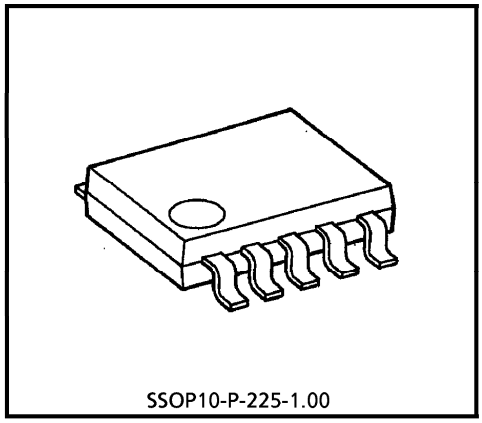
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD7103F

ECL PRESCALER FOR DIGITAL SYNTHESIZED TUNER

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



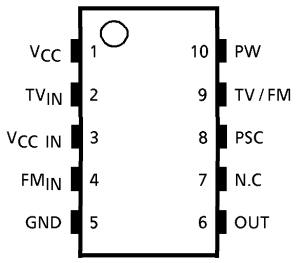
SSOP10-P-225-1.00

Weight : 0.10 g (Typ.)

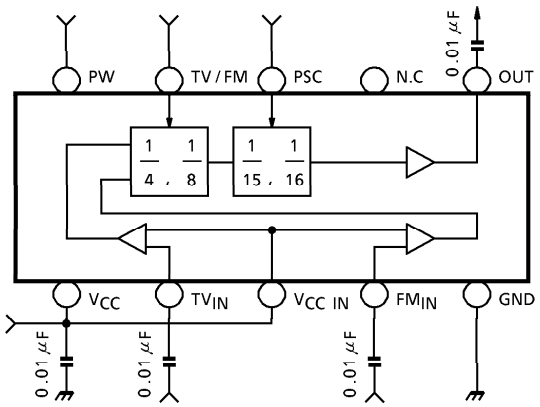
FEATURES

- 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

PIN CONNECTION



BLOCK DIAGRAM



PIN FUNCTION

<table>
<tr><th>PIN No.</th><th>SYMBOL</th><th>FUNCTION</th><th>REMARKS</th></tr>
<tr><td>1, 3</td><td>V_{CC}</td><td>Power supply terminal</td><td>—</td></tr>
<tr><td>2</td><td>TV_{IN}</td><td>Signal input terminal TV (VHF) local oscillator</td><td>—</td></tr>
<tr><td>4</td><td>FM_{IN}</td><td>Signal input terminal FM local oscillator</td><td>—</td></tr>
<tr><td>5</td><td>GND</td><td>Ground terminal</td><td>—</td></tr>
<tr><td>6</td><td>OUT</td><td>Divider signal output terminal</td><td>—</td></tr>
<tr><td>8</td><td>PSC</td><td>2 modulus mode control terminal</td><td rowspan="2">—</td></tr>
<tr><td>9</td><td>TV / FM</td><td>Mode selection terminal</td></tr>
<tr><td>10</td><td>PW</td><td>PW stand-by terminal “H” : Operate
“L” or OPEN : Stand-by</td><td>—</td></tr>
</table>

TV / FM	PSC	Dividing
L	L	60
L	H	64
H	L	120
H	H	128

MAXIMUM RATINGS (Ta = 25°C)

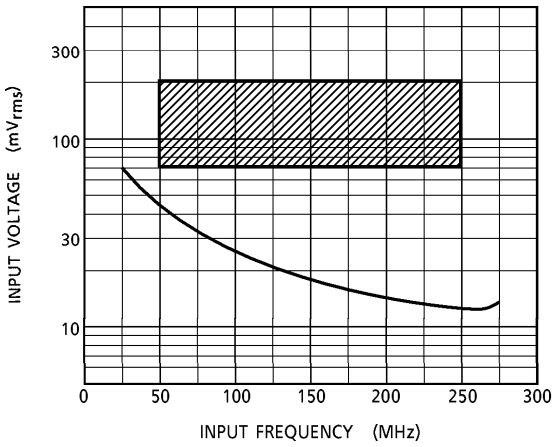
CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Supply Voltage	V_{CC}	4.5	V
Input Voltage	V_{IN}	−0.3~V_{CC} + 0.3	V
Power Dissipation	P_D	400 (Note)	mW
Operating Temperature	T_{opr}	−25~75	°C
Storage Temperature	T_{stg}	−55~150	°C

(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 CIR-CUIT	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)



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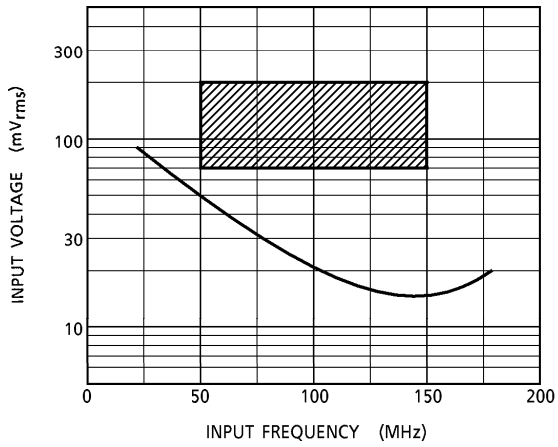
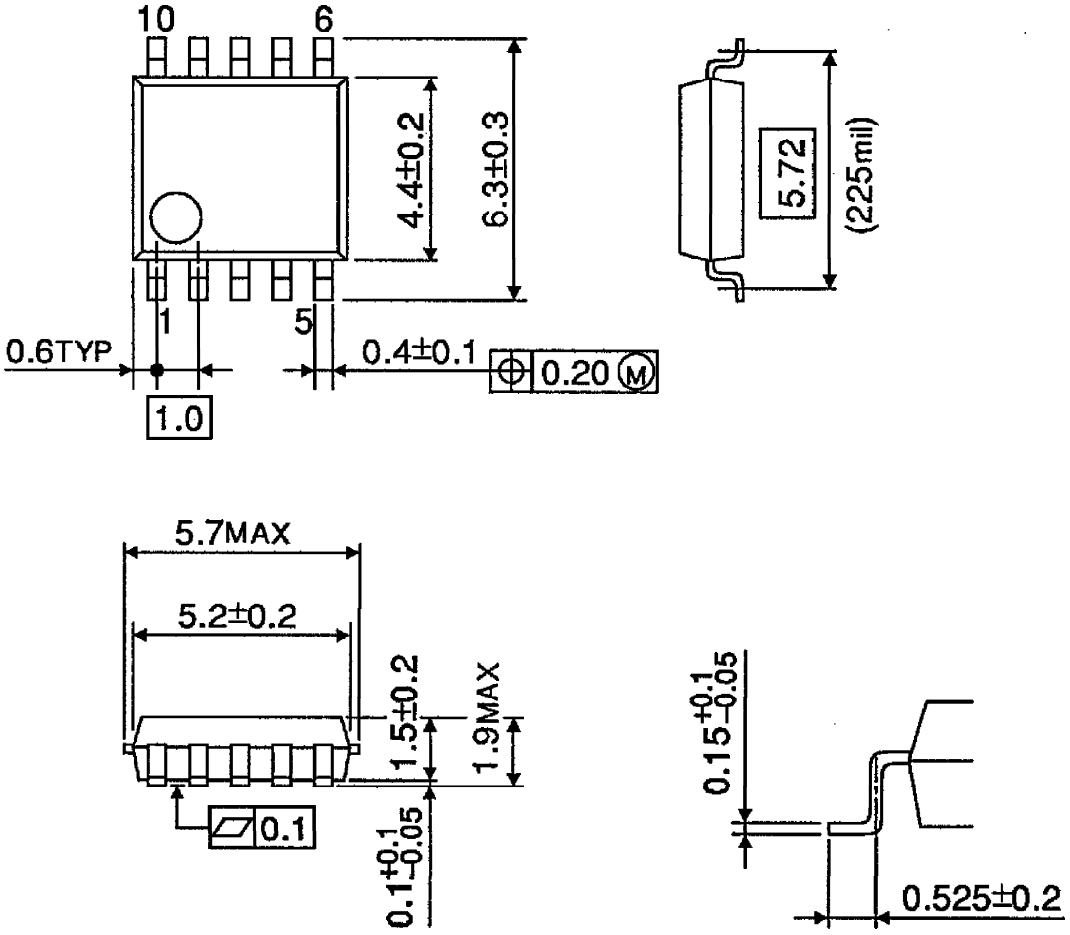


(Note) ▨ Operating range (V_{CC} = 1.0~3.0 V, Ta = 25~75°C)

OUTLINE DRAWING

SSOP10-P-225-1.00

Unit : mm



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