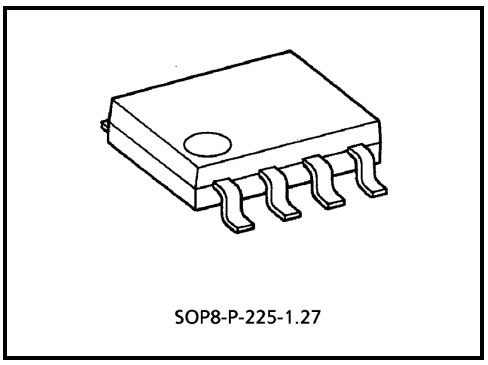
TOSHIBA Bipolar Digital Integrated Circuit Silicon Monolithic

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.

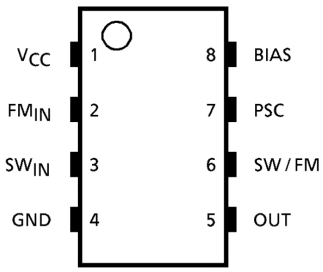


Weight: 0.08g (typ.)

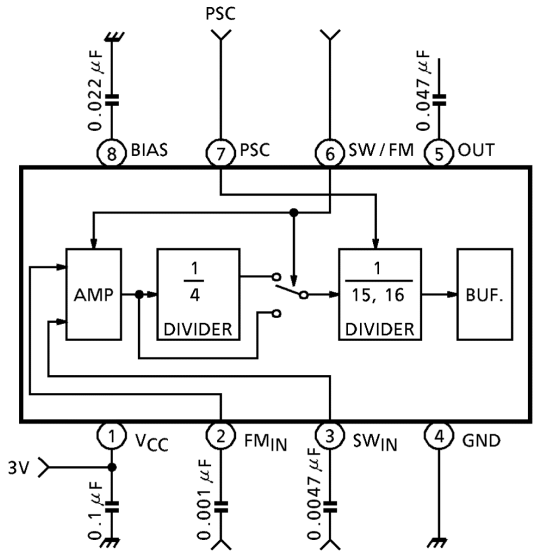
Features

- Operating frequency range is 1.5~35MHz / 50~150MHz.
- 2 modulus prescaler: N = 4 × 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.

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_{CC}	Power supply terminal.	—
2	FM_{IN}	Signal input terminal from FM local oscillator.	—
3	SW_{IN}	Signal input terminal from SW local oscillator.	—
4	GND	Ground terminal.	—
5	Out	Divider signal output terminal.	—
6	SW / FM	Dividing mode control terminal. "H" level input: SW_{IN} is selected, direct mode. "L" level input: FM_{IN} is selected, 1 / 4 mode.	—
7	PSC	2 modulus mode control terminal. "H" level input: 1 / 16 dividing "L" level input: 1 / 15 dividing	—
8	Bias	Bias capacitor terminal. Bias capacitor is connected.	—

Maximum Ratings (Ta = 25°C)

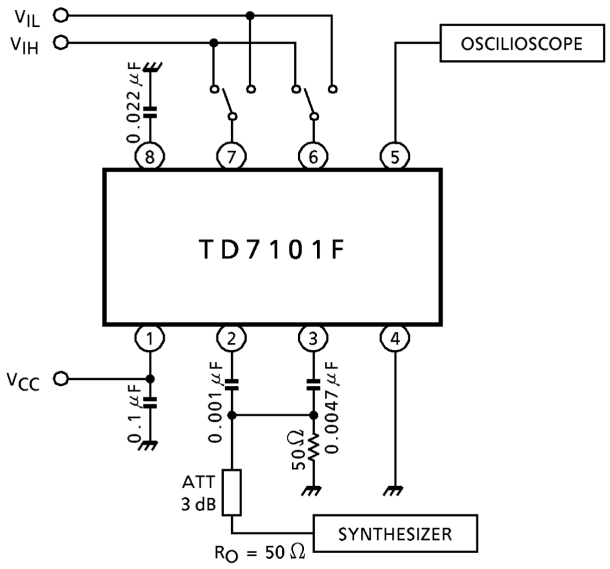
Characteristic	Symbol	Rating	Unit
Power supply voltage	V_{CC}	6.5	V
Power dissipation	P_D	200	mW
Input voltage	V_{IN}	$-0.3 \sim V_{CC} + 0.3$	V
Operating temperature	T_{opr}	$-10 \sim 60$	°C
Storage temperature	T_{stg}	$-55 \sim 150$	°C

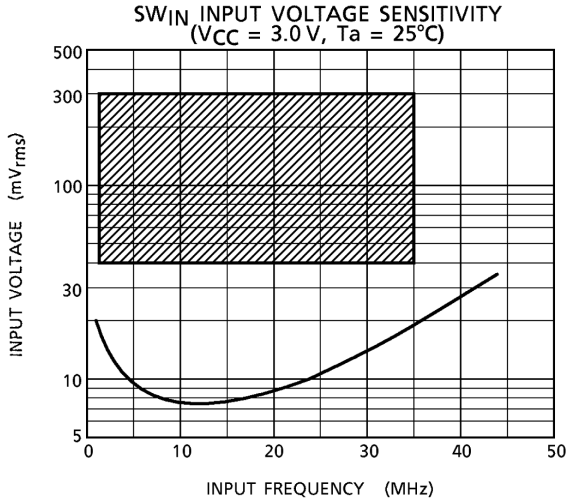
Electrical Characteristics

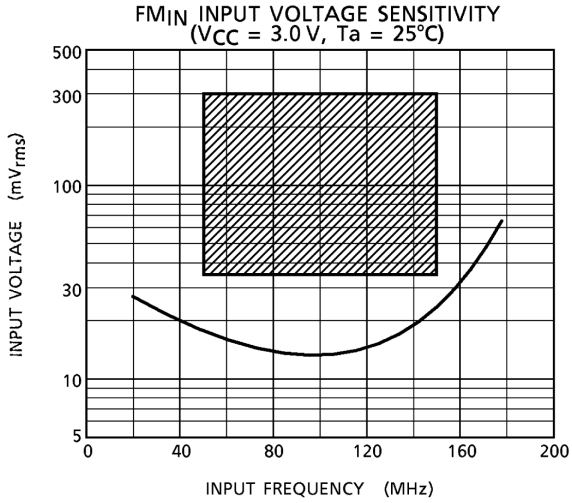
(unless otherwise specified, V_{CC} = 1.8~5.5V, Ta = −10~60°C, $f_{in\ (FM)}$ = 50~150MHz, $f_{in\ (SW)}$ = 1.5~35MHz)

Characteristic		Symbol	Test Cir−cuit	Test Condition	Min.	Typ.	Max.	Unit
Supply voltage		V_{CC}	—	—	1.8	3.0	5.5	V
Supply cuurent		I_{CC}	—	V_{CC} = 3.0V	—	5.5	9.5	mA
Operating frequency range		$f_{IN\ 1}$	—	FM_{IN}	50	—	150	MHz
		$f_{IN\ 2}$	—	SW_{IN}	1.5	—	35	
Input voltage range		$V_{IN\ 1}$	—	FM_{IN}	35	—	300	mV_{rms}
		$V_{IN\ 2}$	—	SW_{IN}	40	—	300	
Output amplitude		V_{OUT}	—	—	0.5	—	—	V_{p-p}
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	μA
	"L" level	I_{IL}	—	PSC, SW / FM, V_{CC} = 5.0V, V_{IL} = 1.0V	—	—	10	

Test Circuit (input voltage sensitivity)



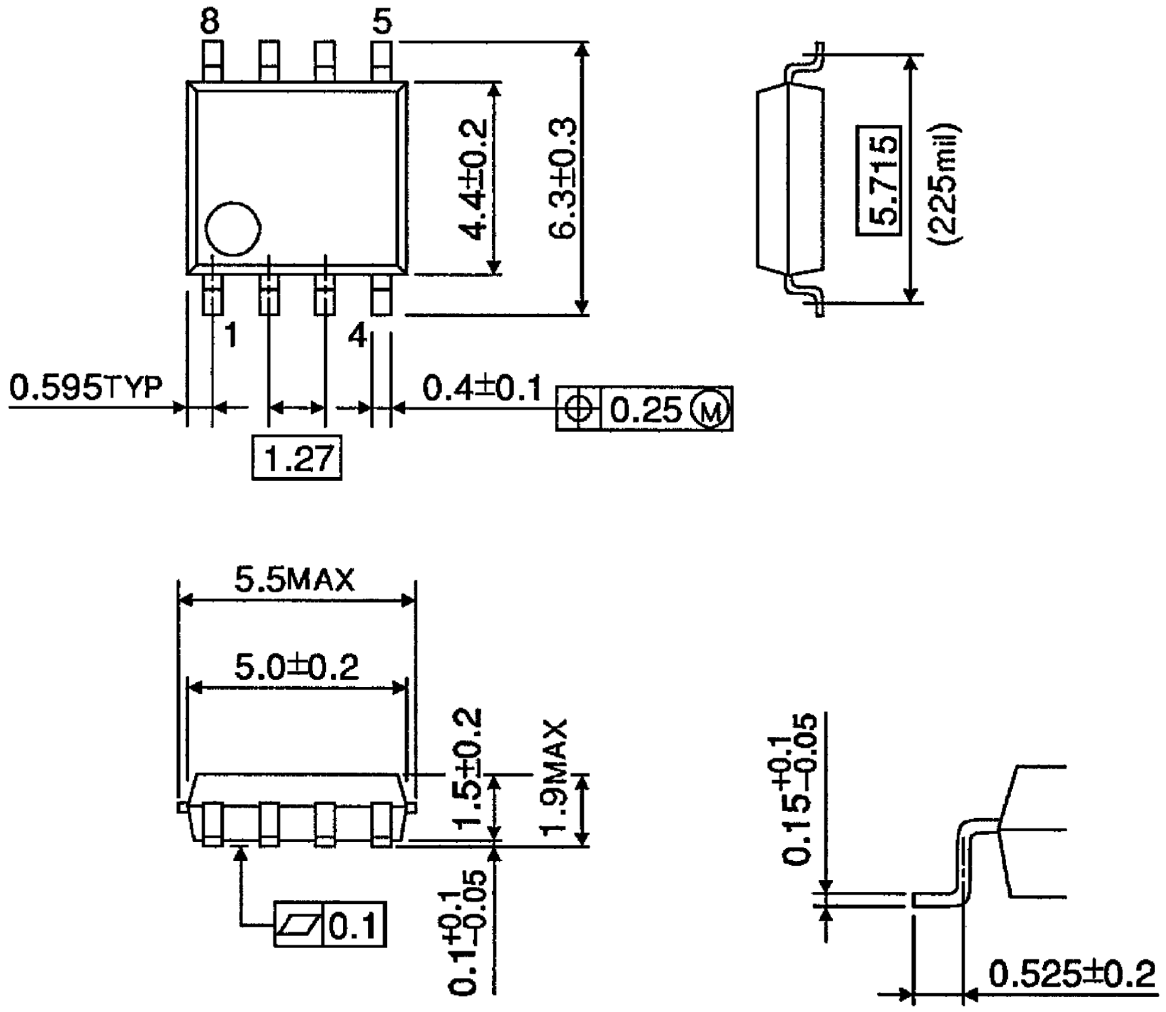




(Note) Operating range (V_{CC} = 1.8~5.5 V, Ta = −10~60°C)

Package Dimensions

SOP8-P-225-1.27 Unit : mm



Weight: 0.08g (typ.)

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