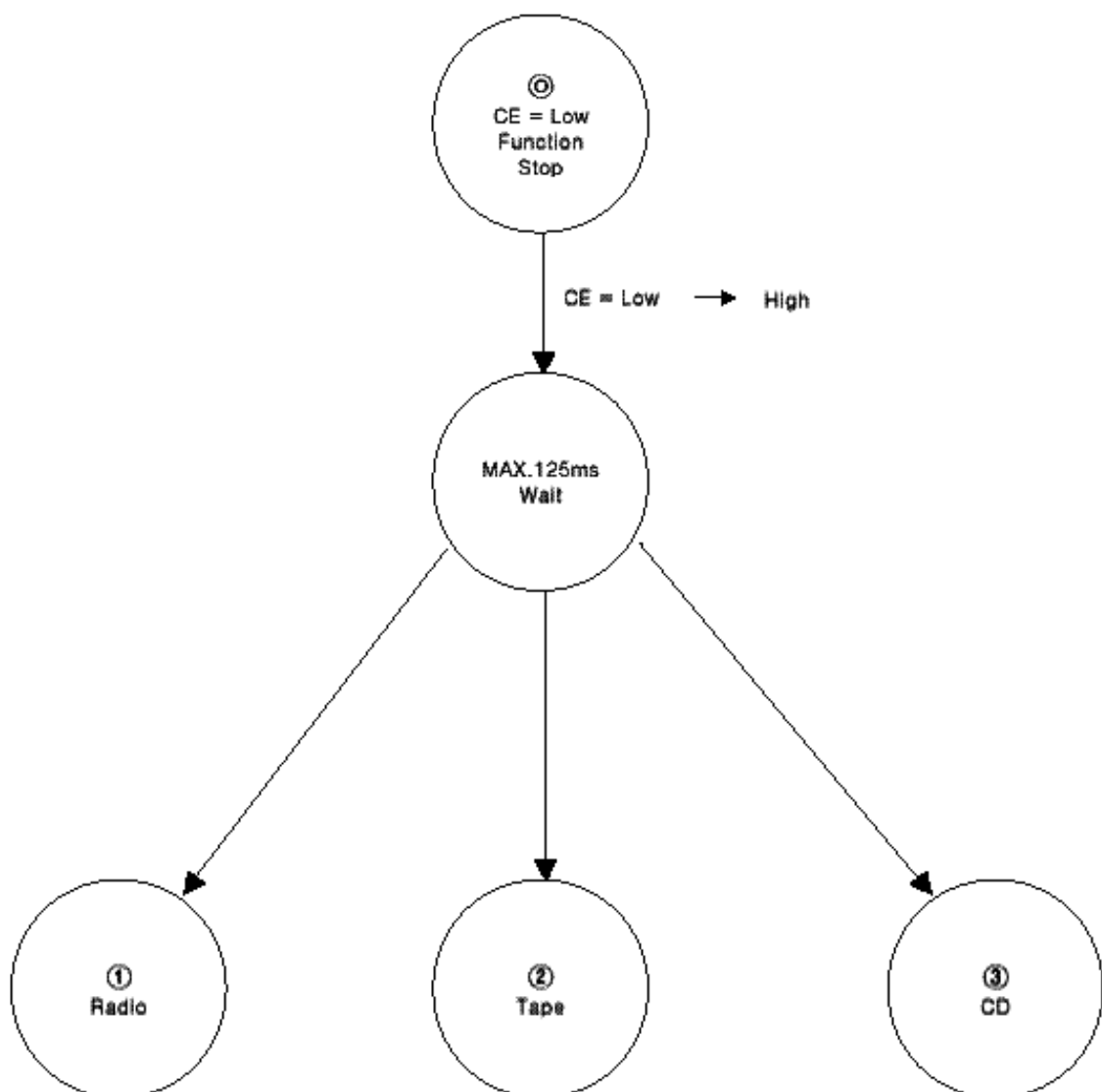
The radio mode is turned on and off by CE pin.

Switching to the tape and CD modes is performed by TPSET and CDSET switches, respectively

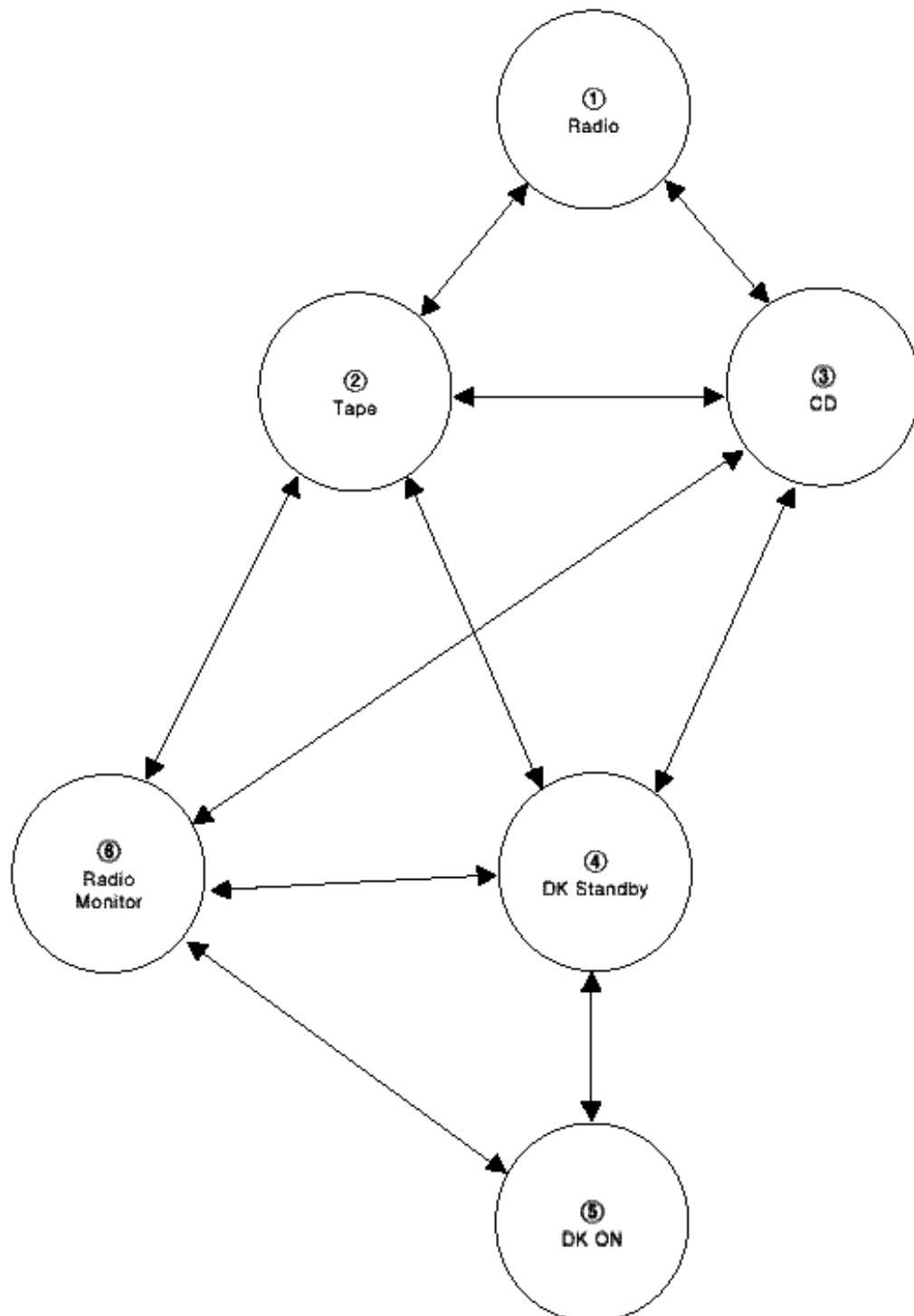
When RDON = 1, do not use the RDSET switch.

When the CE pin is made Low level, clock display in not performed.

- (1) CE : Low to High



(2) CE : High Level



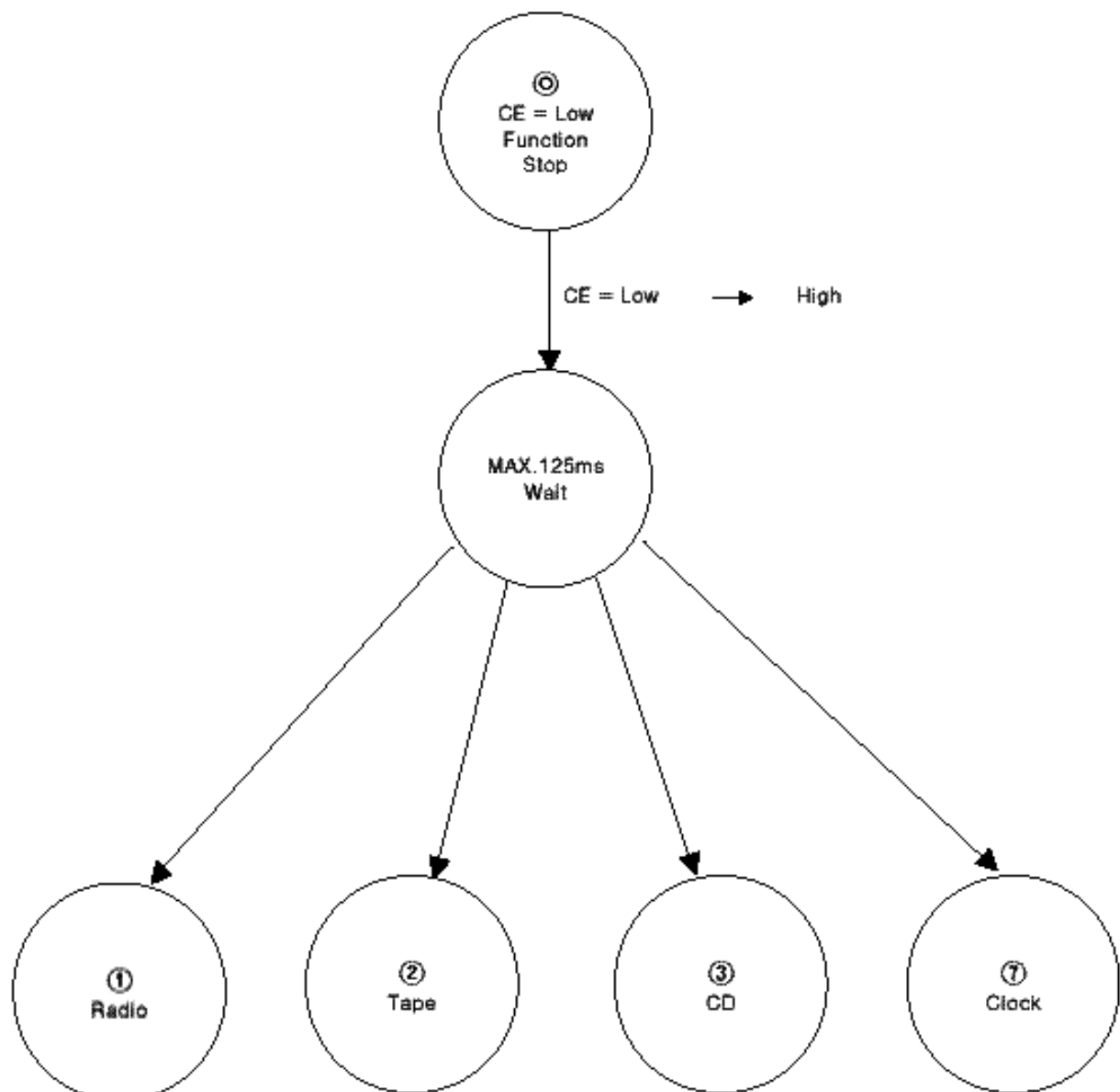
3.1 Radio ON/OFF by RDSET Switch

The radio is turned on and off by RDSET switch.

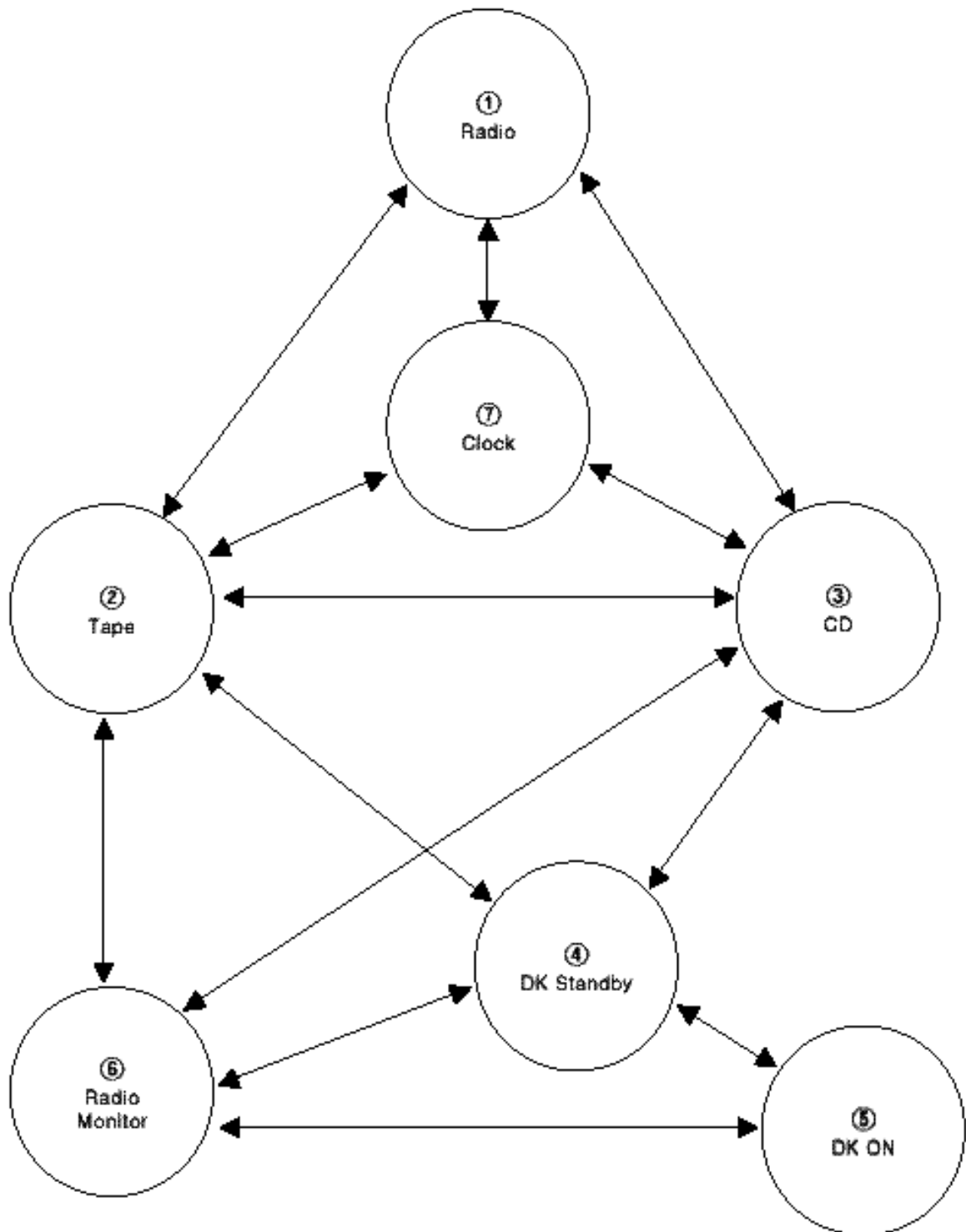
Switching to the tape and mode is performed by TPSET and CDSET switch, respectively.

The difference from RDON=1 of 3.1 is that the clock is displayed even when the radio, tape and CD modes are OFF.

(1) CE : Low To high



(2) CE : High Level



3.3 Description of Each Mode

| Display | Description |
|--------------------|--|
| ⑥ CE=Low | Backup mode. When the NOCLK switch is set to no clock, low consumption current(10 uA Max.) backup is possible. When clock is selected, the device is set to the clock count mode. In the mode, the maximum consumption current is 500 uA. |
| ① Radio | When the CE pin is high level and the TPSET and CDSET switches are OFF, the device is set to the radio mode. |
| ② Tape | When the CE pin is high level and the TPSET switch is ON and the CDSET switch is OFF. the device is set to the tape mode. |
| ③ CD | When the CE pin is high level and the CDSET switch is ON , the device is set to the CD mode. |
| ④ DK Standby | When the VF band is received in the radio mode and the mode is switched to the tape or CD mode by TPSET or CDSET switch, the device is set to the DK standby mode. The device is also set to the DK standby mode by pressing the <input type="checkbox"/> VF <input type="checkbox"/> key in the tape or CD modes. In the DK standby mode, VF band tuning operation is enabled. |
| ⑤ D.K | When the DK switch is set to ON in the DK standby mode, the device enters the DK ON mode. in the DK ON mode. radio muting (RDMUTE pin) is turned off and audio muting (AMUTE pin) is turned on. |
| ⑥ Radio monitor | When the tape mode is set by TPSET switch when the radio monitor mode is ON by <input type="checkbox"/> RDMONI <input type="checkbox"/> in the radio mode, the device enters the radio monitor mode. The radio monitor mode is also set by pressing the <input type="checkbox"/> RDMONI <input type="checkbox"/> key in the tape and CD modes. In the radio monitor mode. normal tuning operation is possible. In the radio monitor mode. radio muting (RDMUTE pin) is turned off and audio muting (AMUTE pin) is turned on. |
| ⑦ Clock | NOCLK = 0 Only clock display is performed. Clock adjustment is also possible. NOCLK = 1 Function is disabled. However, since the CE is high level, the consumption current is 500 uA Typ. |

3.4 Radio ON/OFF by POWER Key

The POWER Key valid when CE pin is high level.

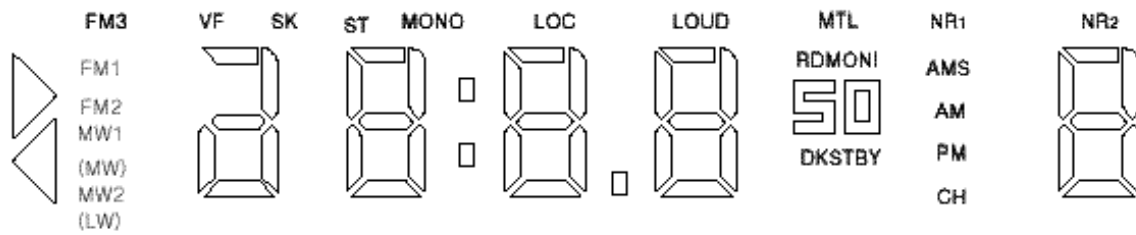
Each time the key is pressed, the POWER pin(pin 23) output is inverted.

Therefore, a circuit is configured so that the radio is turned on and off by setting RDON = 0 and turning the RDSET switch on and off by POWER pin.

For details, see "Application Circuit"

4. Display

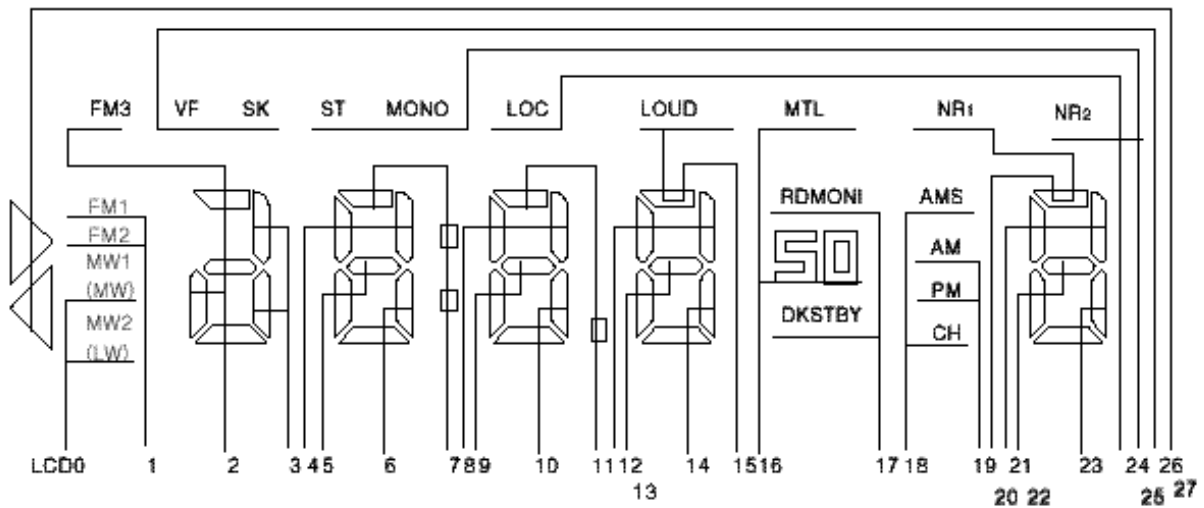
4.1 LCD Panel



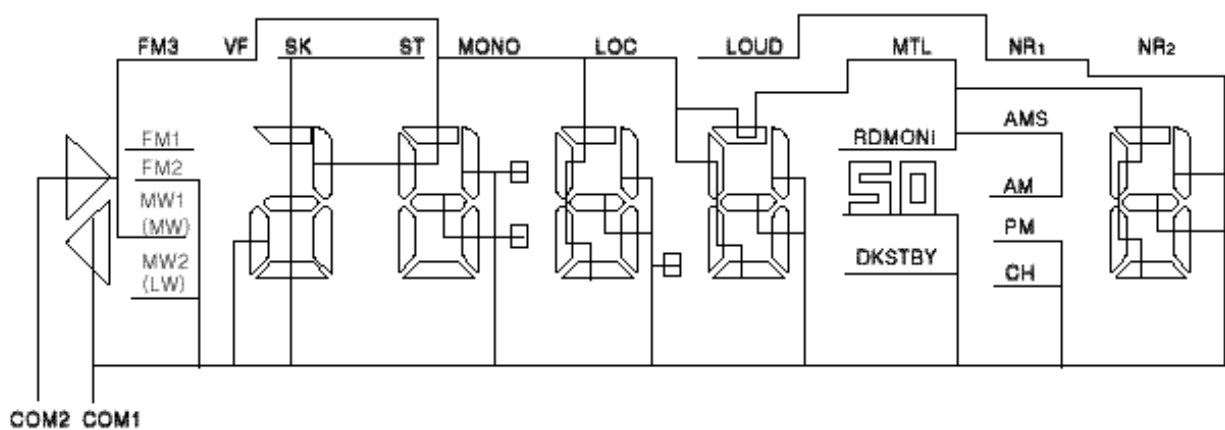
4.2 Display Type

1 2 3 4 5 6 7 8 9 0 Cd

4.3 Segment Lines



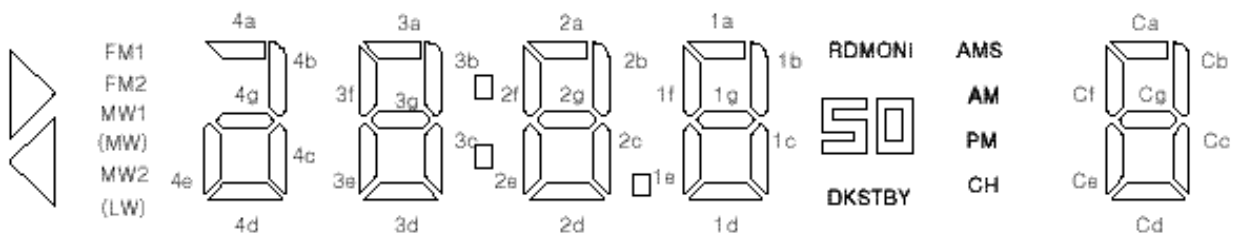
4.4 Common Lines



4.5 LCD Assignment Table

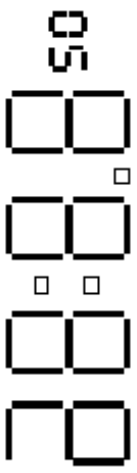

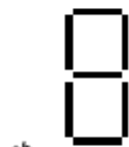
| LCD | COM1 | COM2 |
|-----|-------------|---------|
| 0 | MW2(LW) | MW1(MW) |
| 1 | FM2 | FM1 |
| 2 | 4a,4d,4e,4g | FM3 |
| 3 | 4c | 4b |
| 4 | 3b | 3f |
| 5 | 3g | 3e |
| 6 | 3c | 3d |
| 7 | COLON(:) | 3a |
| 8 | 2b | 2f |
| 9 | 2g | 2e |
| 10 | 2c | 2d |
| 11 | POINT(.) | 2a |
| 12 | 1b | 1f |
| 13 | 1g | 1e |
| 14 | 1c | 1d |
| 15 | LOUD | 1a |
| 16 | 50 | MTL |
| 17 | DKSTY | RDMONI |
| 18 | CH | AMS |
| 19 | PM | AM |
| 20 | NR1 | Ca |
| 21 | Cb | Cf |
| 22 | Cg | Ce |
| 23 | Cc | Cd |
| 24 | NR2 | LOC |
| 25 | ST | MONO |
| 26 | SK | VF |
| 27 | < | > |

FM3 VF SK ST MONO LOC LOUD MTL NR1 NR2



4.6 Description of Display

| Display | Description |
|-----------------|--|
| VF | Indicates that the device is on the VF band. |
| SK | Indicates that the SK signal is input. It lights when the SK switch is turned on at the FM and VF bands. |
| ST | Indicates that a STEREO signal is input. It lights when the $\overline{\text{ST}}$ pin (pin 64) becomes Low on the FM and VF bands. However, it does not light in the MONO mode. |
| MONO | Indicates that the device is in the monaural mode. When the <input type="checkbox"/> MONO <input type="checkbox"/> key is pressed on the FM and VF bands, the display is inverted. High level is output from the MONO/NR ₂ pin(pin 18) while this display is lit. it is invalid on the MW and LW bands. |
| LOC | Indicates that the device is in the LOCAL mode. When AUTOLOC = 0, when the <input type="checkbox"/> LOC <input type="checkbox"/> key is pressed in a radio mode(FM, MW, LW bands). the display is inverted. When AUTCLOC = 1, this display fights during autotuning local search. High level is output from the LOC pin (pin 10) during autotuning while this display is lit. |
| LOUD | Indicates that the device is in the LOUDNESS state. When the <input type="checkbox"/> LOU <input type="checkbox"/> key is pressed in the radio, tape or CD mode, this display is inverted. High level is output from the LOUD pin (pin 19) while this display is lit. |
| MTL | Indicates that the device is in the METAL state. When the <input type="checkbox"/> METAL <input type="checkbox"/> function key is pressed in the tape mode, this display is inverted. High level is output from the MTL pin (pin 21) while this display is lit. |
| NR ₁ | Indicates that the device is in the NR ₁ (Noise Reduction) state. When the device is placed into the NR ₁ state by <input type="checkbox"/> NR <input type="checkbox"/> function key in the tape mode. this display lights. High level is output from the NR ₁ pin (pin 22) white this display is lit. |
| NR ₂ | Indicates that the device is in the NR ₂ (Noise Reduction) state. The NR ₂ function can be used with the initialized diode ENNR ₂ switch. When the device was placed into the NR ₂ state by <input type="checkbox"/> NR <input type="checkbox"/> function key in the tape mode, this display tights. High level is output from the MONO / NR ₂ pin (pin 18) while this display is lit. |
| DKSTBY | Lights in the DK standby and DK ON modes in the tape/CD mode. |
| ◁ ▷ | Indicates the direction of tape travel. In the tape mode, this display indicates the tape direction according to the state of the RL switch. If the FF switch is ON, this display flashes. For more information, see the description of each pin. |

| Display | Description |
|---|--|
| FM1 FM2 FM3 MW1(MW) MW2(LW) | Indicates the receiving band in the radio mode. In Europe, when the device is switched to LW band, "MW2(LW)" lights. |
|  | Displays the receiving frequency CD and clock. - Receiving frequency display Displayed in the radio mode. "50" is displayed only on the Europe and South Africa FM bands. "."(D.P) is displayed as the decimal point on the FM bands. - CD display  When the device enters the CD mode, the following is displayed. - Clock display 12 hour clock or 24 hour clock can be selected by the initialized diode CLKDSP switch. Flashing of the ":"(colon) display is possible by the initialized diode FLASH switch. |
| AMS | 12 hour clock AM and PM display. When the <input type="button" value="AMS"/> function key is pressed in the tape mode, this display is inverted. High level is output from the AMS pin (pin 20) while this display is it. |
| AM PM | 12 hour clock AM and PM display. |
|  | Indicates the preset memory number ab AMS selection number. - Preset memory number display. In the radio mode, when preset memory write and call are performed, the corresponding preset number and "ch" are displayed. In the memory write mode set by <input type="button" value="ME"/> key, the "ch" display flashes at 1HZ. During preset memory scanning by <input type="button" value="PSCAN"/> key, the preset memory number display (Ca to Cg) flashes at 1 Hz. |
| RDMINI | Lights in the radio monitor mode. |

5. Radio MUTE Output Timing (RDMUTE)

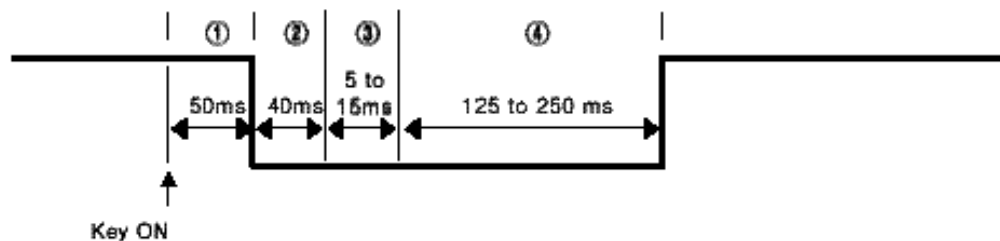
- 1) Key ON chattering prevention
- 2) Premuting and BEEP output
- 3) Division ratio setting and display contents updating
- 4) Postmuting
- 5) Scan time
- 6) PLL lock wait time

5.1 Radio MUTE (RDMUTE PIN) Output Timing Charts

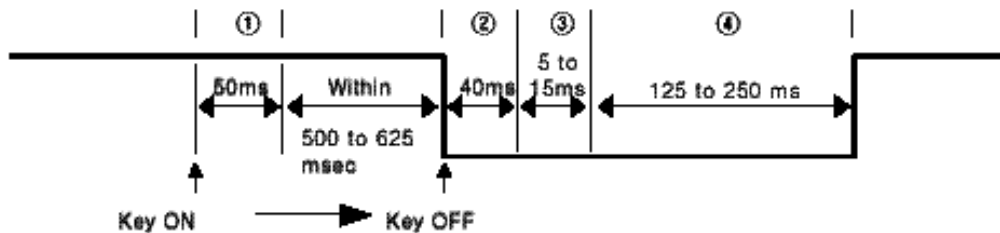
1) Manual Up/Down

(1) 1 channel up/down

(a) AUTO 500 switch = 0



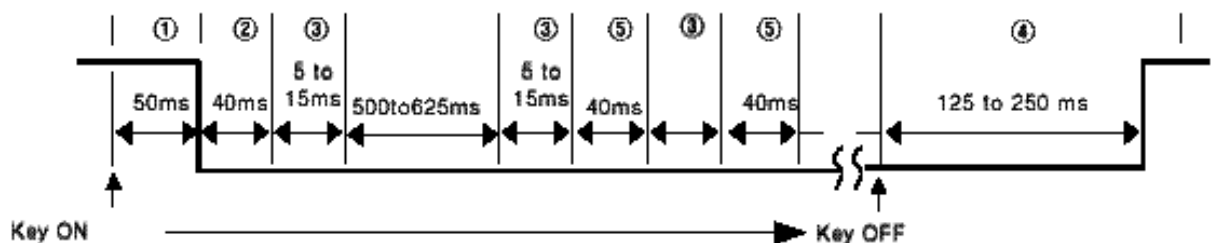
(b) AUTO 500 switch = 1



At the band edge (between lowest frequency and highest frequency) of both (a) and (b), time ④ is 625 to 750 ms.

(2) Continuous up/down

(a) AUTO 500 switch = 0

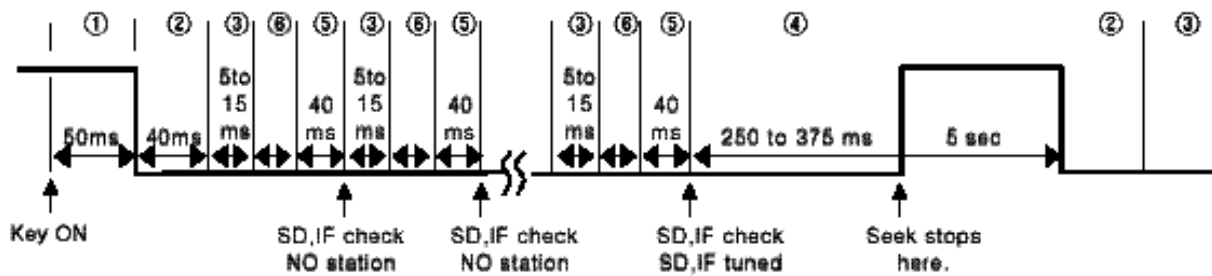


At the band edge, time ⑤ becomes 540 to 665ms and time ④ becomes 625 to 750ms

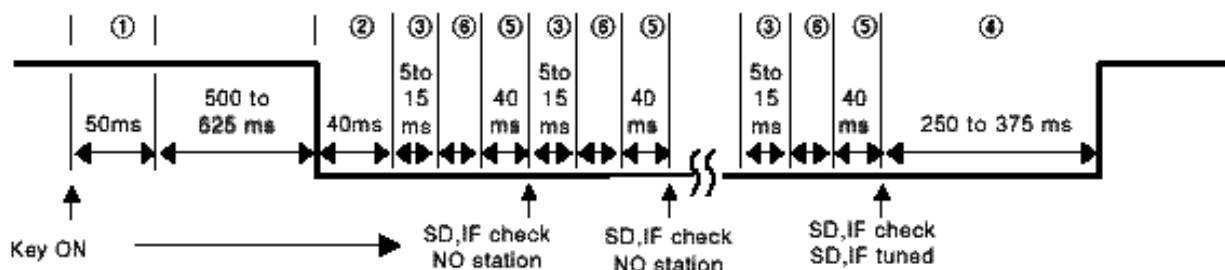
- (a) When AUTO 500 switch = 1, continuous up/down is not performed because holding down the key for more than 0.5 seconds sets autotuning.

2) Auto Up/Down

(1) SEEK UP , SEEK , SCAN UP , SEEK keys



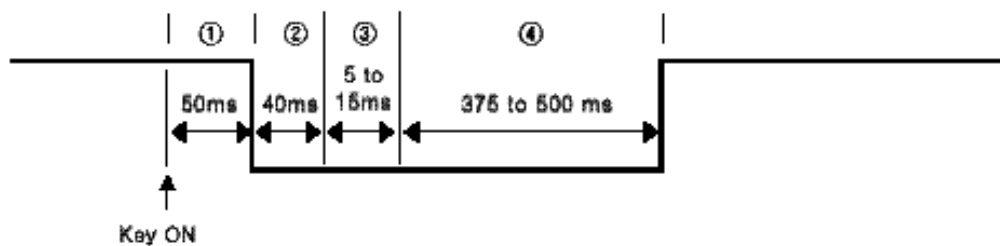
(2) MAN , MAN DWN key held down for more than 0.5 seconds when AUTO 500 switch = 1



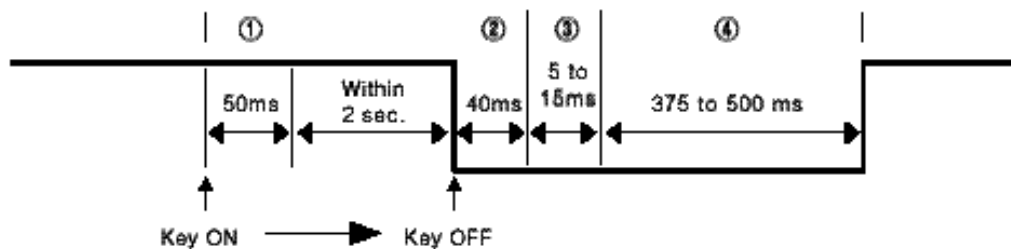
At both (1) and (2), at the band edge time ⑤ becomes 520 to 695ms
 IF check is performed twice, once in the FAST mode and once in the SLOW mode.
 FAST mode IF check takes approx. 6ms on the FM, MW and LW bands and SLOW mode IF check takes approx. 15ms on the FM band and approx. 25ms on the MW and LW bands.

3) Preset memory call

(1) M2S switch = 0

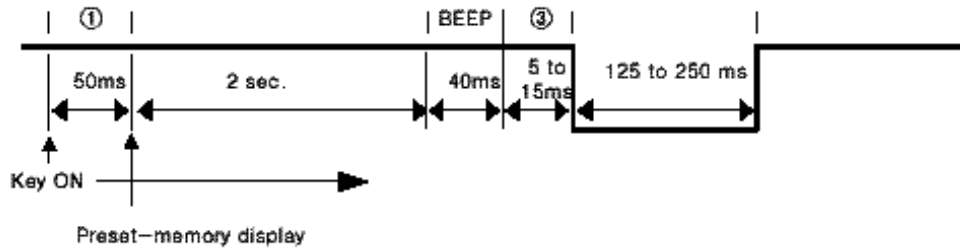


(2) M2S switch = 1



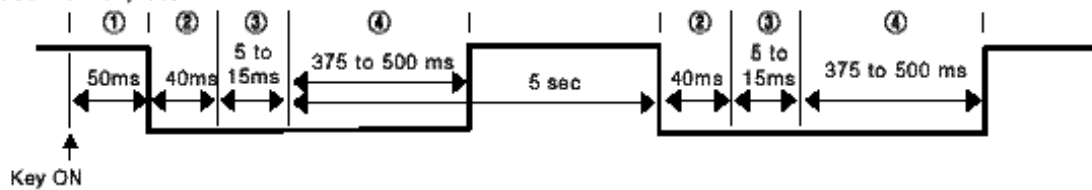
4) Preset memory write

(1) M2S switch = 0



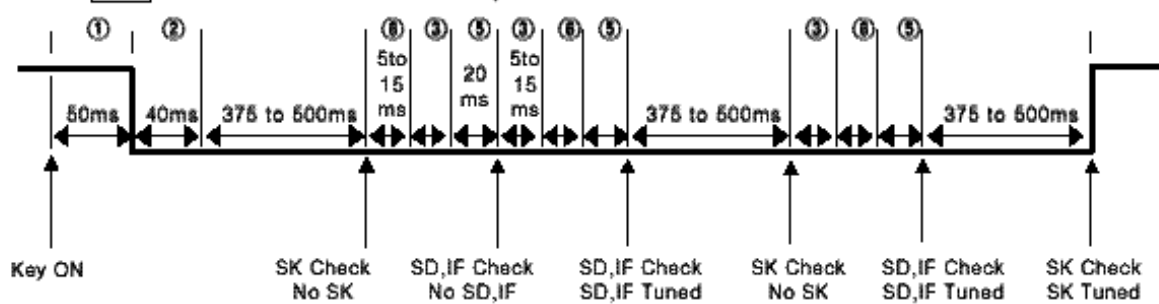
(2) When M2S switch = 1, muting is not output.

5) Preset memory scan

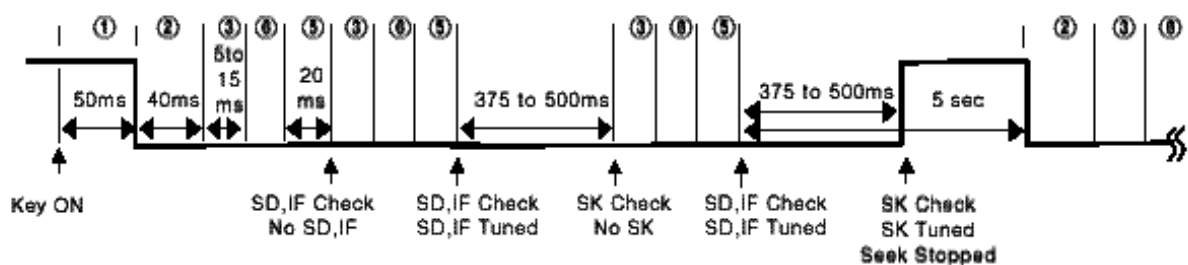


6) VF mode

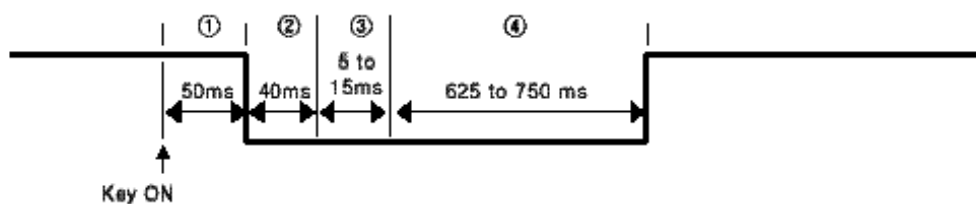
(1) When VF mode selected with VF key ON



(2) Seek and scan operating in VF mode.

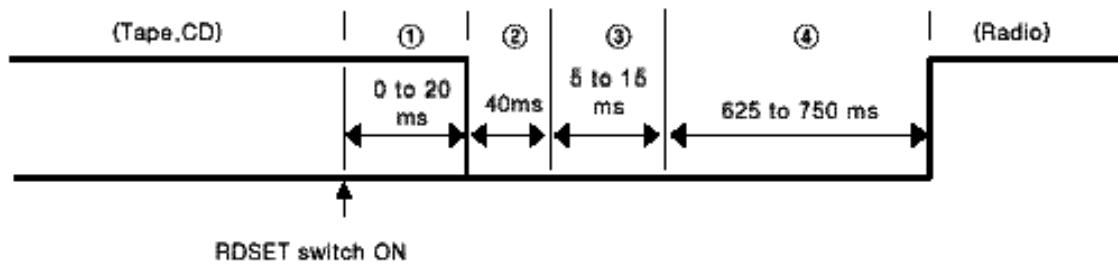


7) Band switching

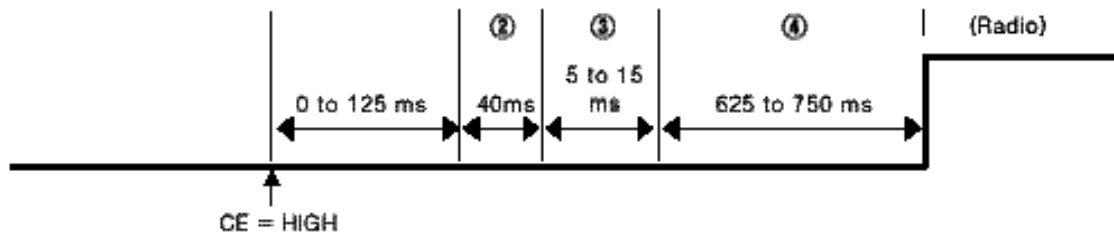


8) Radio OFF to ON

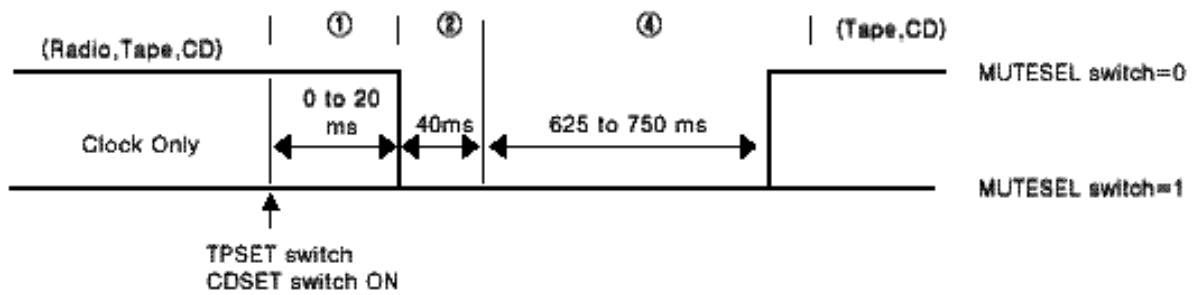
(1) RDSET switch



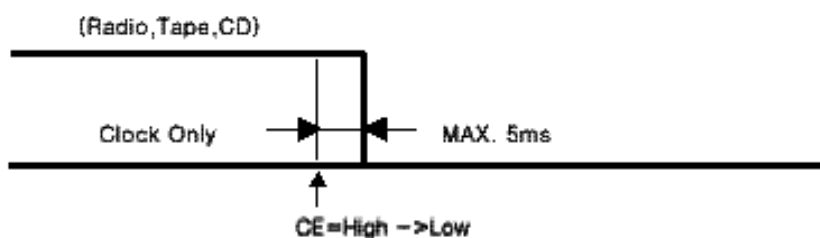
(2) CE : Low to High by RDON switch = 1



9) TAPE or CD OFF to ON

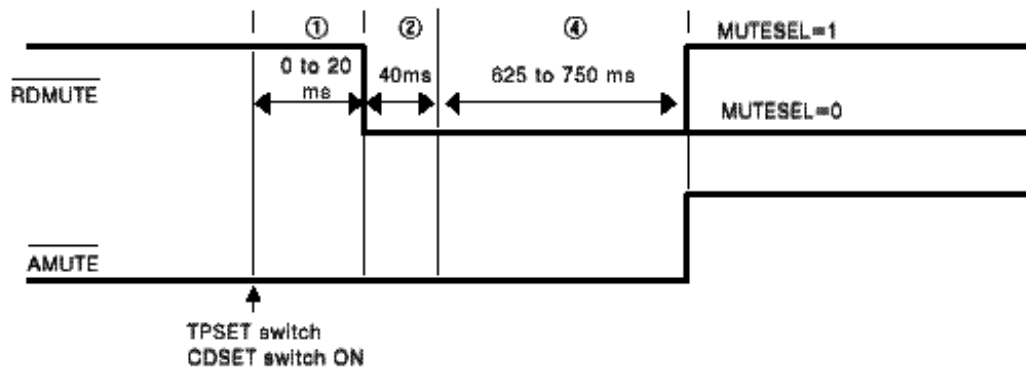


10) CE pin High to Low



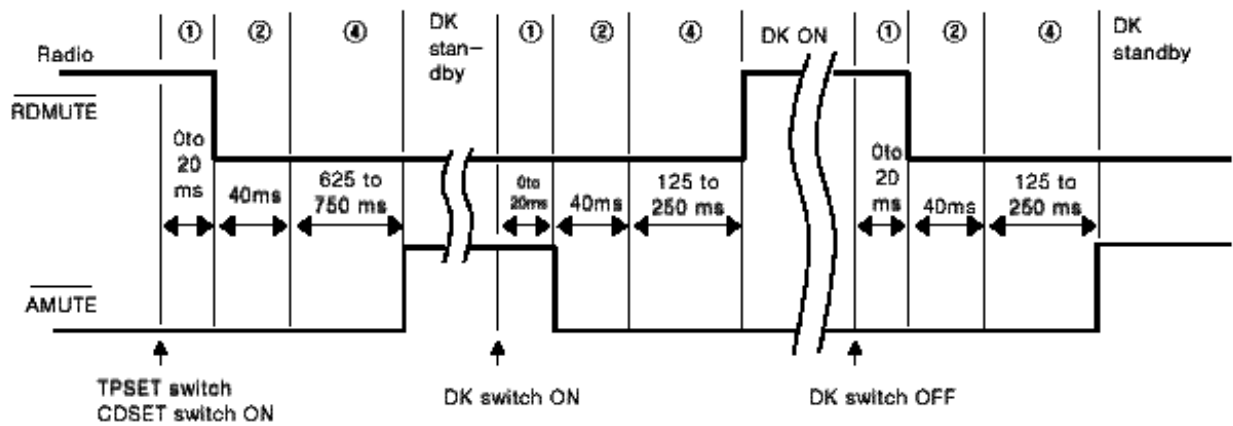
5.2 Radio MUTE(RDMUTE PIN) an Audio MUTE(AMUTE PIN) Output Timing Charge

- 1) When switched from radio to tape or CD mode.
(Other than VF band, other than radio monitor mode)

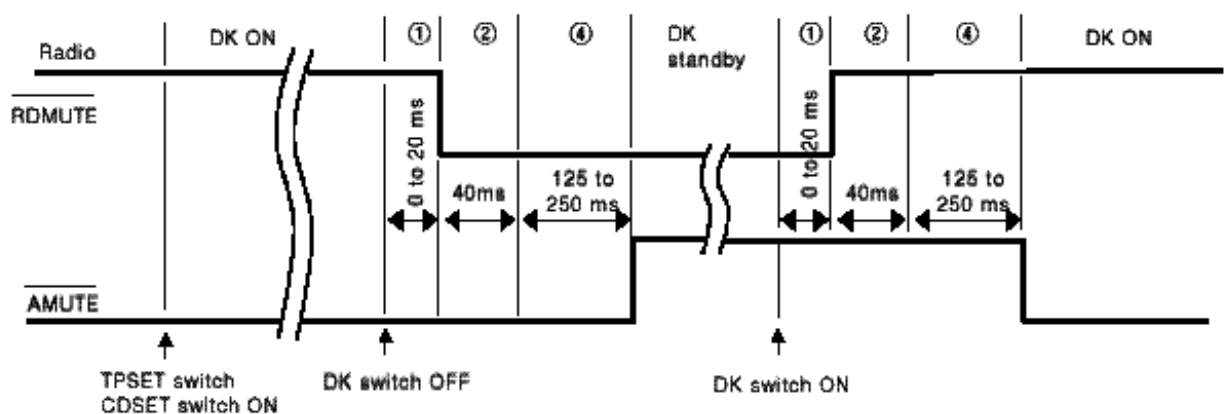


- 2) When switched from VF band to tape or CD mode(Set MUTESEL to 0)

- (1) DK = OFF

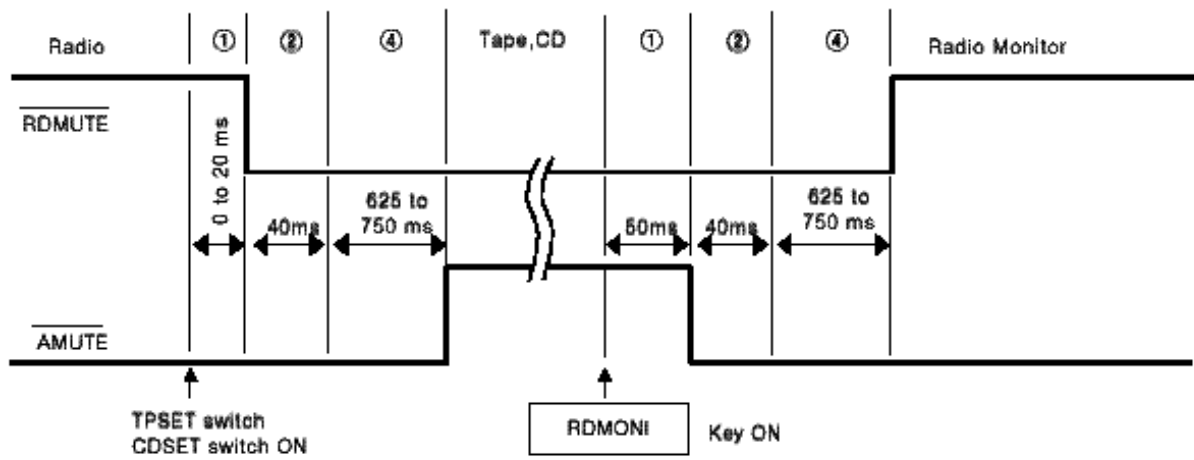


- (2) DK = ON

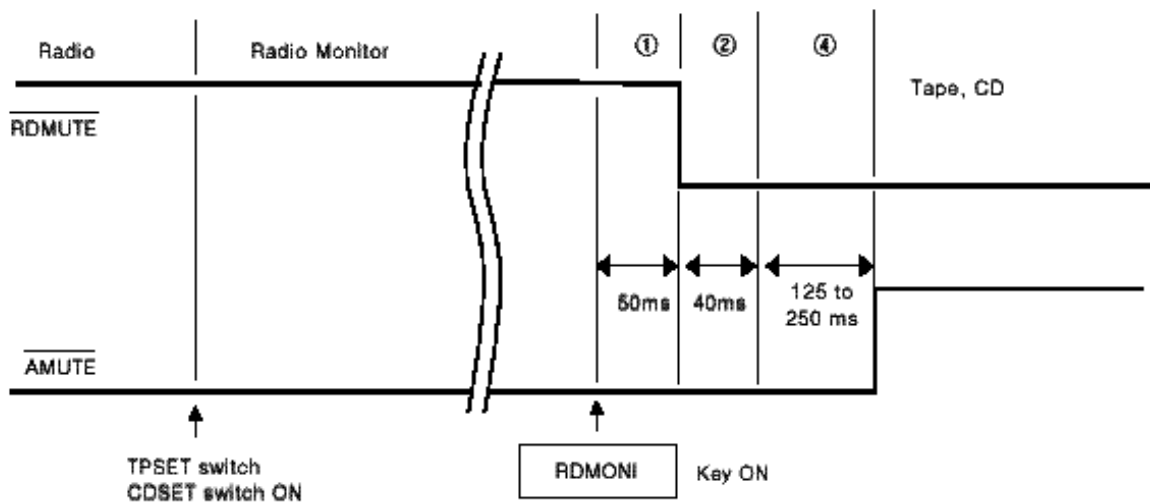


3) Radio monitor mode(Set MUTESEL to 0)

1) When switched from radio monitor OFF in the radio mode.



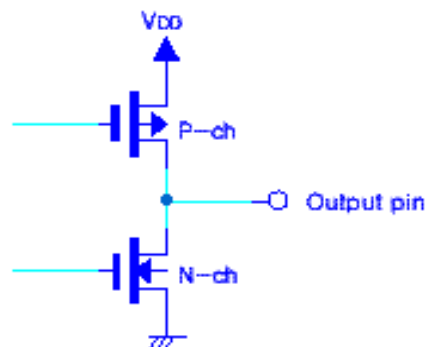
2) When switched from radio monitor ON in the radio mode.



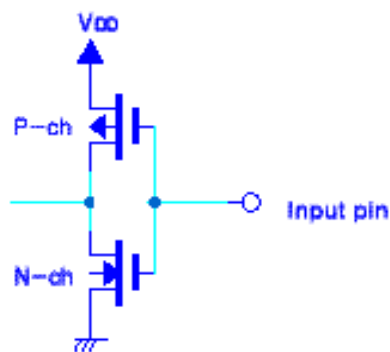
6. Pin I/O Circuits

The I/O circuit of each pin of the SD4002 is shown below in abbreviated form.

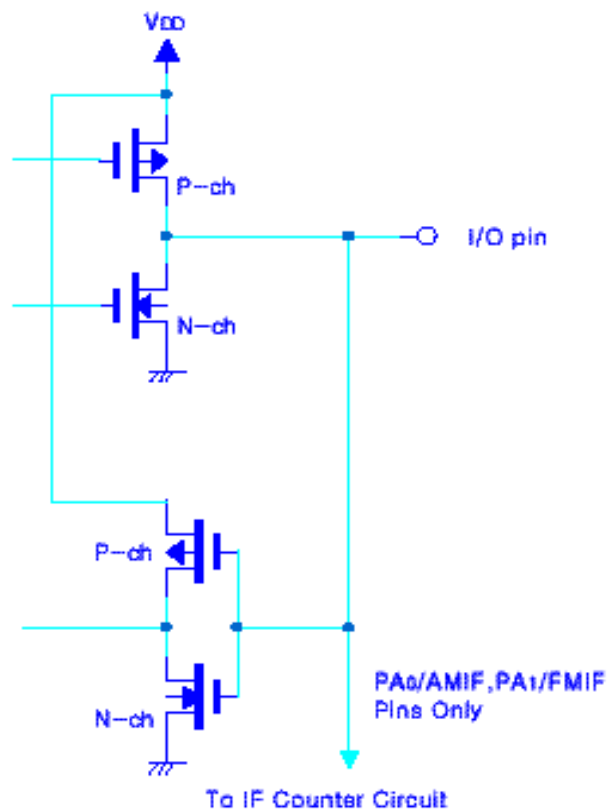
(1) LCD0 / KS0 to LCD27, CGP, PB0 to PB3, PD0 to PD2, EO1, EO2



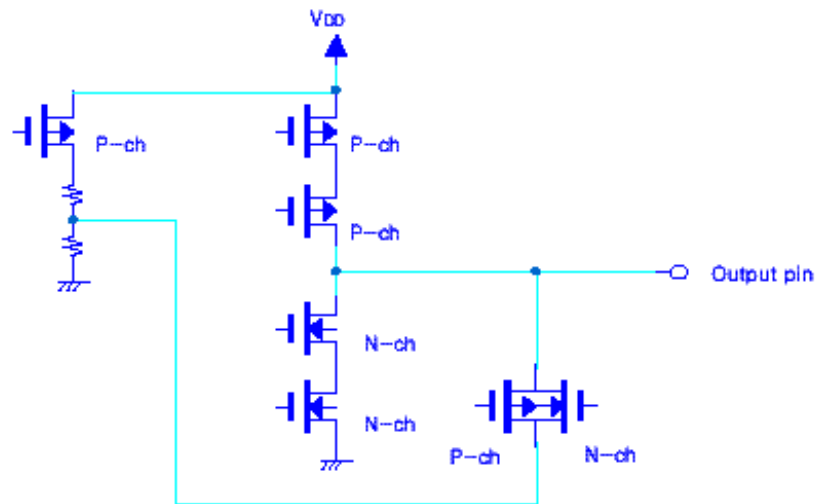
(2) $\overline{\text{INT}}$, AD



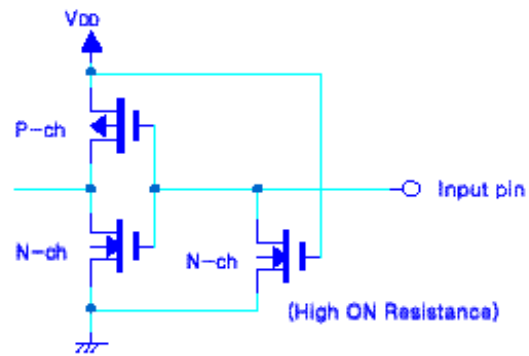
(3) PA₀ / AMIF, PA₁/FMIF, PA₂, PA₃, PC₀ to PC₃



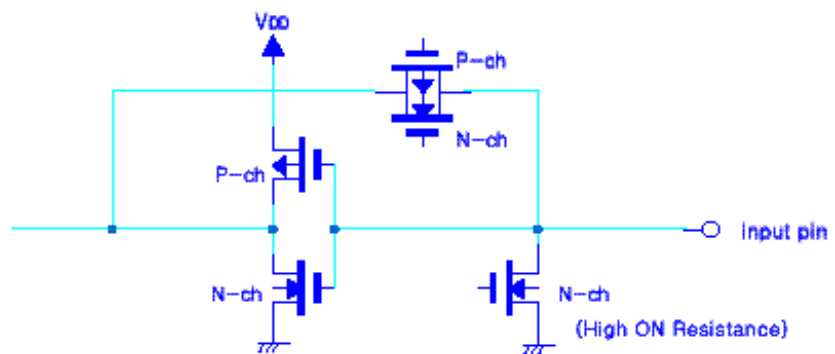
(4) COM₁, COM₂



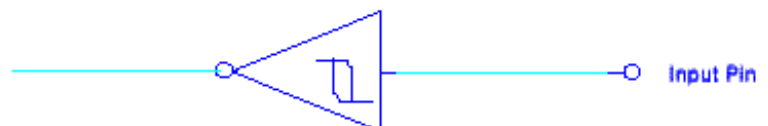
(5) K0 to K3



(6) FM VCO, AM VCO



(7) CE



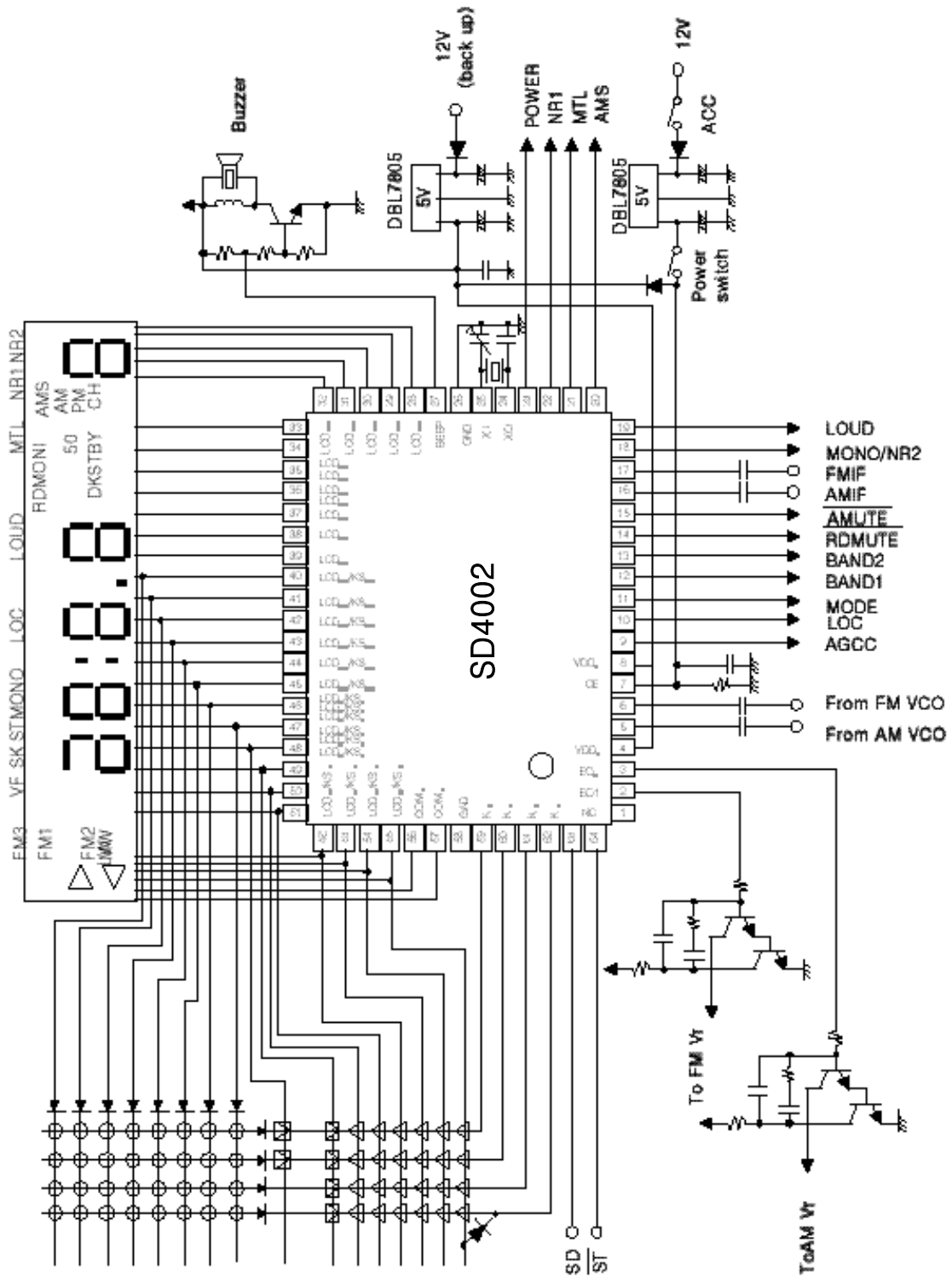
Schmitt Triggered Input with Hysteresis Characteristics

7. Application Circuits

7.1 Power ON/OFF by alternate switch (No clock display in power OFF time)

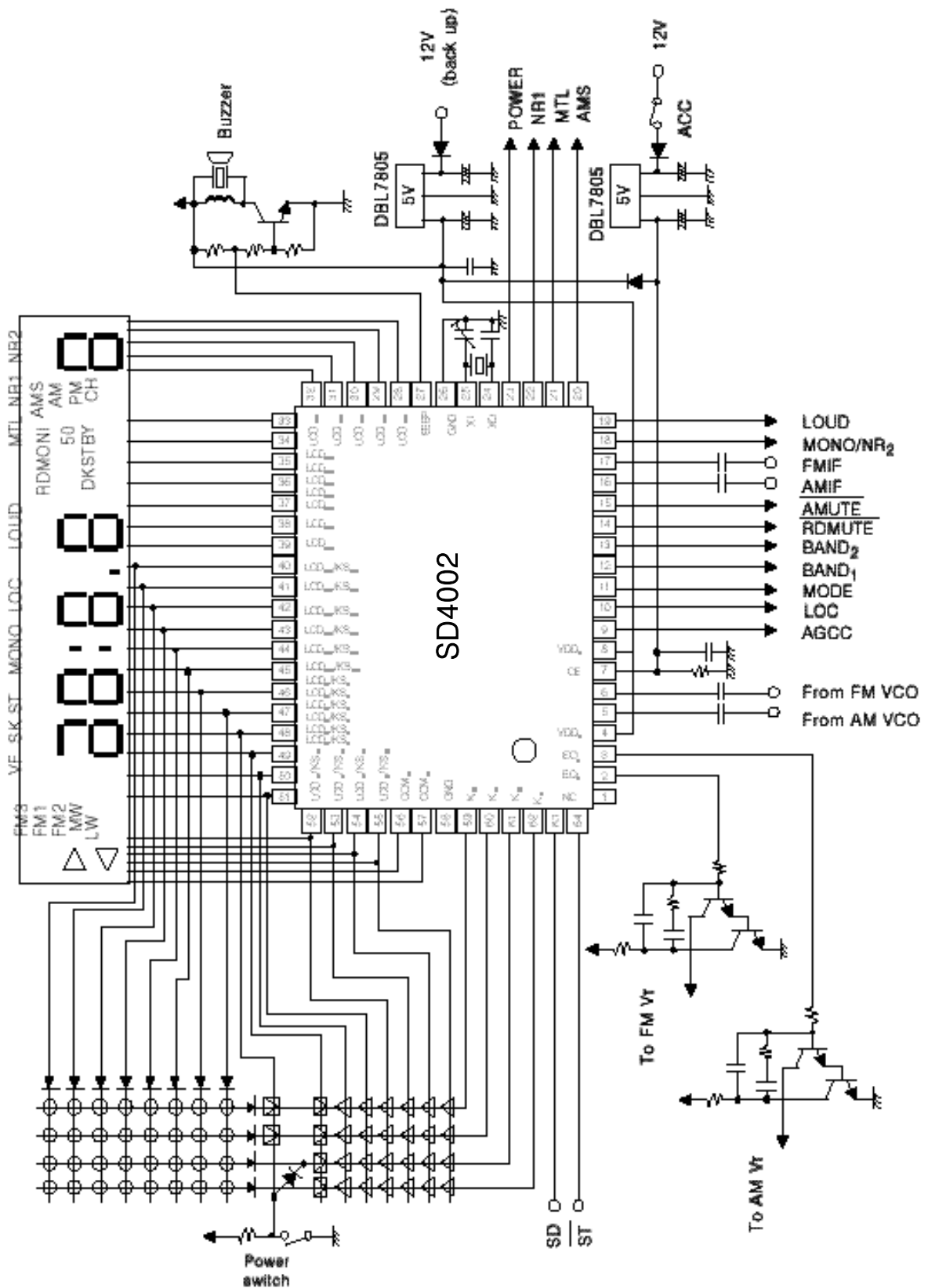
RDON SWITCH = 1

RADIO ON(CE : Low to High)

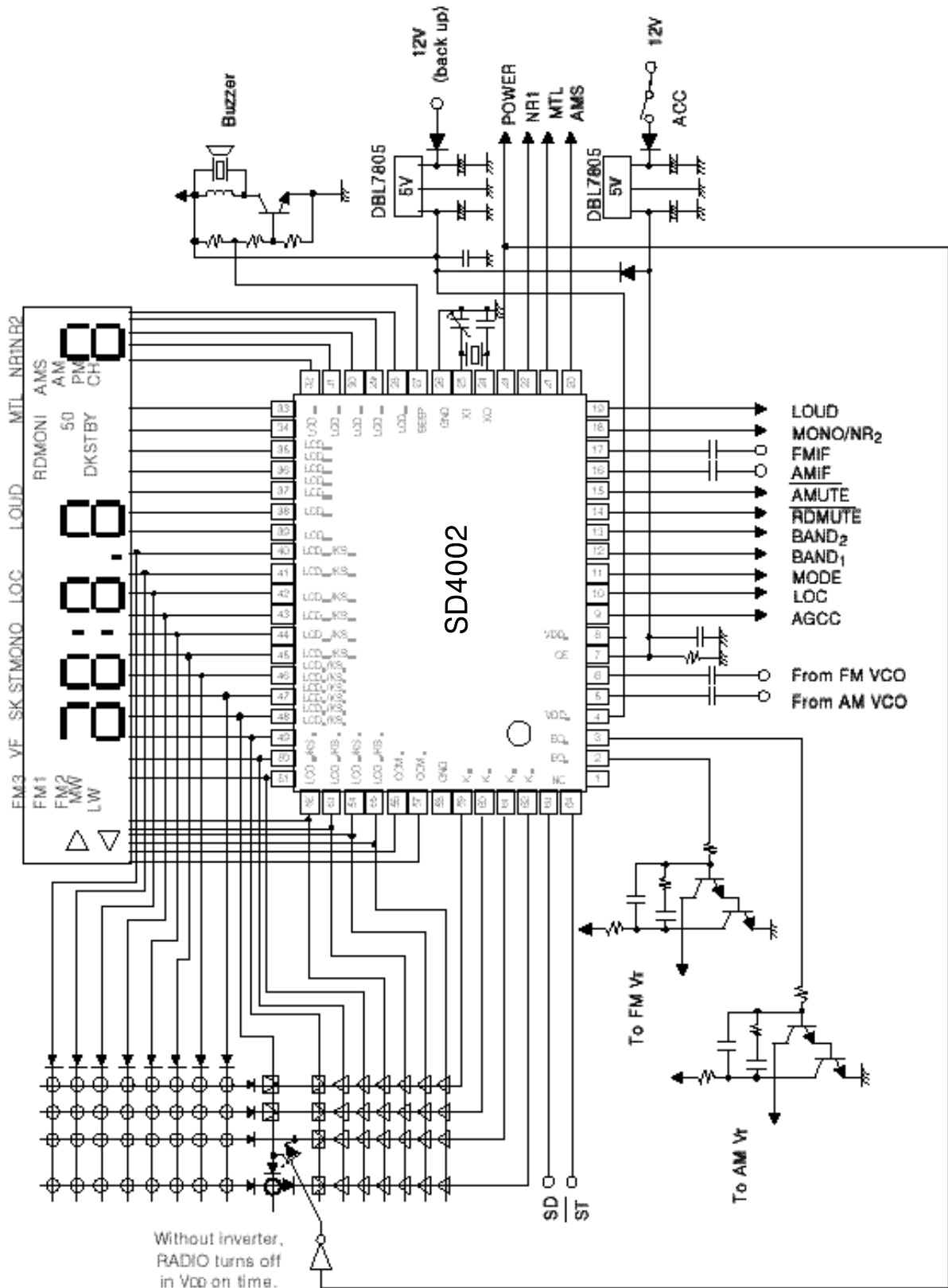


7.2 Power ON/OFF by alternate switch (Clock display in power on time)

RDSET switch is used.



7.3 Power ON/OFF by momentary switch (Clock display in power off time)



8. Electrical Specifications

□ Maximum Ratings

| Characteristic | Symbol | Rating | Unit |
|-----------------------|------------|-----------------------|------|
| Supply Voltage | V_{DD} | -0.3~0.6 | V |
| Input Voltage | V_{IN} | -0.3~ $V_{DD}^{+0.3}$ | V |
| Output Voltage | V_O | -0.3~ $V_{DD}^{+0.3}$ | V |
| Output Sink Current | I_{SINK} | 10 | mA |
| Operating Temperature | T_a | -40~85 | °C |
| Storage Temperature | T_{stg} | -55~125 | °C |

□ Recommended Operating Range

| Characteristics | Symbol | Test Condition | Min. | Typ. | Max. | Unit. |
|--------------------------|-----------|--------------------------|------|------|----------|-------|
| Supply Voltage | V_{DD1} | CPU,PLL operating | 4.5 | 5 | 5.5 | V |
| | V_{DD2} | PLL stoped | 3.5 | 5 | 5.5 | V |
| Date Hold Voltage | V_{DR} | X'tal oscillation stoped | 2.5 | | 5.5 | V |
| Supply Voltage Rise Time | Trise | V_{DD} =Low to High | | | 500 | ms |
| Input Amplitude | V_{IN1} | FM VCO,AM VCO PIN | 0.3 | | V_{DD} | Vp-p |
| Output Amplitude | V_{IN2} | AMIF,FMIF pin | 0.1 | | V_{DD} | Vp-p |

□ AC Characteristics

(Unless otherwise specified $T_a=25^{\circ}\text{C}$, $V_{DD}=4.5$ to 5.5V)

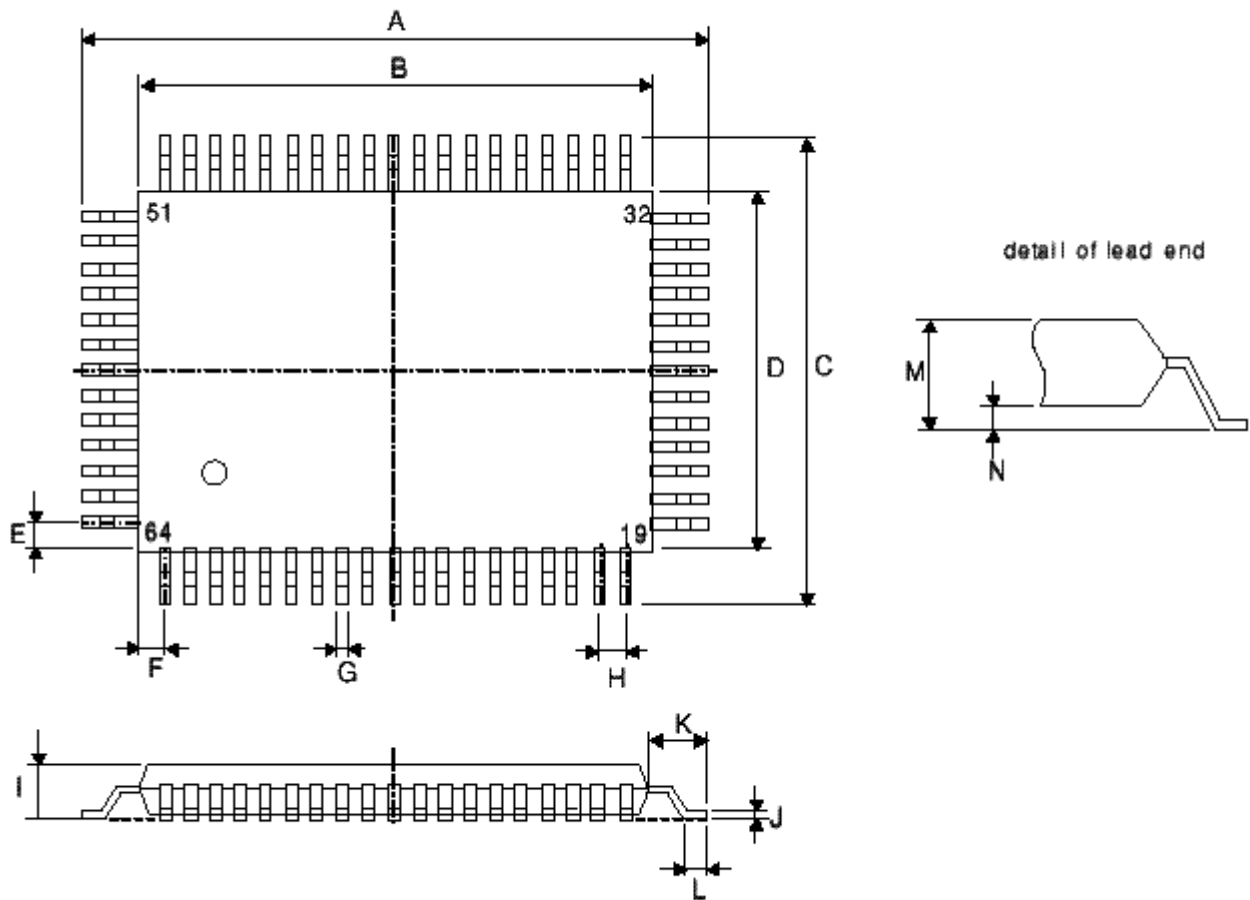
| Characteristics | Symbol | Test Condition | Min. | Typ. | Max. | Unit. |
|---------------------|-----------|---|------|------|------|-------|
| Operating Frequency | f_{in1} | FM VCO pin(position sine wave input) $V_{in}=0.3\text{Vp-p}$ | 10 | | 200 | MHz |
| | f_{in2} | AM VCO pin(position sine wave input) $V_{in}=0.3\text{Vp-p}$ | 0.5 | | 30 | MHz |
| | f_{in3} | FMIF VCO pin(position sine wave input) $V_{in}=0.1\text{Vp-p}$ | 1 | | 20 | MHz |
| | f_{in4} | AMIF VCO pin(position sine wave input) $V_{in}=0.1\text{Vp-p}$ | 0.3 | | 5 | MHz |

□ DC Characteristics

(Unless otherwise specified Ta=25 °C, V_{DD}=4.5 to 5.5V)

| Characteristics | Symbol | Test Condition | Min. | Typ. | Max. | Unit. |
|---------------------------------|-------------------|---|---------------------|------------------|---------------------|-------|
| Input Voltage High | V _{IH1} | PORT A/C | 0.7 V _{DD} | | | V |
| | V _{IH2} | CE, INT | 0.8 V _{DD} | | | V |
| | V _{IH3} | K ₃ to K ₀ | 0.6 V _{DD} | | | V |
| Input Voltage Low | V _{IL1} | PORT A/C, CE, INT | | | 0.2V _{DD} | V |
| | V _{IL2} | K ₃ to K ₀ | | | 0.15V _{DD} | V |
| Output Current High | I _{CH1} | PORT A/B/C/D V _{OH} =V _{DD} -0.4V | -0.4 | | | mA |
| | I _{CH2} | EO ₁ , EO ₂ , CGP, LCD ₂₇ to LCD ₂₄ V _{OH} =V _{DD} -1V | -0.5 | | | mA |
| | I _{CH3} | LCD ₀ to LCD ₂₃ V _{OL} =V _{DD} -1V | -200 | -280 | | μA |
| Output Current Low | I _{OL1} | PORT A/B/C/D, CGP, LCD ₂₇ to LCD ₂₄ V _{OH} =0.4V | 0.6 | | | mA |
| | I _{OL2} | EO ₁ , EO ₂ V _{OL} =1V | 0.5 | | | mA |
| | I _{OL3} | LCD ₀ to LCD ₂₃ V _{OL} =1V | 200 | 300 | | μA |
| Input Current High | I _{IH1} | K ₃ to K ₀ V ₁ =V _{DD} =4.5V | 15 | 120 | 200 | μA |
| | I _{IH2} | FM/AM VCO, XI V ₁ =V _{DD} =4.5V | 100 | | | μA |
| Output Voltage | V _{COM1} | COM1, COM2 V _{DD} =5V, output open | 4.8 | 5.0 | | V |
| | V _{COM2} | COM1, COM2 V _{DD} =5V, output open | 2.3 | 2.5 | 2.7 | V |
| | V _{COM3} | COM1, COM2 V _{DD} =5V, output open | 0 | 0.2 | | V |
| Output off Leakage Current | I _{LEAK} | EO ₁ , EO ₂ V ₀ =V _{DD} , Ta=25°C | | 10 ⁻³ | 1 | μA |
| A/D Converter Resolution | | | | | 6 | bit |
| A/D Converter Absolute Accuracy | | Ta = -10 to + 50 °C | | 1 | 1.5 | LSB |
| Supply current | I _{DD1} | CPU and PLL operating(fin=150MHz) V _{DD} =5V, Ta=25 °C | | 20 | | mA |
| | I _{DD2} | PLL stoped, CPU operating V _{DD} =5V, Ta=25 °C | | 0.5 | | mA |
| Data Hold Current | I _{DR} | X'tal oscillation stoped, Ta=25 °C V _{DD} =5V | | 20 | 400 | μA |
| AD Input Resistance | R ₁ | | 1 | | | MΩ |

9. Package Dimension



| | Millimeter | | | Inche | | Millimeter | | | Inche |
|---|------------|-------|-------|-------|---|------------|------|------|-------|
| | Min. | Typ. | Max. | Typ. | | Min. | Typ. | Max. | Typ. |
| A | 23.4 | 23.86 | 24.2 | .939 | H | - | 1.0 | - | .039 |
| B | 19.85 | 20.0 | 20.15 | .787 | I | 2.6 | 2.71 | 2.8 | .107 |
| C | 17.4 | 17.86 | 18.2 | .703 | J | 0.13 | 0.15 | 0.2 | .006 |
| D | 13.85 | 14.0 | 14.15 | .551 | K | 1.7 | 1.93 | 2.1 | .076 |
| E | - | 1.0 | - | .039 | L | 0.4 | 0.51 | 0.7 | .02 |
| F | - | 1.0 | - | .039 | M | - | 2.91 | 3.15 | .115 |
| G | 0.3 | 0.4 | 0.5 | .016 | N | 0 | 0.2 | 0.35 | .008 |