

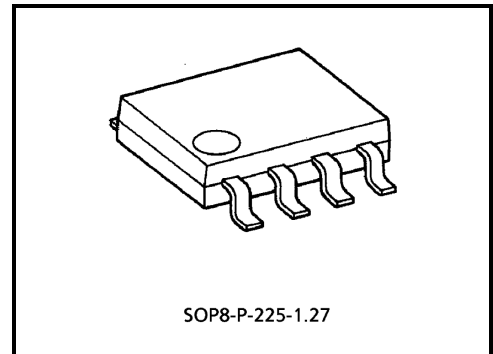
# TD7101F

## ELC Prescaler For Digital Synthesized Tuner

TD7101F is a 2 modulus prescaler developed for low operating voltage digital synthesized tuner, and can operate up to 150MHz.

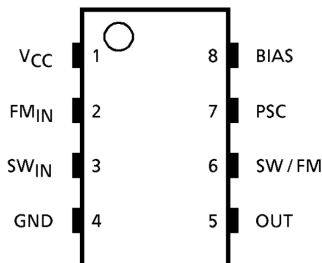
### Features

- Operating frequency range is 1.5~35MHz / 50~150MHz.
- 2 modulus prescaler:  $N = 4 \times 15 / 16$  and  $N = 15 / 16$
- Input voltage sensitivity is  $V_{IN} (FM) = 35mV_{rms}$ ,  $V_{IN} (SW) = 40mV_{rms}$
- 3V low operating supply voltage.
- The package is SOP-8 pins.

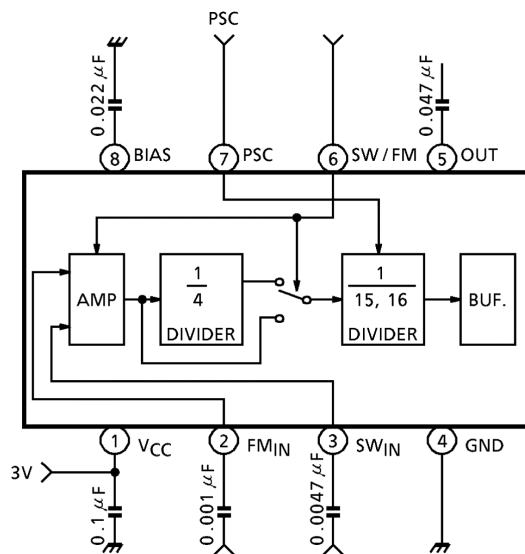


Weight: 0.08g (typ.)

### Pin Connection



### Block Diagram



(Note) This device is vulnerable to surge voltage.  
Take it into account when using this device in your system.

## Pin Function

| Pin No. | Symbol           | Function   | Remarks |
|---------|------------------|--|---------|
| 1       | V <sub>CC</sub>  | Power supply terminal.   | —       |
| 2       | FM <sub>IN</sub> | Signal input terminal from FM local oscillator.  | —       |
| 3       | SW <sub>IN</sub> | Signal input terminal from SW local oscillator.  | —       |
| 4       | GND              | Ground terminal.   | —       |
| 5       | Out              | Divider signal output terminal.  | —       |
| 6       | SW / FM          | Dividing mode control terminal.<br>"H" level input: SW <sub>IN</sub> is selected, direct mode.<br>"L" level input: FM <sub>IN</sub> is selected, 1 / 4 mode. | —       |
| 7       | PSC              | 2 modulus mode control terminal.<br>"H" level input: 1 / 16 dividing<br>"L" level input: 1 / 15 dividing   | —       |
| 8       | Bias             | Bias capacitor terminal.<br>Bias capacitor is connected.   | —       |

## Maximum Ratings (Ta = 25°C)

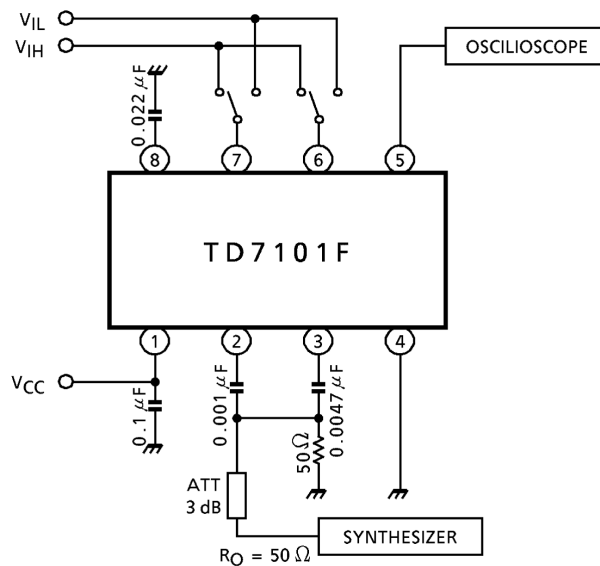
| Characteristic        | Symbol           | Rating                     | Unit |
|-----------------------|------------------|----------------------------|------|
| Power supply voltage  | V <sub>CC</sub>  | 6.5                        | V    |
| Power dissipation     | P <sub>D</sub>   | 200                        | mW   |
| Input voltage         | V <sub>IN</sub>  | -0.3~V <sub>CC</sub> + 0.3 | V    |
| Operating temperature | T <sub>opr</sub> | -10~60                     | °C   |
| Storage temperature   | T <sub>stg</sub> | -55~150                    | °C   |

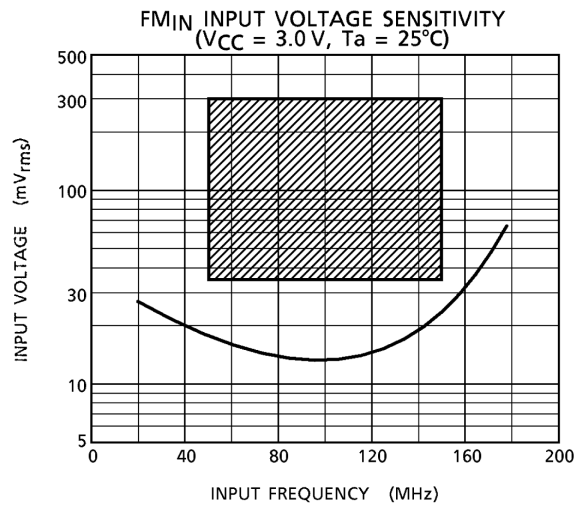
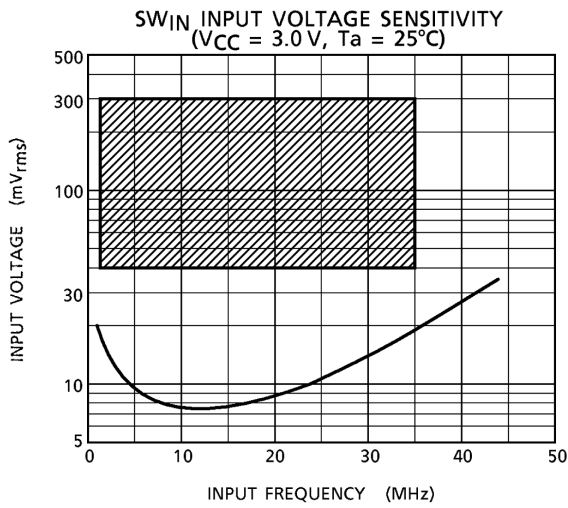
## Electrical Characteristics


(unless otherwise specified,  $V_{CC} = 1.8\sim 5.5V$ ,  $T_a = -10\sim 60^\circ C$ ,  $f_{in} (FM) = 50\sim 150MHz$ ,  $f_{in} (SW) = 1.5\sim 35MHz$  )

| Characteristic            |           | Symbol    | Test Circuit | Test Condition                                  | Min. | Typ. | Max.     | Unit              |
|---------------------------|-----------|-----------|--------------|---|------|------|----------|-------------------|
| Supply voltage            |           | $V_{CC}$  | —            | —   | 1.8  | 3.0  | 5.5      | V                 |
| Supply current            |           | $I_{CC}$  | —            | $V_{CC} = 3.0V$                                 | —    | 5.5  | 9.5      | mA                |
| Operating frequency range |           | $f_{IN1}$ | —            | FM <sub>IN</sub>                                | 50   | —    | 150      | MHz               |
|                           |           | $f_{IN2}$ | —            | SW <sub>IN</sub>                                | 1.5  | —    | 35       |                   |
| Input voltage range       |           | $V_{IN1}$ | —            | FM <sub>IN</sub>                                | 35   | —    | 300      | mV <sub>rms</sub> |
|                           |           | $V_{IN2}$ | —            | SW <sub>IN</sub>                                | 40   | —    | 300      |                   |
| Output amplitude          |           | $V_{OUT}$ | —            | —   | 0.5  | —    | —        | V <sub>p-p</sub>  |
| Input voltage             | "H" level | $V_{IH}$  | —            | PSC, SW / FM                                    | 1.6  | —    | $V_{CC}$ | V                 |
|                           | "L" level | $V_{IL}$  | —            | PSC, SW / FM                                    | 0    | —    | 1.0      |                   |
| Input current             | "H" level | $I_{IH}$  | —            | PSC, SW / FM, $V_{CC} = 5.0V$ , $V_{IH} = 4.0V$ | —    | —    | 60       | $\mu A$           |
|                           | "L" level | $I_{IL}$  | —            | PSC, SW / FM, $V_{CC} = 5.0V$ , $V_{IL} = 1.0V$ | —    | —    | 10       |                   |

## Test Circuit (input voltage sensitivity)



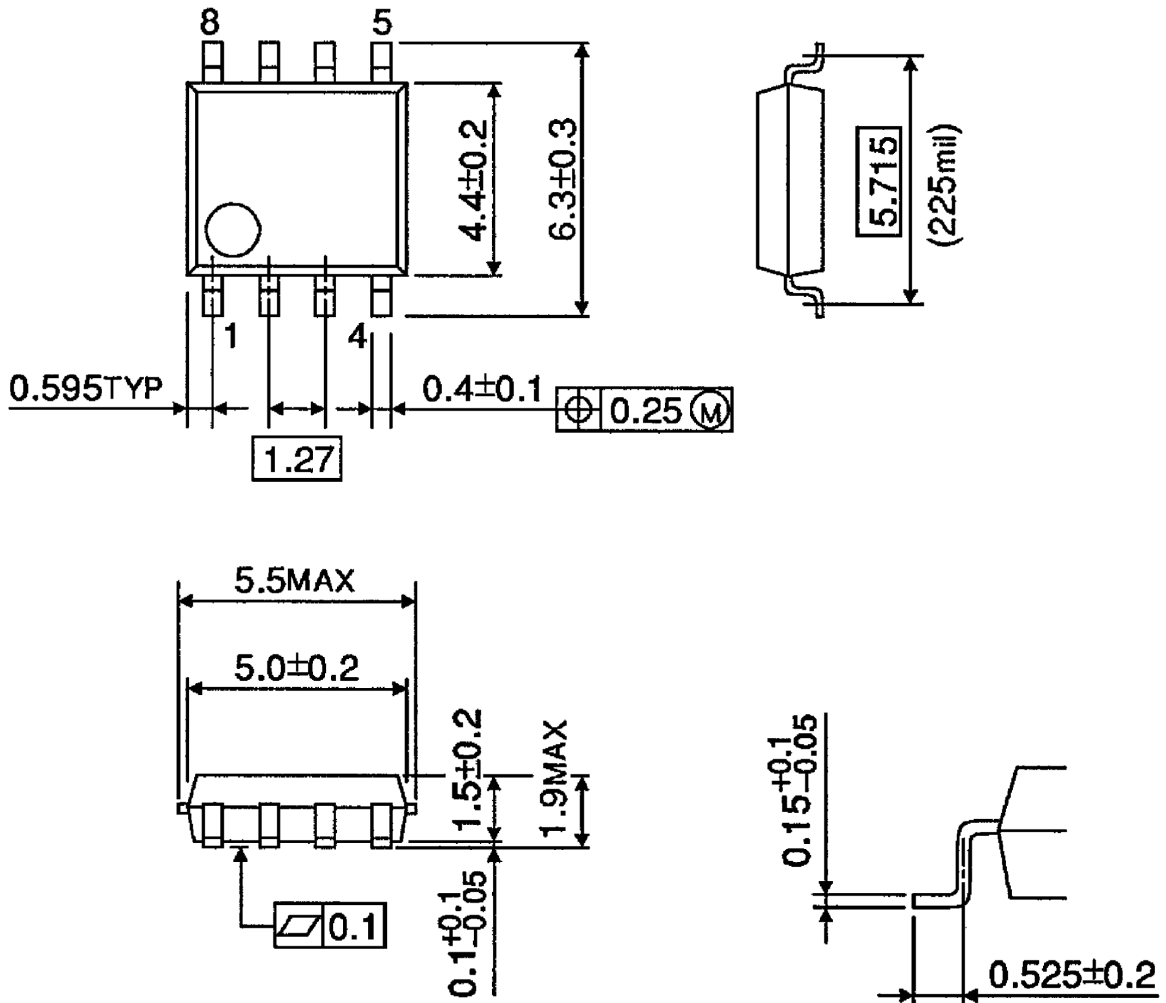


(Note)  Operating range (V<sub>CC</sub> = 1.8~5.5 V, T<sub>a</sub> = -10~60°C)

**Package Dimensions**

SOP8-P-225-1.27

Unit : mm



Weight: 0.08g (typ.)

**RESTRICTIONS ON PRODUCT USE**

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