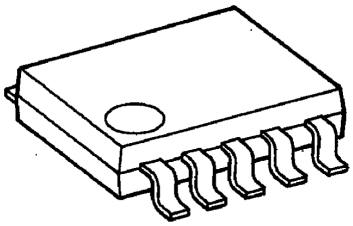
TOSHIBA Bipolar Digital Integrated Circuit Silicon Monolithic

TD7103F

ECL Prescaler For Digital Synthesized Tuner

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



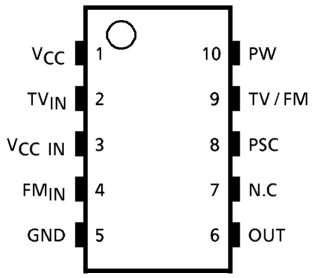
SSOP10-P-225-1.00

Weight: 0.10g (typ.)

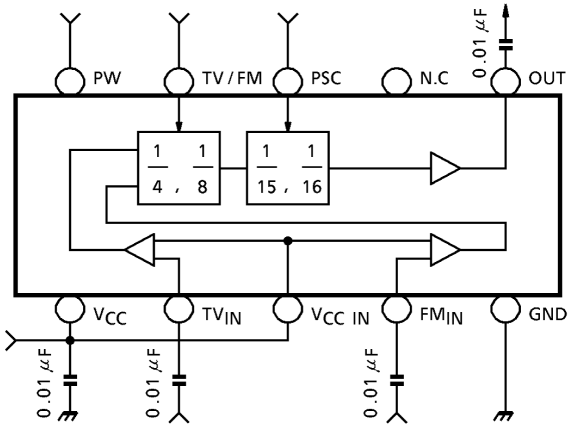
Features

- Low voltage: V_{CC} (MIN.) = 1.0V
- Operating frequency FM: 50~150MHz
  TV: 50~250MHz
- 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

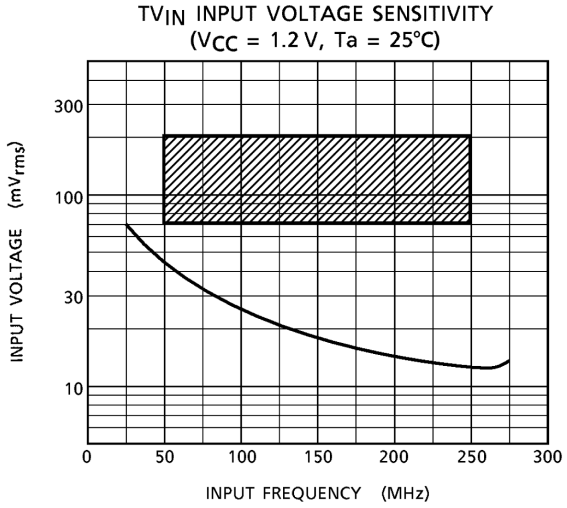
Maximum Ratings (Ta = 25°C)

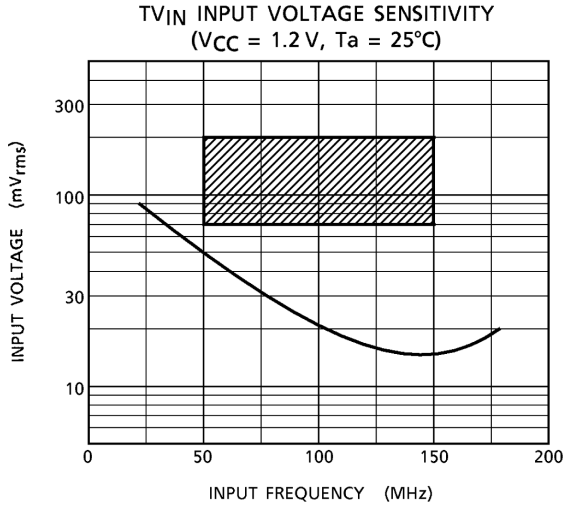
Characteristic	Symbol	Rating	Unit
Power supply voltage	V_{CC}	4.5	V
Input voltage	V_{IN}	−0.3~V_{CC} + 0.3	V
Power dissipation	P_D	400 (Note)	mW
Operating temperature	T_{opr}	−25 ~ 75	°C
Storage temperature	T_{stg}	−55 ~ 150	°C

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

Electrical Characteristics (unless otherwise specified, V_{CC} = 1.0~3.0V, 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} = 1.2V	—	6	10	mA
		I_{CCSTB}	—	V_{CC} = 3.0V	—	1	10	μA
Operating frequency range	FM	$f_{IN\ (FM)}$	—	V_{IN} = 70mV_{rms}	50	—	150	MHz
	TV	$f_{IN\ (TV)}$	—	V_{IN} = 70mV_{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	

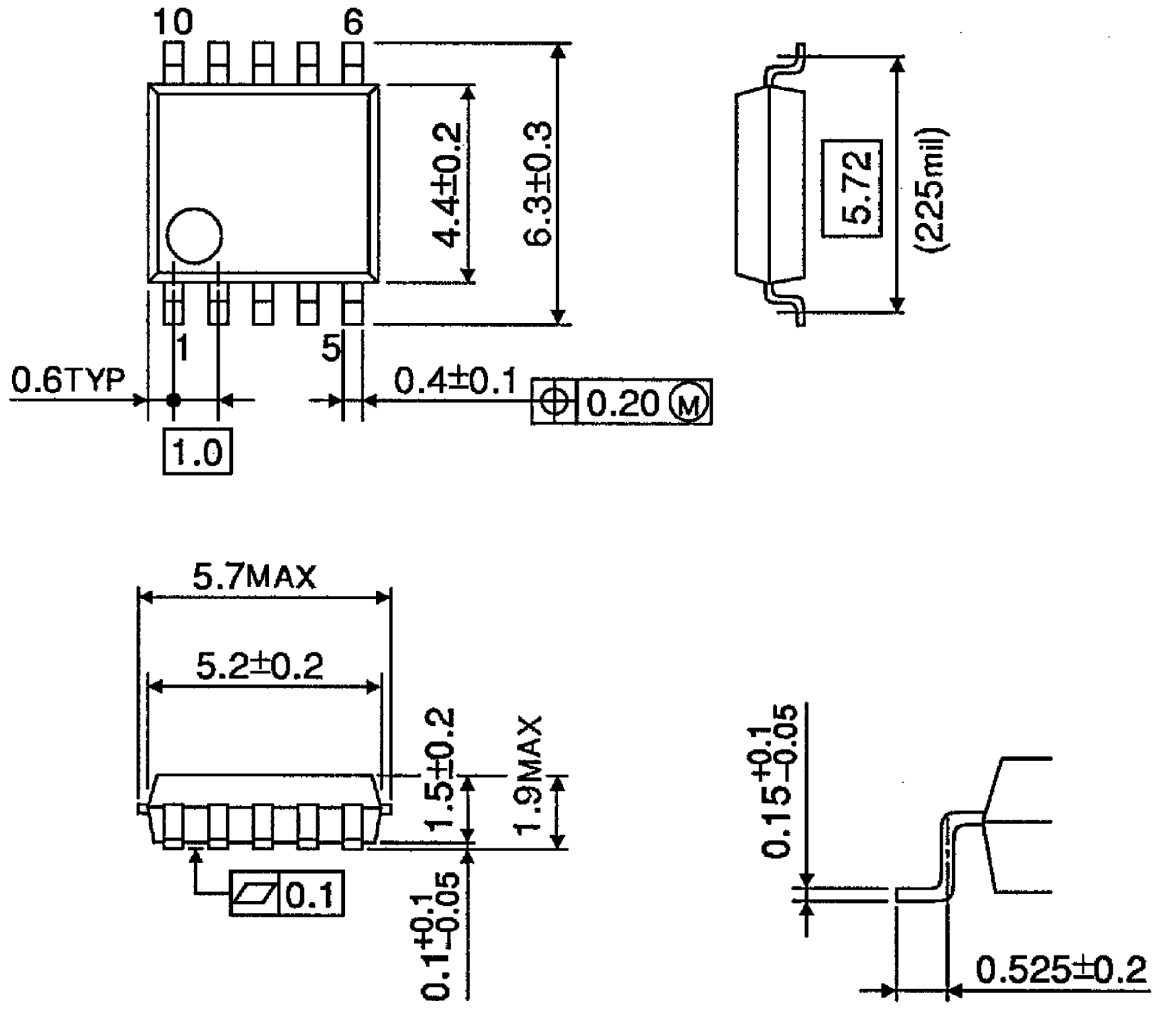




(Note) Operating range (V_{CC} = 1.0~3.0 V, Ta = 25~75°C)

Package Dimensions

SSOP10-P-225-1.00 Unit : mm



Weight: 0.10g (typ.)

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