

TOSHIBA Bipolar Digital Integrated Circuit Silicon Monolithic

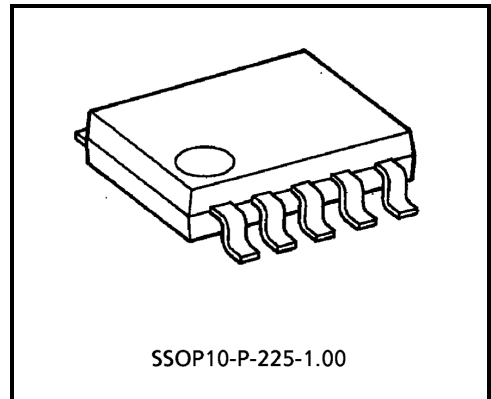
# TD7103F

## ECL Prescaler For Digital Synthesized Tuner

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

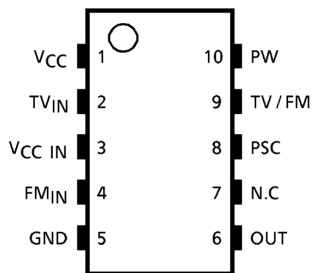
### Features

- 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

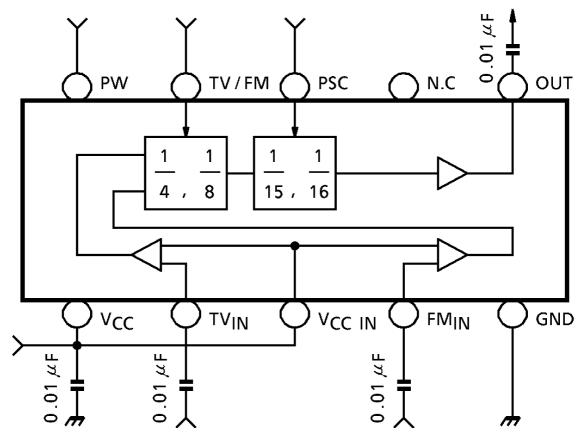


Weight: 0.10g (typ.)

### Pin Connection



### Block Diagram



## Pin Function

Pin No.	Symbol	Function			Remarks	
1, 3	V <sub>CC</sub>	Power supply terminal			—	
2	TV <sub>IN</sub>	Signal input terminal TV (VHF) local oscillator			—	
4	FM <sub>IN</sub>	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	—
			L	L	60	
			L	H	64	
			H	L	120	
9	TV / FM	Mode selection terminal	H	H	128	—
			H	H	128	
10	PW	PW stand-by terminal	"H": Operate "L" or open: Stand-by		—	

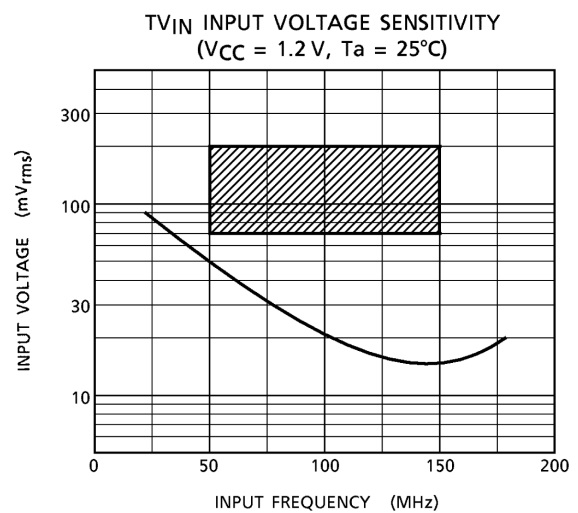
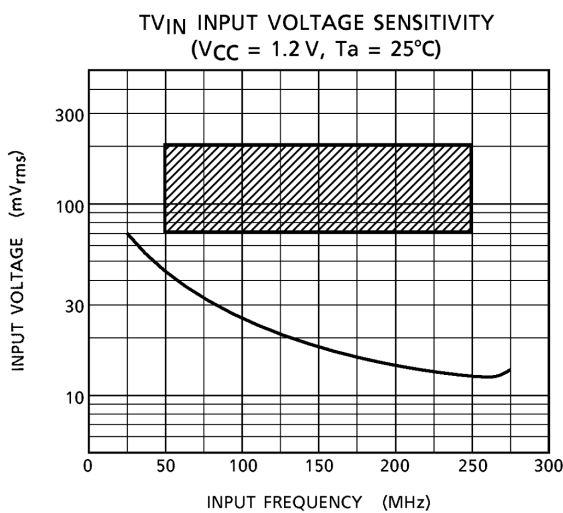
## Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Power supply voltage	V <sub>CC</sub>	4.5	V
Input voltage	V <sub>IN</sub>	-0.3~V <sub>CC</sub> + 0.3	V
Power dissipation	P <sub>D</sub>	400 (Note)	mW
Operating temperature	T <sub>opr</sub>	-25 ~ 75	°C
Storage temperature	T <sub>stg</sub>	-55 ~ 150	°C

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

## Electrical Characteristics (unless otherwise specified, V<sub>CC</sub> = 1.0~3.0V, Ta = -25~75°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min.	Typ.	Max.	Unit
Supply voltage		V <sub>CC</sub>	—	—	1.0	—	3.0	V
Supply current		I <sub>CCopr</sub>	—	V <sub>CC</sub> = 1.2V	—	6	10	mA
		I <sub>CCSTB</sub>	—	V <sub>CC</sub> = 3.0V	—	1	10	μA
Operating frequency range	FM	f <sub>IN (FM)</sub>	—	V <sub>IN</sub> = 70mV <sub>rms</sub>	50	—	150	MHz
	TV	f <sub>IN (TV)</sub>	—	V <sub>IN</sub> = 70mV <sub>rms</sub>	50	—	250	
Input voltage		V <sub>IN</sub>	—	—	70	—	200	mV <sub>rms</sub>
Output amplitude		V <sub>OUT</sub>	—	—	0.4	—	—	V <sub>p-p</sub>
Input voltage	"H" level	V <sub>IL</sub>	—	PSC, TV / FM, STB	V <sub>CC</sub> × 0.8	—	V <sub>CC</sub>	V
	"L" level	V <sub>IH</sub>	—	PSC, TV / FM, STB	0	—	V <sub>CC</sub> × 0.2	
Input current	"H" level	I <sub>IL</sub>	—	—	—	—	100	μA
	"L" level	I <sub>IH</sub>	—	—	—	—	-100	

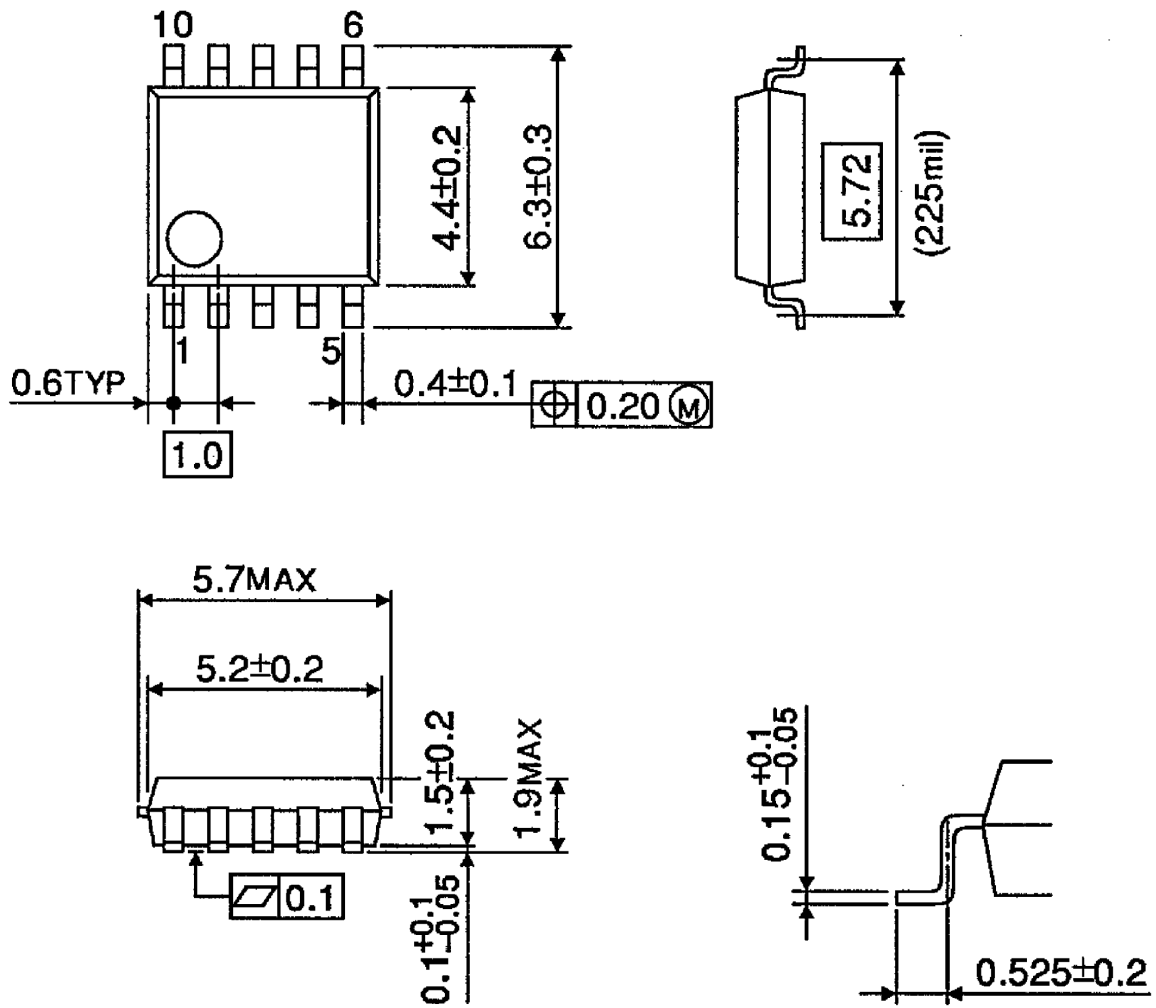


(Note) Operating range (V<sub>CC</sub> = 1.0~3.0V, Ta = 25~75°C)

**Package Dimensions**

SSOP10-P-225-1.00

Unit : mm



Weight: 0.10g (typ.)

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