NEC®

150 MHz PRESCALER | UPB551C

DESCRIPTION

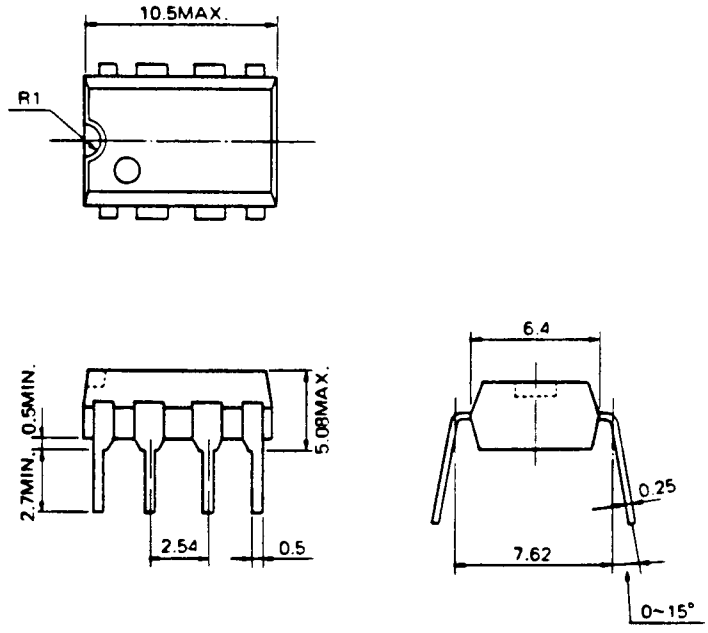
The μPB551C is a prescaler designed for using as a frequency divider in PLL digital tuning systems.

The device is silicon monolithic integrated circuit using advanced bipolar technology in order to realize high frequency operation with low power consumption. It can easily obtains 1/10, 1/11, 1/20, 1/22, 1/40 and 1/44 divided output even at low input signal up to 150 MHz.

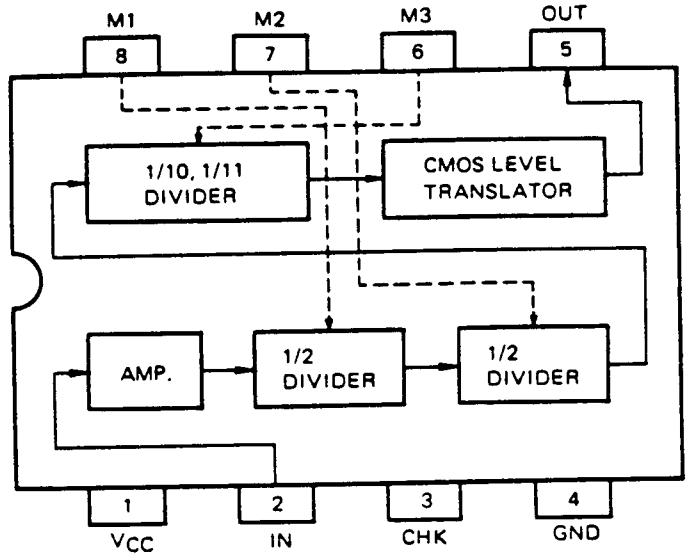
FEATURES

- 150 MHz operation is guaranteed (−35 to +75°C).
- Division ratio of 1/10, 1/11, 1/20, 1/22, 1/40 and 1/44 are provided.
- Low input voltage operation is possible. : $V_i \geqq 150mV_{p-p}$
- Single supply voltage : Vcc = 5 ± 0.5 volts
- Low power operation : Pd = 190 mW (TYP.)
- CMOS output interface
- Small package : 8 pin plastic dual in-line package (DIP)

PACKAGE DIMENSIONS (Unit: mm)



BLOCK DIAGRAM (Top View)



CONNECTION DIAGRAM

Pin Number	Symbol	Function
1	VCC	Power Supply (VCC)
2	IN	Signal Input
3	CHK	Initialize
4	GND	GND
5	OUT	Output
6	M3	Division Ratio Control
7	M2	
8	M1	

FUNCTION TABLE (CH = GND)

M1	M2	M3	Division Ratio
GND	GND	LOW	40
GND	GND	HIGH	44
GND	VCC	LOW	20
GND	VCC	HIGH	22
VCC	VCC	LOW	10
VCC	VCC	HIGH	11

LOW < 0.2VCC
HIGH > 0.8VCC

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	15	mA
Junction Temperature	T_j	+125	°C
Storage Temperature	T_{stg}	−55 to +125	°C

RECOMMENDED OPERATING CONDITIONS

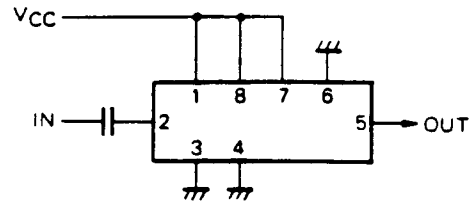
Supply Voltage Range		4.5 to 5.5	V
Ambient Temperature	Ta	−35 to +75	°C
Output Load Capacitance	C_L	less than 10 picofarad	

ELECTRICAL CHARACTERISTICS (V_{CC} = 5V ±10%, Ta = −35 to +75°C)

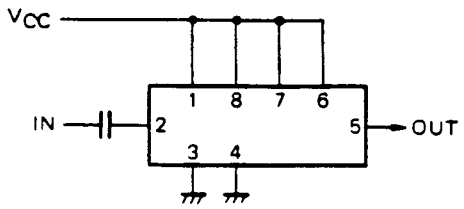
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Power Supply Current	I_{CC}		38	52	mA	V_{CC}=5V
Power Consumption	P_C		190		mW	Ta=25°C
High Level Output Voltage	V_{OH}	0.8V_{CC}			V	I_{OH}=−40μA
Low Level Output Voltage	V_{OL}			0.2V_{CC}	V	I_{OL}=1.0mA
High Level Input Voltage	V_{IH}	0.8V_{CC}			V	(M3)
Low Level Input Voltage	V_{IL}			0.2V_{CC}	V	(M3)
IN Input Voltage	Vin	150			mVp-p	Division Ratio = 20, 22, 40, 44
IN Input Voltage	Vin	400			mVp-p	Division Ratio = 10, 11
Frequency Response	fin	1		150	MHz	(IN)

Note: M1, M2 and CHK input terminals should be connected to either GND or V_{CC}.

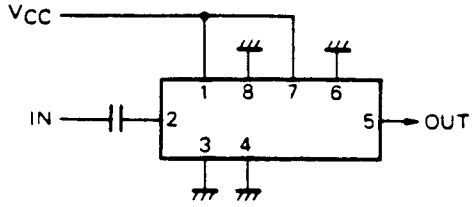
APPLICATION-1



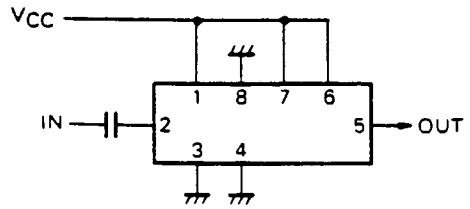
DIVIDED BY 10



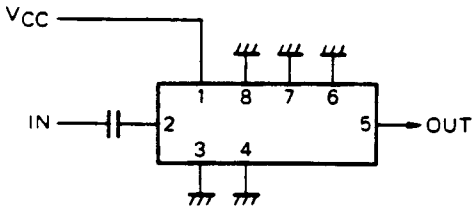
DIVIDED BY 11



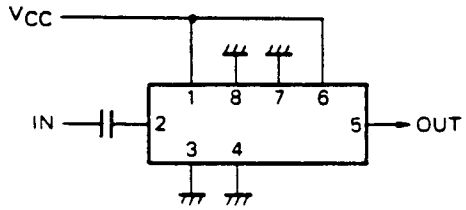
DIVIDED BY 20



DIVIDED BY 22



DIVIDED BY 40



DIVIDED BY 44

APPLICATION-2

