

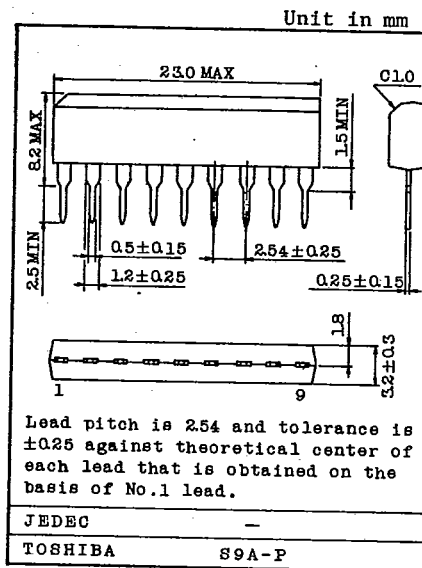
TD6109P

T-77-05-05

ECL PRESCALLER

TD6109P is a low power ECL Prescaller developed for multi band digital tuning system.

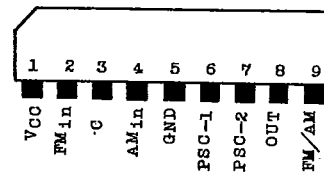
- A pulse swallow counter has been adopted.
Frequency division ratio is $\frac{1}{4}$ & $\frac{1}{10,11,20,21}$
- Wide operating voltage.
3 ~ 6V
- Low operation current.
FM 5mA (TYP.)
AM 3mA (TYP.)
- High input sensitivity because of built in AC amplifier.
FM 25mV_{rms}
AM 20mV_{rms}



MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	8	V
Input Voltage	V _{in}	1000	mV _{rms}
Power Dissipation	P _D	200	mW
Operating Temperature	T _{opr}	-10 ~ 75	°C
Storage Temperature	T _{stg}	-55 ~ 125	°C

PIN CONNECTION



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ELECTRICAL CHARACTERISTICS (Unless otherwise specified; $V_{CC}=5.0V$, $T_a=25^{\circ}C$)

CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Supply Voltage		V_{CC}		(Note 1)	3	~	6	V
Operating Supply Current		$I_{CC AM}$			2.8	5	7.6	mA
		$I_{CC AM}$			1.6	3	4.5	mA
Operating Frequency Range		f FM		$V_{in}=25mV_{rms}$ (Note 1)	60	~	150	MHz
		f AM		$V_{in}=50mV_{rms}$ (Note 1)	0.5	~	30	MHz
Input Voltage Range		$V_{in FM}$		$FM_{in}=60\sim 150MHz$ (Note 1)	50	-	300	mV_{rms}
		$V_{in AM}$		$AM_{in}=0.5\sim 10MHz$ (Note 1)	20	-	300	mV_{rms}
		$V_{in AM}$		$AM_{in}=10\sim 30MHz$ (Note 1)	50	-	300	mV_{rms}
Output Amplitude		V_{OUT}		(Note 1)	0.5	0.9	1.5	V_{p-p}
Input Voltage	"H" Level	V_{IH}		⑥⑦⑨ Pin (Note 1)	4.0	~	5.0	V
	"L" Level	V_{IL}		⑥⑦⑨ Pin (Note 1)	0	~	1.0	V
Input Current	"H" Level	I_{IH}		⑥⑨ Pin $V_{IN}=5V$	-	70	180	μA
		I_{IH}'		⑦ Pin $V_{IN}=5V$	-	0.4	10	μA
	"L" Level	I_{IL}		⑥⑨ Pin $V_{IN}=1V$	-	4	30	μA
		I_{IL}'		⑦ Pin $V_{IN}=1V$	-	0.1	10	μA
Input Impedance		$R_{in FM}$		f=100MHz	-	1.2	-	$k\Omega$
		$C_{in FM}$		f=100MHz	-	2.5	-	pF
		$R_{in AM}$		f=1MHz	-	1.0	-	$k\Omega$
		$C_{in AM}$		f=1MHz	-	5	-	pF
Operating Temperature		T_{opr}			-10	~	75	$^{\circ}C$

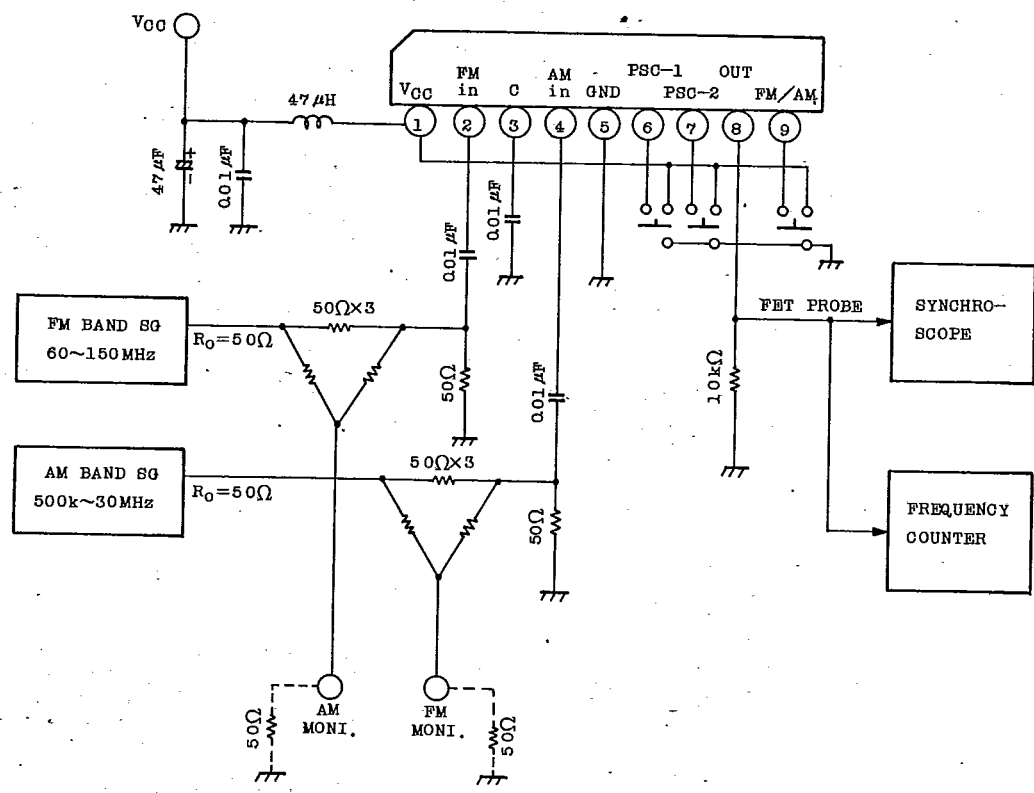
Note 1: Assurance under all conditions of $V_{CC}=3\sim 6(V)$, $T_a=-10\sim 75(^{\circ}C)$

TOSHIBA

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TD6109P AC TEST CIRCUIT

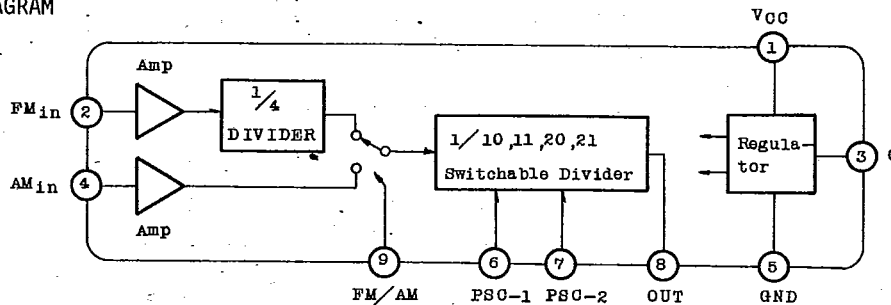


AUDIO DIGITAL IC

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BLOCK DIAGRAM



PIN DESCRIPTION

PIN	SYMBOL	FUNCTION	REMARKS
1	V _{CC}	Power Supply Terminal.	
2	FM _{in}	Input Terminal of FM Local OSC. f : 60 ~ 120MHz, V _{in} ≥ 50mV	
3	C	Bias Capacitance Terminal. C-GMD 0.01μF	
4	AM _{in}	Input Terminal of AM (SW, MW, LW) Local OSC f : 500kHz ~ 30MHz	
5	GND	GND Terminal.	
6	PSC-1	Frequency-division ratio switching control terminal. "H" 20, "L" 10	
7	PSC-2	Frequency-division ratio switching control terminal. "H" n, "L" n+1 (n=20 or 10)	
8	OUT	Output Terminal. Connected to Pinterterminal of TC9300F.	
9	FM/AM	Input Select Control Terminal FM _{in} /AM _{in} . "H" FM _{in} , "L" AM _{in}	

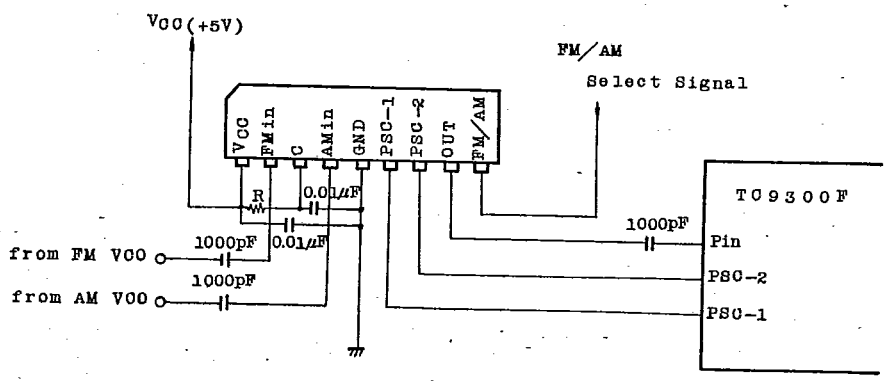
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DIVISION RATIO OF TD6109P

CONTROL INPUT			INPUT SELECT	DIVISION RATIO	NOTE
FM/AM	PSC-1	PSC-2			
H	L	L	FM _{in}	1/4 + 1/11	
		H		1/4 + 1/10	
	H	L		1/4 + 1/21	
		H		1/4 + 1/20	
L	L	L	AM _{in}	1/11	
		H		1/10	
	H	L		1/21	
		H		1/20	

APPLICATION CIRCUIT



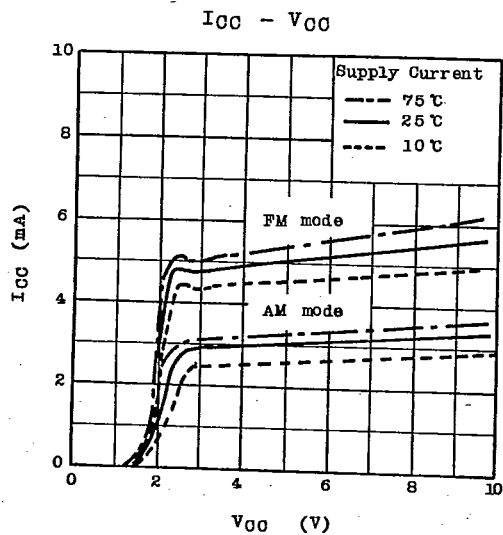
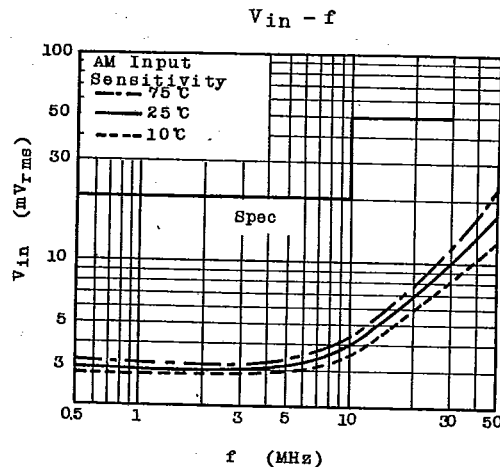
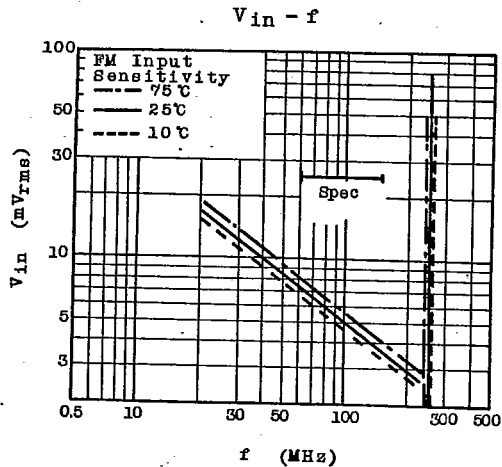
R=82kΩ

Register for prevents free-running oscillation.

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TYPICAL CHARACTERISTICS



TOSHIBA