



1 GHz DIVIDE-BY-128/136 LOW POWER PRESCALER

UPB568, UPB568HA

The μ PB568C, the μ PB568HA and the μ PB568G are two-modulus prescalers for TV, CATV and VTR, which adopts NEC's original pulse swallowing method, they are high sensitivity and low power prescalers.

It is possible that consists a tuning system of PLL frequency synthesizer method having a stable and high-precision fine tuning function by using with μ PD1700 series (μ PD1709, μ PD1711, μ PD1712 etc.)

Three kinds of packages are 8-pin DIP (μ PB568C), 8-pin Slim SIP (μ PB568HA) and 8-pin Mini Flat (μ PB568G).

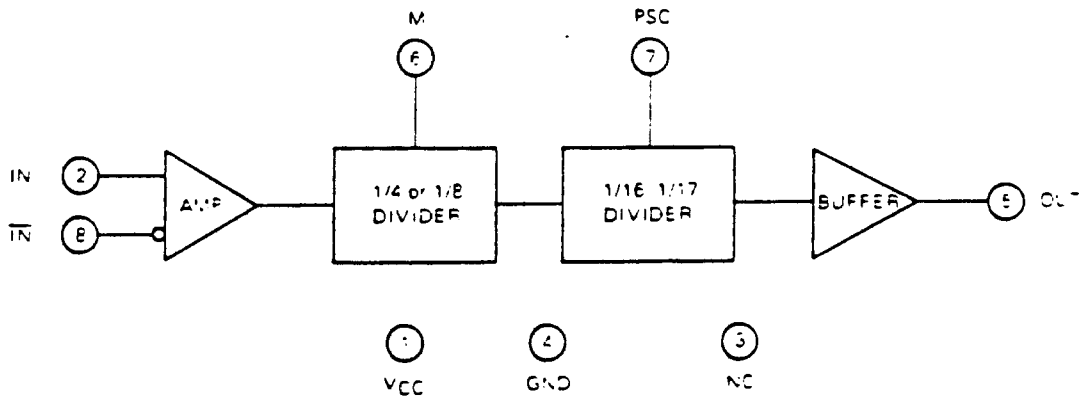
FEATURES

- High sensitivity: 60 mV_{p.p}
- Wide range, high speed : 90 to 1 000 MHz (V_{in} = 60 mV_{p.p} MIN.)
: 60 to 1 150 MHz (V_{in} = 150 mV_{p.p} MIN.)
- Low supply current: 29 mA (TYP.)
- NEC's original pulse swallowing method
 - 128/136 1 GHz (MAX.)
 - 64/68 500 MHz (MAX.)

Ordering Information

Order Code	Package
μ PB568C	8 pin plastic DIP (300 mil)
μ PB568G	8 pin mini flat (225 mil)
μ PB568HA	8 pin slim SIP

BLOCK DIAGRAM



Note: This pin number is μ PB568C and μ PB568G's
 μ PB568HA's pin number is different from μ PB568C and
 μ PB568G's

ABSOLUTE MAXIMUM RATINGS

Supply Voltage	V_{CC}	-0.5 to 6.0	V
Input Voltage	V_I	-0.5 to $V_{CC}+0.5$	V
Output Current	I_O	-10.0	mA
Storage Temperature	T_{stg}	-55 to +125	°C

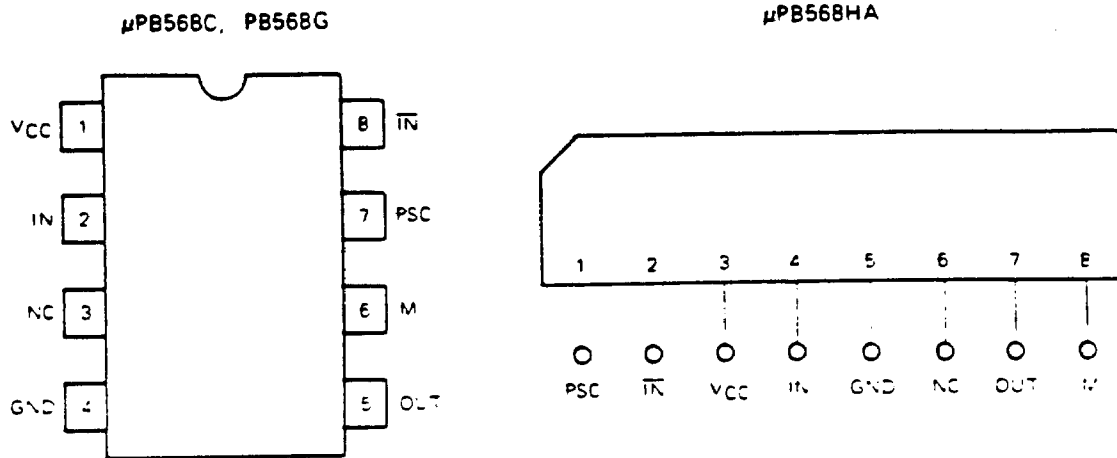
RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{CC}	4.5	5.0	5.5	V
Operating Temperature	T_a	-35		+75	°C
Output Load Capacitance	C_L			10	pF

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

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Supply Current	I_{CC}		30	42	mA	$V_{CC} = 5.0 V$, $T_a = 25$ °C
Output Oscillation Voltage	V_O	0.9	1.15		V _{p.p}	OUT pin
Input Oscillation Voltage	V_{in}	0.06		1.5	V _{p.p}	IN pin
High Level Input Voltage	V_{IH}	0.7 V_{CC}			V	PSC pin
Low Level Input Voltage	V_{IL}			0.3 V_{CC}	V	PSC pin, $V_I = 5 V$
High Level Input Current 1	I_{IH1}			50	μA	PSC pin, $V_I = 5 V$
High Level Input Current 2	I_{IH2}			50	μA	M pin, $V_I = 5 V$
Operating Frequency 1	f_{in1}	90		1 000	MHz	IN pin, $V_{in} \geq 60$ mV _{p.p} M = GND sine wave
Operating Frequency 2	f_{in2}	90		500	MHz	IN pin, $V_{in} \geq 60$ mV _{p.p} M = V_{CC} sine wave
Operating Frequency 3	f_{in3}	60		1 150	MHz	IN pin, $V_{in} \geq 150$ mV _{p.p} M = GND sine wave
Low Level Input Current 1	I_{IL1}			150	μA	PSC pin, $V_I = 0$
Low Level Input Current 2	I_{IL2}			150	μA	M pin, $V_I = 0$

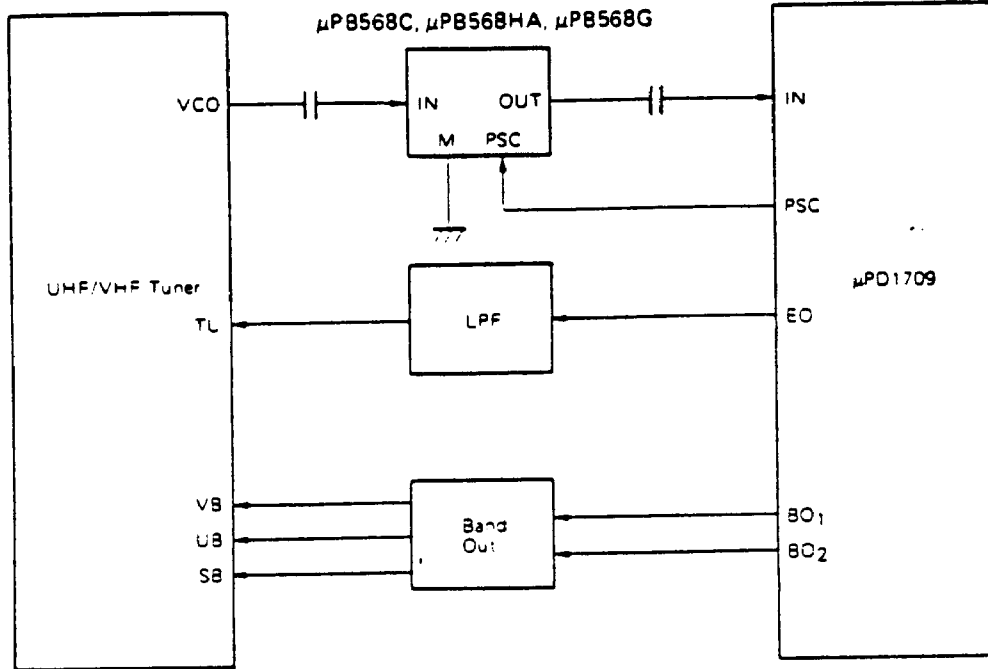
PIN CONFIGURATION



PIN DESCRIPTION

PIN NO.		PIN NAME	PIN DESCRIPTION
μPB568C μPB568G	μPB568HA		
1	3	VCC	Power Supply Pin ($-5\text{ V} \pm 10\%$)
2	4	IN	VCO Signal Input Pin
3	6	NC	No Connection
4	5	GND	Ground Pin
5	7	OUT	Signal Output Pin
6	8	M	Division Ratio Control H Level: 64-68 L Level: 128-136
7	1	PSC	Pulse Swallow Control (connected to PSC pin of device in μPD1700 series)
8	2	$\overline{\text{IN}}$	Bias Pin

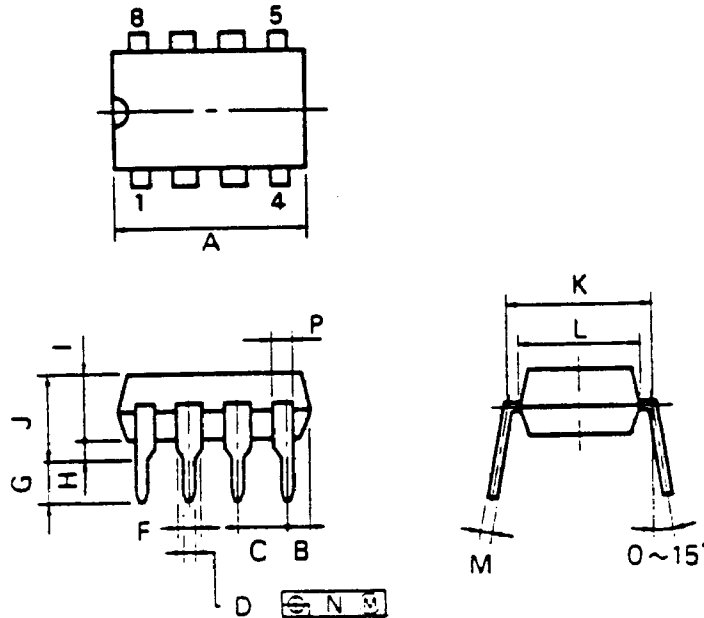
APPLICATION



PACKAGE DIMENSIONS (Unit: mm)

8-pin Plastic DIP (300 mil)

μ PB568C



P8C-100-300B.C

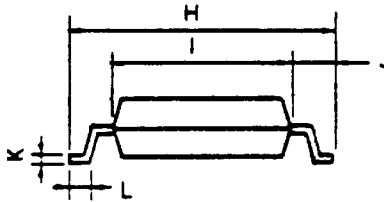
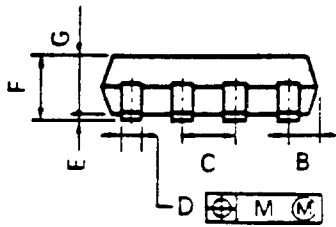
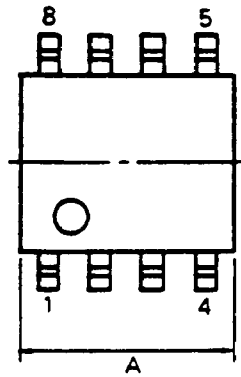
NOTES

- 1) Each lead centerline is located within 0.25 mm (0.01 inch) of its true position (T.P.) at maximum material condition.
- 2) Item "K" to center of leads when formed parallel.

ITEM	MILLIMETERS	INCHES
A	10.16 MAX	0.400 MAX
B	1.27 MAX	0.050 MAX
C	2.54 (T.P.)	0.100 (T.P.)
D	0.50 $^{+0.10}$	0.020 $^{+0.004}$
F	1.4 MIN	0.055 MIN
G	3.2 $^{+0.3}$	0.126 $^{+0.012}$
H	0.51 MIN	0.020 MIN
J	4.31 MAX	0.170 MAX
K	7.62 (T.P.)	0.300 (T.P.)
L	6.4	0.252
M	0.25 $^{+0.10}$	0.010 $^{+0.004}$
N	0.25	0.01
P	0.9 MIN	0.035 MIN

8-pin Plastic Mini Flat (225 mil)

μPB568G



SBGM-50-225B

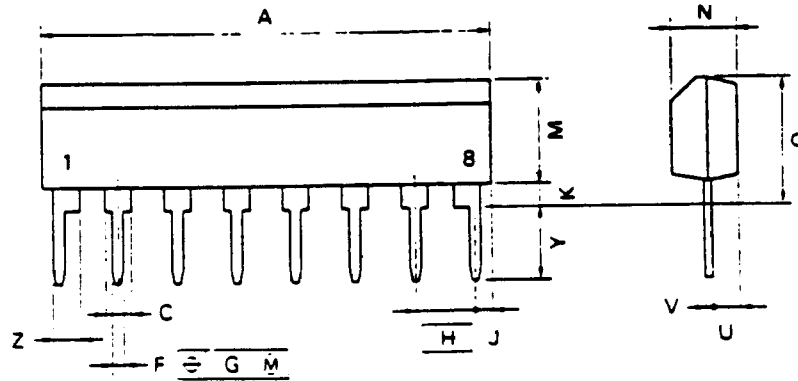
NOTE

Each lead centerline is located within 0.12 mm (0.005 inch) of its true position (T.P.) at maximum material condition.

ITEM	MILLIMETERS	INCHES
A	5.70 MAX.	0.225 MAX.
B	0.94 MAX.	0.037 MAX.
C	1.27 (T.P.)	0.050 (T.P.)
D	0.40 $\begin{smallmatrix} 0.00 \\ 0.05 \end{smallmatrix}$	0.016 $\begin{smallmatrix} 0.004 \\ 0.003 \end{smallmatrix}$
E	0.1 $\begin{smallmatrix} 0.1 \\ 0.1 \end{smallmatrix}$	0.004 $\begin{smallmatrix} 0.004 \\ 0.004 \end{smallmatrix}$
F	1.8 MAX.	0.071 MAX.
G	1.49	0.059
H	6.5 $\begin{smallmatrix} 0.3 \\ 0.3 \end{smallmatrix}$	0.256 $\begin{smallmatrix} 0.012 \\ 0.012 \end{smallmatrix}$
I	4.4	0.173
J	1.1	0.043
K	0.15 $\begin{smallmatrix} 0.00 \\ 0.05 \end{smallmatrix}$	0.006 $\begin{smallmatrix} 0.004 \\ 0.003 \end{smallmatrix}$
L	0.6 $\begin{smallmatrix} 0.2 \\ 0.2 \end{smallmatrix}$	0.024 $\begin{smallmatrix} 0.009 \\ 0.009 \end{smallmatrix}$
M	0.12	0.005

8-pin Slim SIP

μPB568HA



NOTE

Each lead centerline is located within 0.25 mm (0.01 inch) of its true position (T.P.) at maximum material condition

PBHA 254B

ITEM	MILLIMETERS	INCHES
A	20.32 MAX	0.8 MAX
C	1.1 MIN	0.043 MIN
F	0.5 ^{±0.1}	0.02 ^{±0.004}
G	0.25	0.01
H	2.54	0.1
J	1.27 MAX	0.05 MAX
K	0.51 MIN	0.02 MIN
M	5.08 MAX	0.2 MAX
N	2.8 ^{±0.2}	0.11 ^{±0.008}
Q	5.75 MAX	0.227 MAX
U	1.5 MAX	0.059 MAX
V	0.25 ^{±0.02}	0.01 ^{±0.001}
Y	3.2 ^{±0.3}	0.126 ^{±0.012}
Z	1.1 MIN	0.043 MIN

EXCLUSIVE AGENT FOR NEC Corporation RF & MICROWAVE SEMICONDUCTOR PRODUCTS - U.S. & CANADA
 CALIFORNIA EASTERN LABORATORIES, INC. • Headquarters • 3260 Jay Street • Santa Clara, CA 95054 • (408) 988-3500 • Telex 34-6393/FAX 408-988-0279

8

024277 ✓ - R