

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

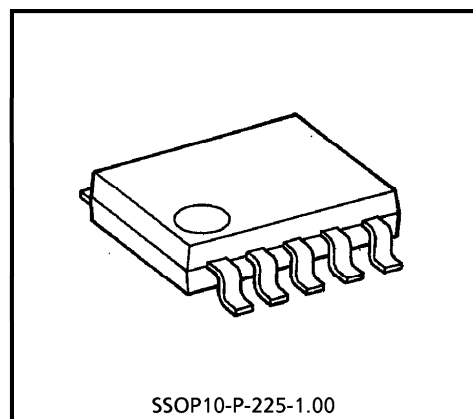
TD7103F

ECL PRESCALER FOR DIGITAL SYNTHESIZED TUNER

TD7103F is 1.5 V prescaler for digital synthesizer tuner and suitable for FM/TV band receiving.

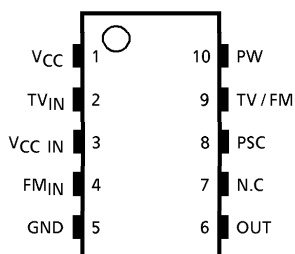
FEATURES

- Low voltage : V_{CC} (MIN.) = 1.0 V
- Operating frequency FM : 50~150 MHz
TV : 50~250 MHz
- 2 modulus prescaler $N = 60/64, 120/128$
- Built-in stand-by circuit

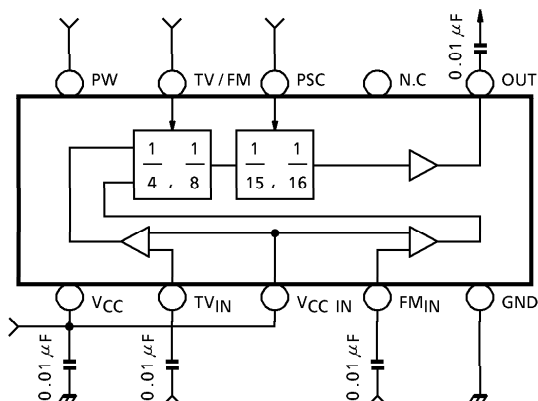


Weight : 0.10 g (Typ.)

PIN CONNECTION



BLOCK DIAGRAM



980910EBA2

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PIN FUNCTION

| PIN No. | SYMBOL | FUNCTION | | | REMARKS | | |
|---------|------------------|--|-------------------------|-----|----------|---|-----|
| 1, 3 | V _{CC} | Power supply terminal | | | — | | |
| 2 | TV _{IN} | Signal input terminal TV (VHF) local oscillator | | | — | | |
| 4 | FM _{IN} | Signal input terminal FM local oscillator | | | — | | |
| 5 | GND | Ground terminal | | | — | | |
| 6 | OUT | Divider signal output terminal | | | — | | |
| 8 | PSC | 2 modulus mode control terminal | TV / FM | PSC | Dividing | — | |
| 9 | TV / FM | | Mode selection terminal | L | L | | 60 |
| | | | | L | H | | 64 |
| | | | | H | L | | 120 |
| | | | H | H | 128 | | |
| 10 | PW | PW stand-by terminal "H" : Operate "L" or OPEN : Stand-by | | | — | | |

MAXIMUM RATINGS (Ta = 25°C)

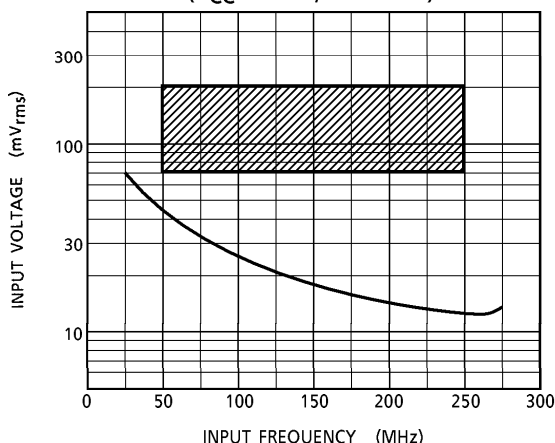
| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------|------------------|----------------------------|------|
| Power Supply Voltage | V _{CC} | 4.5 | V |
| Input Voltage | V _{IN} | -0.3~V _{CC} + 0.3 | V |
| Power Dissipation | P _D | 400 (Note) | mW |
| Operating Temperature | T _{opr} | -25~75 | °C |
| Storage Temperature | T _{stg} | -55~150 | °C |

(Note) Derated linearly above Ta = 25°C in the proportion of 3.2 mW / °C

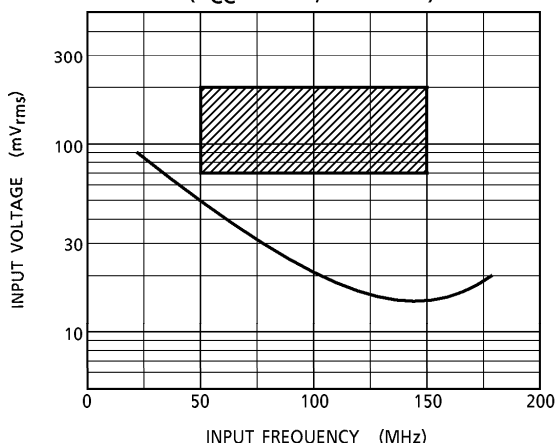
ELECTRICAL CHARACTERISTICS (Unless otherwise specified, V_{CC} = 1.0~3.0 V, Ta = -25~75°C)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---------------------------|-----------|----------------------|--------------|--|-----------------------|------|-----------------------|-------------------|
| Supply Voltage | | V _{CC} | — | — | 1.0 | — | 3.0 | V |
| Supply Current | | I _{CCopr} | — | V _{CC} = 1.2 V | — | 6 | 10 | mA |
| | | I _{CCSTB} | — | V _{CC} = 3.0 V | — | 1 | 10 | μA |
| Operating Frequency Range | FM | f _{IN (FM)} | — | V _{IN} = 70 mV _{rms} | 50 | — | 150 | MHz |
| | TV | f _{IN (TV)} | — | V _{IN} = 70 mV _{rms} | 50 | — | 250 | |
| Input Voltage | | V _{IN} | — | — | 70 | — | 200 | mV _{rms} |
| Output Amplitude | | V _{OUT} | — | — | 0.4 | — | — | V _{p-p} |
| Input Voltage | "H" Level | V _{IL} | — | PSC, TV / FM, STB | V _{CC} × 0.8 | — | V _{CC} | V |
| | "L" Level | V _{IH} | — | PSC, TV / FM, STB | 0 | — | V _{CC} × 0.2 | |
| Input Current | "H" Level | I _{IL} | — | — | — | — | 100 | μA |
| | "L" Level | I _{IH} | — | — | — | — | -100 | |

TV_{IN} INPUT VOLTAGE SENSITIVITY (V_{CC} = 1.2 V, Ta = 25°C)



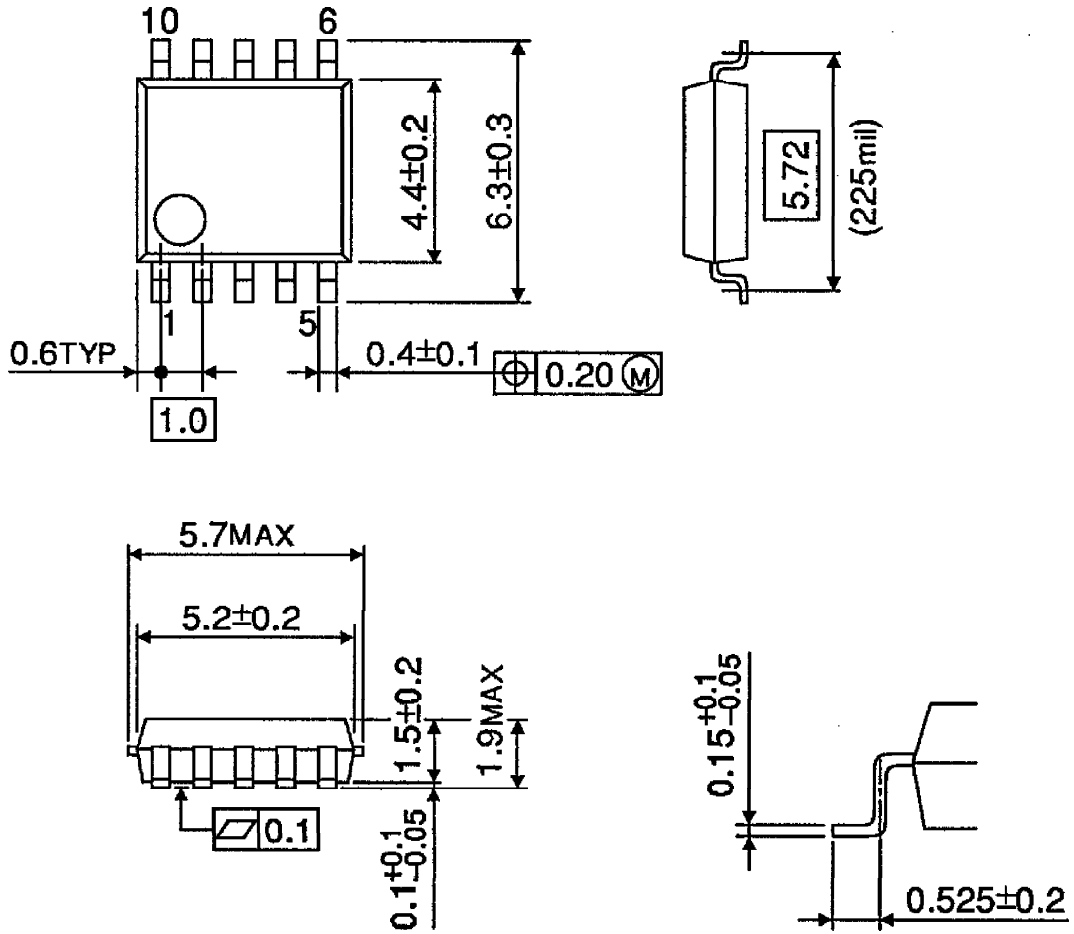
FM_{IN} INPUT VOLTAGE SENSITIVITY (V_{CC} = 1.2 V, Ta = 25°C)



(Note) Operating range (V_{CC} = 1.0~3.0 V, Ta = 25~75°C)

OUTLINE DRAWING
SSOP10-P-225-1.00

Unit : mm



Weight : 0.10 g (Typ.)