NEC
ELECTRON DEVICE

BIPOLAR DIGITAL INTEGRATED CIRCUIT

μPB565

1 GHz HIGH SENSITIVITY PRESCALER

The μPB565 is a general purpose prescaler intended for use in PLL Digital Tuning System. This is operated until 1 GHz by utilizing advanced bipolar process technology. This prescaler provides ÷ 64, ÷ 8, ÷ 4 and ÷ 2 division ratio, and can be used for TV and CATV.

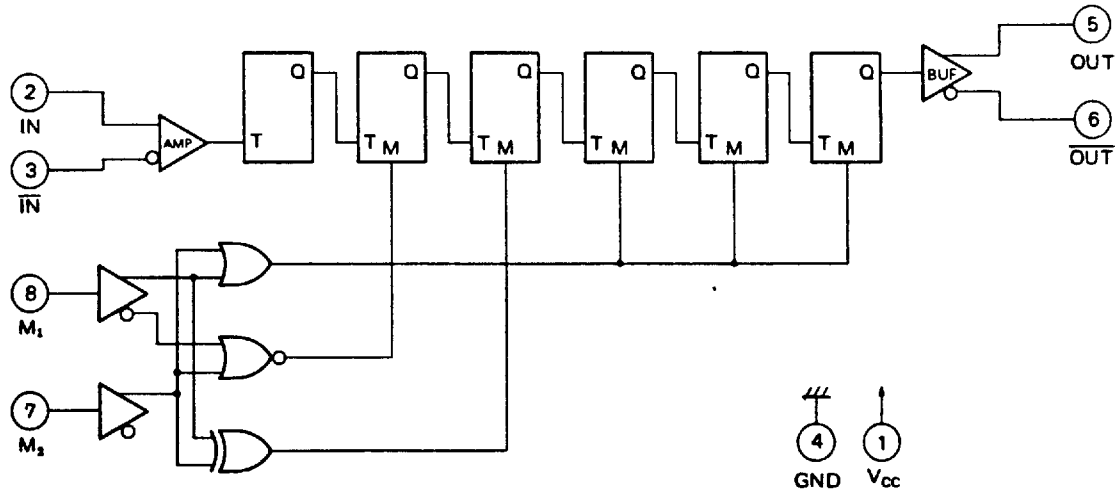
FEATURES

- High frequency operation : (÷ 64, ÷8, ÷ 4) ..... 1 GHz MAX.
  (÷ 2) ..... 500 MHz MAX.
- High sensitivity : 60 mV_{P-P} MIN.
- Wide band operation : 90 MHz to 1 GHz
- Low radiation
  Low level output (0.6 V_{P-P} TYP.)

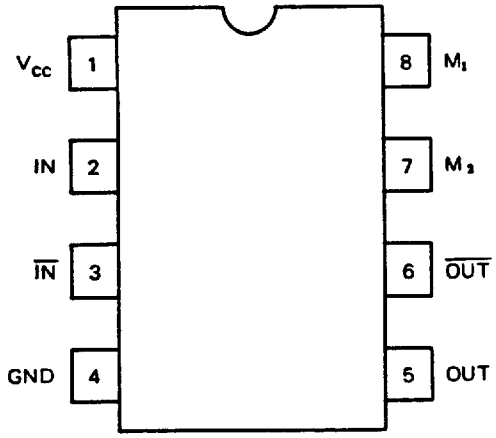
ORDERING INFORMATION

Order Code	Package
μPB565C	8 pin plastic DIP (300 mil)

BLOCK DIAGRAM



CONNECTION DIAGRAM (Top View)



1. V_{CC} : Power Supply Pin (+5V)
2. IN : Signal Input Pin (Positive Logic)
3. $\overline{IN}$: Signal Input Pin (Negative Logic)
4. GND : GND Pin
5. OUT : Output Pin (Positive Logic)
6. $\overline{OUT}$: Output Pin (Negative Logic)
7. M_2 : Division Ratio Control
8. M_1 : Division Ratio Control

DIVISION RATIO CONTROL

M_1	M_2	Division Ratio
H	L	÷2
L	H	÷4
H	H	÷8
L	L	÷64

H : V_{CC}

L : OPEN

ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

Supply Voltage	V_{CC}	−0.5 to +6.0	V
Input Voltage	V_I	−0.5 to +V_{CC} + 0.3	V
Output Current	I_o	−10	mA
Junction Temperature	T_j	+125	°C
Storage Temperature	T_{stg}	−55 to +125	°C

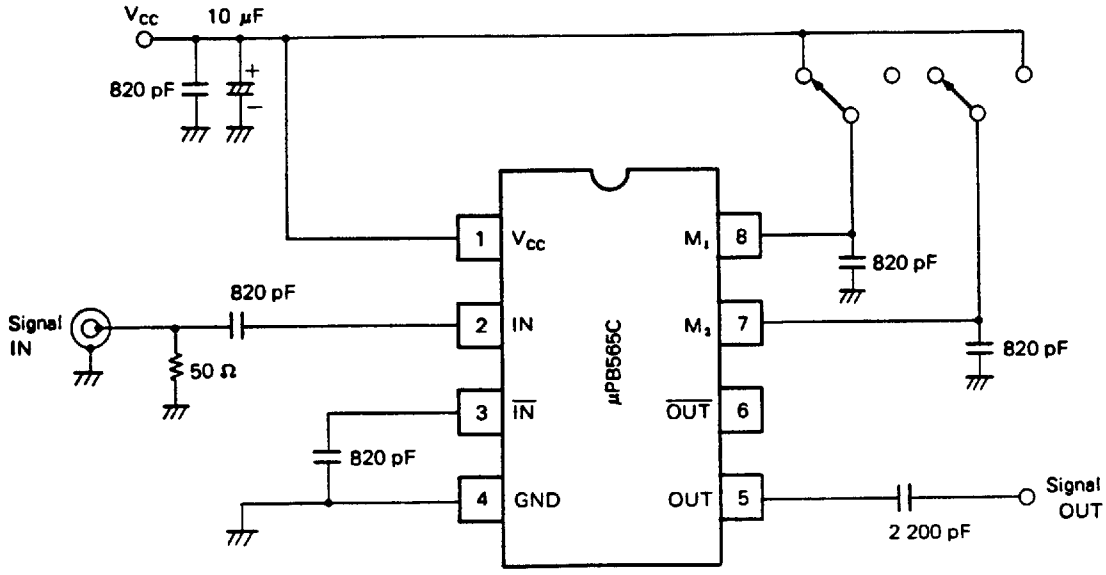
RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{CC}	4.5	5.0	5.5	V
Output Load Capacitance	C_L			30	pF
Ambient Temperature	T_a	−30		+75	°C

ELECTRIC CHARACTERISTICS (V_{cc} = 5.0±0.5 V, T_a = −30 to +75°C)

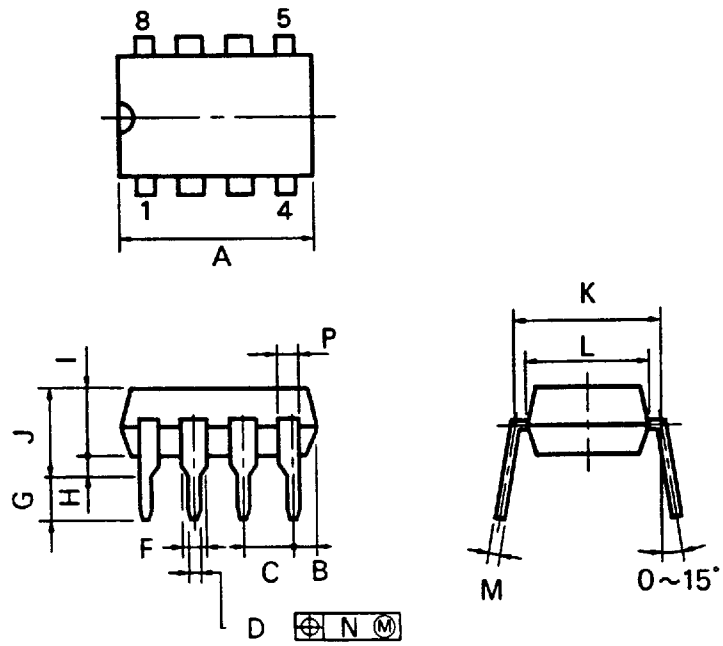
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Power Supply Current	I_{CC}		43	53.5	mA	V_{CC}=5V, T_a=25°C
Output Voltage	V_O	0.4	0.6	0.8	V_{P-P}	OUT pin, C_L = 5 pF
High Level Input Voltage	V_{IH}	2.0			V	M_1, M_2 pin
Low Level Input Voltage	V_{IL}			0.8	V	M_1, M_2 pin
High Level Input Current	I_{IH}			150	μA	M_1, M_2 pin, V_I = V_{CC}
Low Level Input Current	I_{IL}	50			μA	M_1, M_2 pin, V_I = 0
Input Voltage	v_{in}	60		1500	mV_{P-P}	IN pin
Operating Frequency	f_{in}	90		1000	MHz	v_{in} = 60 mV_{P-P} ÷4, ÷8, ÷64
		90		500	MHz	v_{in} = 60 mV_{P-P} ÷ 2
		90		1150	MHz	v_{in} = 120 mV_{P-P} ÷ 4, ÷8, ÷64

TEST CIRCUIT



PACKAGE DIMENSIONS

8PIN PLASTIC DIP (300 mil)



P8C-100-300A

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	$0.50^{\pm 0.10}$	$0.020^{+0.004}_{-0.005}$
F	1.4 MIN.	0.055 MIN.
G	$2.9^{\pm 0.3}$	0.114
H	0.51 MIN.	0.020 MIN
I	4.31 MAX.	0 170 MAX
J	5.08 MAX.	0.200 MAX
K	7.62 (T.P.)	0.300 (T.P.)
L	6.4	0.252
M	$0.25^{+0.10}_{-0.05}$	$0\ 010^{+0.004}_{-0.003}$
N	0.25	0.01
P	0.9 MIN.	0.035 MIN.