

## 1. General Description

The MDT75C272 is an OTP Encoder using CMOS technology. It has a maximum of 20 bits addressing code providing up to one million codes. It can reduce any code collision and unauthorized code scanning possibilities.

## 2. Features

- CMOS technology.
- Low standby current : 1.0  $\mu$ A.
- Wide range of Operating Voltage : Vdd = 4.5V ~ 12V.
- Up to 4 data pins.
- Total 1048576 address codes.
- Built-in RC oscillator with single external resistor.
- Available in DIP and SOP package.
- Automatically enter sleep mode if press button over 6 ~ 10 sec

## 3. Pin Assignment

MDT75C272P / 75C272S

8 pin DIP / SOP

|      |   |   |    |
|------|---|---|----|
| OSCR | 1 | 8 | K3 |
| Vdd  | 2 | 7 | K2 |
| Vss  | 3 | 6 | K1 |
| TXD  | 4 | 5 | K0 |

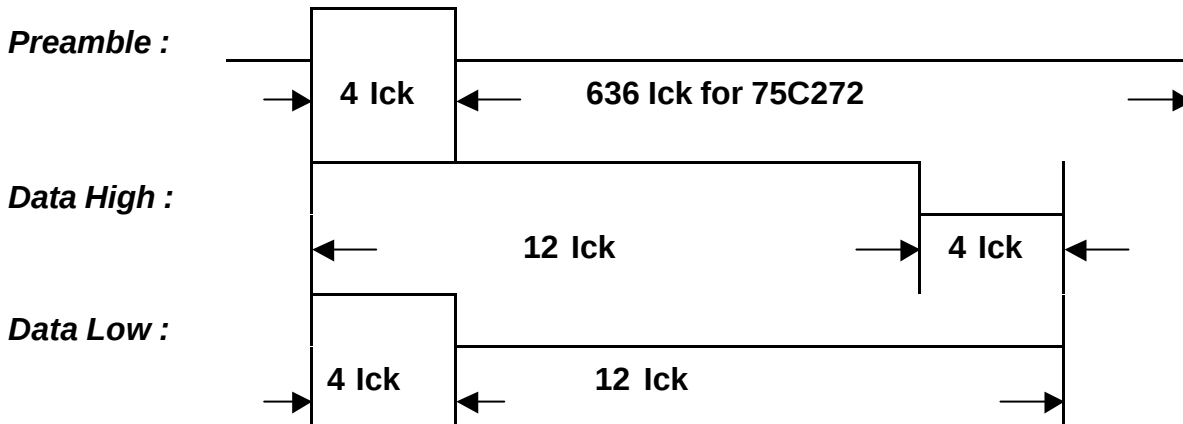
## 4. Pin Function Description

| Symbol | I/O | Function Description                                  |
|--------|-----|-------------------------------------------------------|
| OSCR   | I   | Connect a resistor to Vdd to adjust internal RC freq. |
| Vdd    |     | Positive power supply 4.5V ~ 12 V.                    |
| Vss    |     | Ground.                                               |
| TXD    | O   | Data output pin.                                      |
| K0     | I   | Data input with pull low Resistor.                    |
| K1     | I   | Data input with pull low Resistor.                    |
| K2     | I   | Data input with pull low Resistor.                    |
| K3     | I   | Data input with pull low Resistor.                    |

## 5. Output Data Reporting

### Output data frame

| Preamble | C0 ~ C19 ( 1048576 address codes ) | D0 | D1 | D2 | D3 |
|----------|------------------------------------|----|----|----|----|
|----------|------------------------------------|----|----|----|----|



Note : 1 lck = 8 OSC clocks

## 6. Key 0 ~ 3 combination table

| K3 | K2 | K1 | K0 | D3 | D2 | D1 | D0 |
|----|----|----|----|----|----|----|----|
| 0  | 0  | 0  | 1  | 0  | 0  | 0  | 1  |
| 0  | 0  | 1  | 0  | 0  | 0  | 1  | 0  |
| 0  | 0  | 1  | 1  | 0  | 0  | 1  | 1  |
| 0  | 1  | 0  | 0  | 0  | 1  | 0  | 0  |
| 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  |
| 0  | 1  | 1  | 0  | 0  | 1  | 1  | 0  |
| 0  | 1  | 1  | 1  | 0  | 1  | 1  | 1  |
| 1  | 0  | 0  | 0  | 1  | 0  | 0  | 0  |
| 1  | 0  | 0  | 1  | 1  | 0  | 0  | 1  |
| 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  |
| 1  | 0  | 1  | 1  | 1  | 0  | 1  | 1  |
| 1  | 1  | 0  | 0  | 1  | 1  | 0  | 0  |
| 1  | 1  | 0  | 1  | 1  | 1  | 0  | 1  |
| 1  | 1  | 1  | 0  | 1  | 1  | 1  | 0  |
| 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  |

### 7. Absolute Maximum Rating

| Symbol | Parameter              | Conditions | Rating         | Unit |
|--------|------------------------|------------|----------------|------|
| Vdd    | Supply Voltage         |            | -0.3 ~ 13      | V    |
| Vi     | Input Voltage          |            | -0.3 ~ Vdd+0.3 | V    |
| Vo     | Output Voltage         |            | -0.3 ~ Vdd+0.3 | V    |
| Tst    | Storage Temp.          |            | -40 ~ 125      |      |
| Top    | Operating Temp.        |            | -20 ~ 70       |      |
| Pdis   | Max. Power dissipation | Vdd = 12V  | 300            | mW   |

### 8. DC Electrical Characteristics ( $T_A=0$ to 70 )

| Symbol          | Parameters        | Conditions                                              | Min. | Typ. | Max. | Unit |
|-----------------|-------------------|---------------------------------------------------------|------|------|------|------|
| Vdd             | Operating Voltage |                                                         | 4.5  | 5    | 12   | V    |
| I <sub>sb</sub> | Stand by current  | Vdd = 12V, OSC stop<br>K0 ~ K3 = Low<br>Output Unloaded |      | 1.0  | 3.0  | uA   |
| I <sub>op</sub> | Operating current | Vdd =12V                                                |      | 0.5  | 1.0  | mA   |
| I <sub>oh</sub> | Source current    | Vdd =12V, Voh = 6V                                      | 4.5  |      |      | mA   |
| I <sub>ol</sub> | Sink Current      | Vdd =12V, Vol = 6V                                      | 4.5  |      |      | mA   |
| F <sub>op</sub> | Operating Freq    | Vdd=10V, Rext=390K ohm                                  |      | 80K  |      | HZ   |

### 9. External oscillator resistor selection table (Vdd=11V)

| Rext (ohm) | Freq. (Hz) | Operating Current |
|------------|------------|-------------------|
| 510 K      | 65.0 K     | 443 μA            |
| 470 K      | 65.0 K     | 444 μA            |
| 430 K      | 72.7 K     | 445 μA            |
| 390 K      | 79.6 K     | 447 μA            |
| 360 K      | 82.9 K     | 449 μA            |
| 330 K      | 90.4 K     | 451 μA            |

## 10. Application circuit

