

NEC®

150 MHz DIVIDE-BY-16/17 LOW POWER PRESCALERS

UPB553AC

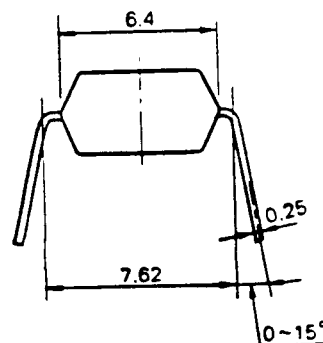
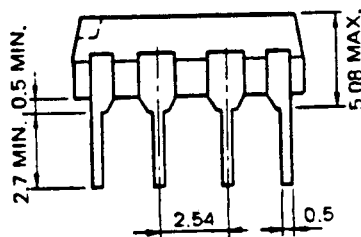
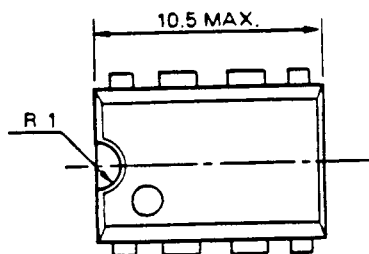
DESCRIPTION

The UPB553AC is a VHF two-modulus prescaler intended for use in measurement instrumentation and PLL Digital Tuning Systems in conjunction with UPD1700 series. Advanced bipolar process technology is utilized to realize high frequency operation with extremely low power consumptions. The device provides +16 and +17 division ratio for NEC's original pulse swallowing method, and is guaranteed to operate up to 130 MHz over the -35°C to +75°C temperature range with a VCC variation from +4.5 to +5.5 V. An included amplifier allows it to be operated with a small amplitude signal of 150 mVp-p.

FEATURES

- High frequency operation: 150 MHz ($\div 16$)
130 MHz ($\div 17$)
- NEC's original pulse swallowing operation: $\div 16/\div 17$
- Small input amplitude: $V_{in} = 150 \text{ mVp-p (MIN.)}$
- Single supply voltage: $V_{CC} = 5.0 \text{ V} \pm 10 \%$
- Low supply current: $I_{CC} = 8.9 \text{ mA (TYP.)}$
- Incorporated buffer amplifier: $V_O = 1.2 \text{ Vp-p (TYP.)}$
- Small package: 8 pin plastic dual in-line package (DIP)

PACKAGE DIMENSIONS (Unit: mm)



ABSOLUTE MAXIMUM RATINGS

Supply Voltage	V_{CC}	-0.5 to 6.0	V
Input Voltage	V_i	-0.5 to V_{CC}	V
Output Current	I_O	10	mA
Junction Temperature	T_j	+125	°C
Storage Temperature	T_{stg}	-55 to +125	°C

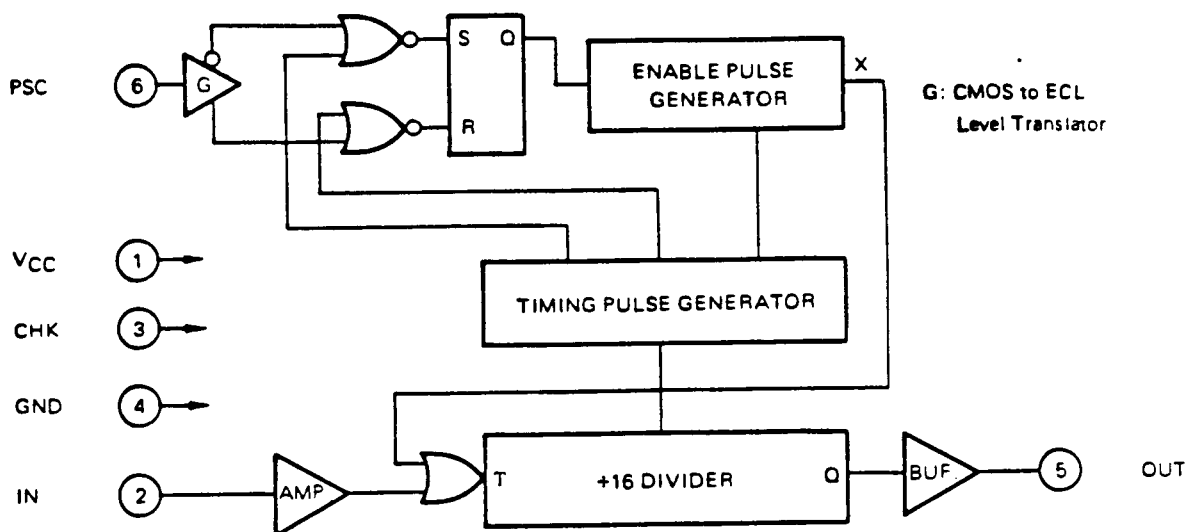
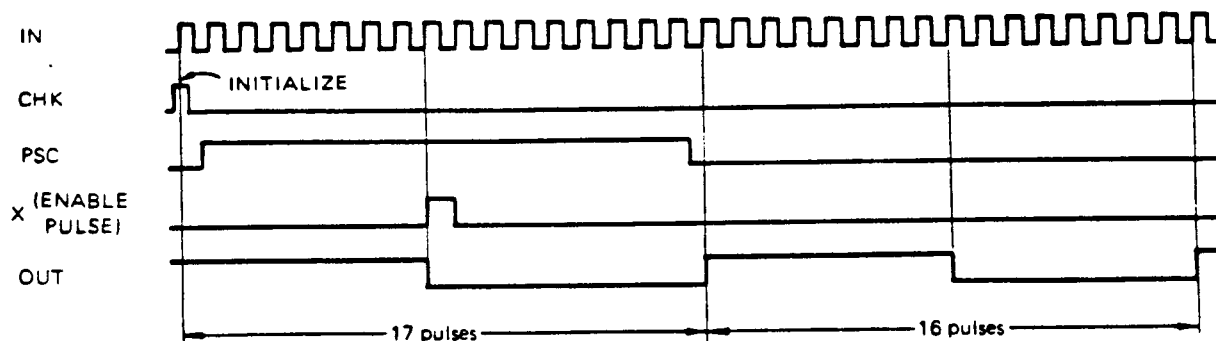
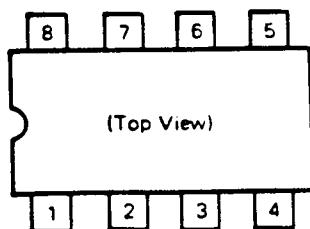
RECOMMENDED OPERATING CONDITIONS

Supply Voltage Range	V_{CC}	4.5 to 5.5	V
Ambient Temperature	T_a	-35 to +75	°C
Output Load Capacitance	C_L	less than 10 picofarad	

ELECTRICAL CHARACTERISTICS ($V_{CC} = 5\text{ V} \pm 10\%$, $T_a = -35$ to $+75\text{ °C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Power Supply Current	I_{CC}		8.9	12.7	mA	$V_{CC} = 5.0\text{ V}$ $T_a = 25\text{ °C}$
Power Consumption	P_C		44.5		mW	
Frequency Response	f_{in}	1.0		150	MHz	$V_{in} \geq 0.15\text{ V}_{p-p}, \div 16$
Frequency Response	f_{in}	1.0		130	MHz	$V_{in} \geq 0.15\text{ V}_{p-p}, \div 17$
Output Voltage	V_O	0.9	1.2		V _{p-p}	OUT terminal
Input Voltage	V_{in}	0.15		2.0	V _{p-p}	IN terminal
High Level Input Voltage	V_{IH}	$0.8V_{CC}$			V	PSC terminal
Low Level Input Voltage	V_{iL}			$0.2V_{CC}$	V	PSC terminal

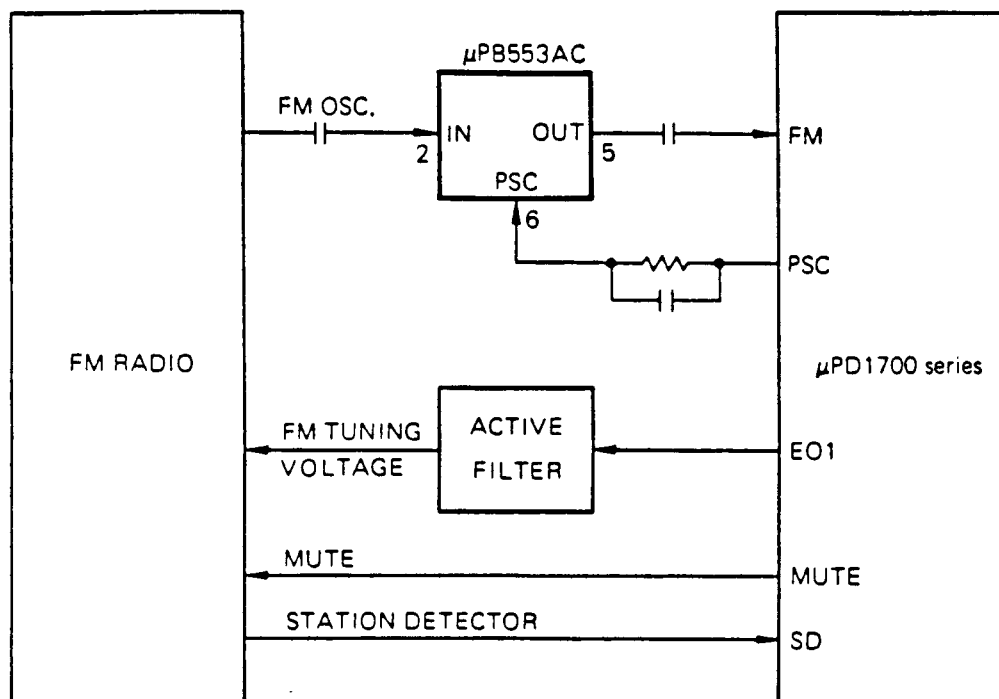
Note: CHK terminal should be connected to GND.

BLOCK DIAGRAM (Top View)**TIMING CHART****CONNECTION DIAGRAM**

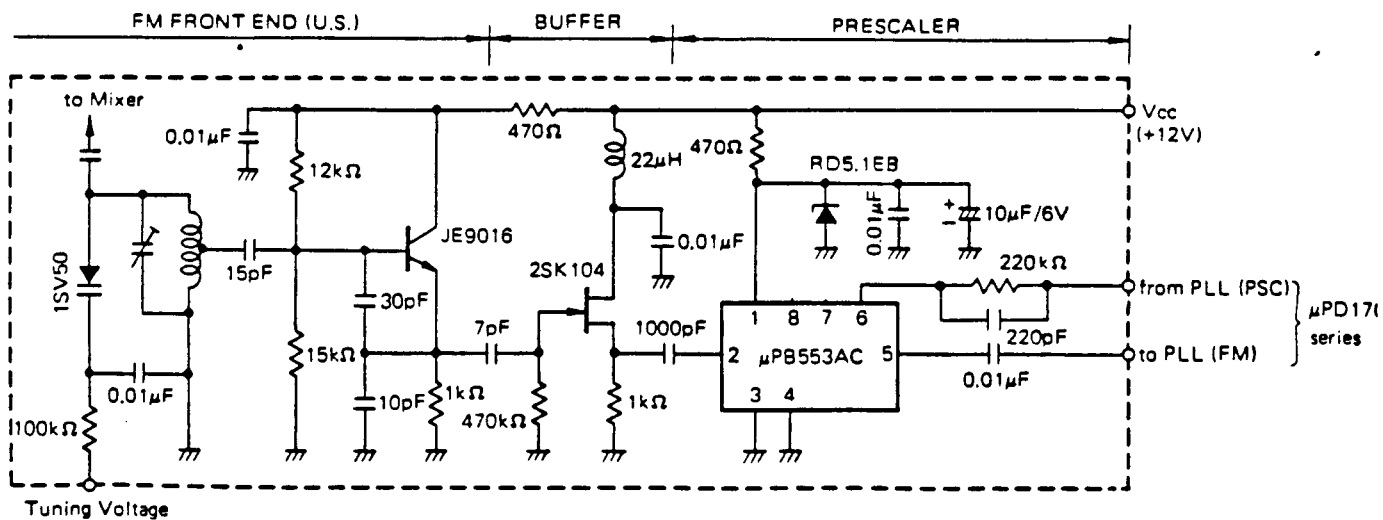
Pin Number	Symbol	Function
1	VCC	Power Supply (VCC)
2	IN	Signal Input
3	CHK	Check (Normally to GND)
4	GND	GND
5	OUT	Output
6	PSC	Division Ratio Control*
7	NC	No Connection
8	NC	No Connection

*: When PSC terminal fixed high or low level, the μ PB553AC functions as a $\div/16$ prescaler.

APPLICATION-1



APPLICATION-2



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