NEC

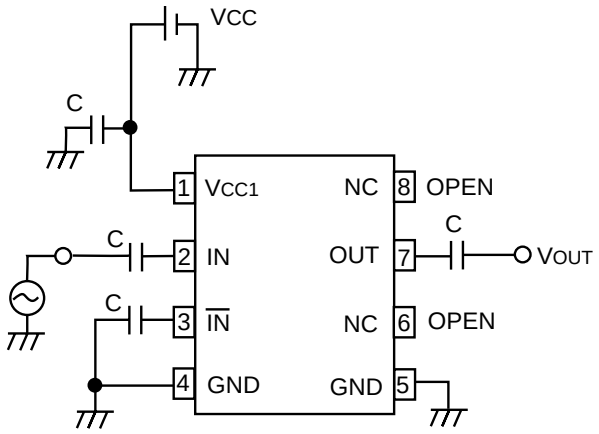
3.0 GHz DIVIDE BY 2 PRESCALER

UPB1508GV

FEATURES

- **HIGH FREQUENCY OPERATION TO 3 GHz**
- **FIXED DIVIDE RATIO:** ÷2
- **LOW CURRENT CONSUMPTION:** 12 mA @ 5 V
- **SMALL PACKAGE:** 8 pin SSOP
- **AVAILABLE IN TAPE AND REEL**

TEST CIRCUIT



C = 2200 pF

DESCRIPTION

The UPB1508GV is a Silicon MMIC digital prescaler manufactured with the NESAT™ IV silicon bipolar process. It features frequency response to 3 GHz, a divide-by-two ratio, and operates on a 5 volt supply while drawing only 12 mA. The device is housed in a small 8 pin SSOP package that contributes to system miniaturization. The low power consumption and wide frequency operation makes the device well suited for use in a PLL synthesizer for UHF/VHF TV and DBS tuner applications.

ELECTRICAL CHARACTERISTICS (T_A = -40 to +85°C, V_{CC} = 4.5 to 5.5 V, Z_S = Z_L = 50 Ω)

PART NUMBER PACKAGE OUTLINE			UPB1508GV S08		
SYMBOLS	**PARAMETERS AND CONDITIONS**	**UNITS**	**MIN**	**TYP**	**MAX**
I_{CC}	Supply Current, No Input Signal	mA	7.0	10	14.5
$f_{IN (U)}$	Upper Limit Operating Frequency, P_{IN} = -10 to +6 dBm P_{IN} = -15 to +6 dBm	GHz GHz	3.0 2.7		
$f_{IN (L)}$	Lower Limit Operating Frequency, P_{IN} = -15 to +6 dBm	GHz			0.5
P_{IN}	Input Power, f_{IN} = 2.7 - 3.0 GHz f_{IN} = 0.5 - 2.7 GHz	dBm dBm	-10 -15		+6 +6
P_{OUT}	Output Power	dBm	-12	-7	

ABSOLUTE MAXIMUM RATINGS[1] (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V_{CC}	Supply Voltage	V	6.0
V_{IN}	Input Voltage	V	6.0
P_{IN}	Input Power	dBm	+10
P_D	Power Dissipation[2]	mW	250
T_{OP}	Operating Temperature	°C	-40 to +85
T_{STG}	Storage Temperature	°C	-55 to +150

Notes:
1. Operation in excess of any one of these parameters may result in permanent damage.
2. Mounted on a double-sided copper clad 50x50x1.6 mm epoxy glass PWB (T_A = +85°C).

RECOMMENDED OPERATING CONDITIONS

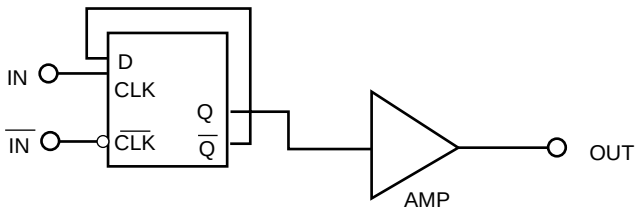
SYMBOL	PARAMETER	UNITS	MIN	TYP	MAX
V_{CC}	Supply Voltage	V	4.5	5.0	5.5
T_{OP}	Operating Temperature	°C	-40	+25	+85

PRODUCT LINE-UP

Product No.	I_{CC} (mA)	V_{CC} (V)	f_{IN} (GHz)	Package
UPB584G	18	4.5 to 5.5	0.5 to 2.5	8 pin SOP
UPB1508GV	12	4.5 to 5.5	0.5 to 3.0	8 pin SSOP

Note: This table shows Typ. values only.

INTERNAL BLOCK DIAGRAM

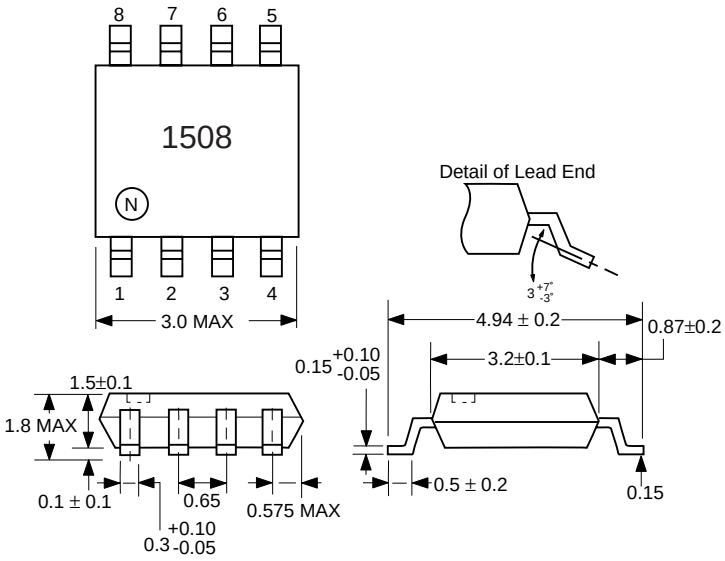


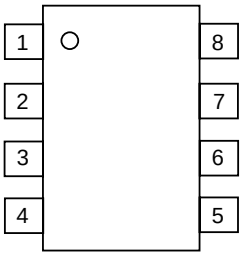
PIN DESCRIPTIONS

Pin no.	Symbol	Applied Voltage	Pin Voltage	Description
1	V_{CC}	4.5 to 5.5	_	Power supply pin. This pin must be equipped with bypass capacitor (eg 1000 pF) to ground.
2	IN		1.7 to 4.95	Signal input pin. This pin should be coupled with a capacitor (eg 1000 pF).
3	$\overline{IN}$		1.7 to 4.95	Signal input bypass pin. This pin must be equipped with a bypass capacitor (eg 1000 pF) to ground.
4, 5	GND	0	_	Ground pin. Ground pattern on the board should be formed as wide as possible to minimize ground impedance.
6	NC		_	No connection. This pin should be left open.
7	OUT		1.0 to 4.7	Divided frequency output pin. This pin should be coupled to load device with a capacitor (eg 1000 pF).
8	NC		_	No connection. This pin should be left open.

OUTLINE DIMENSIONS (Units in mm)

PACKAGE OUTLINE S08





PIN CONNECTIONS

1. V_{CC}	5. GND
2. IN	6. NC
3. $\overline{IN}$	7. OUT
4. GND	8. NC

ORDERING INFORMATION

PART NUMBER	QUANTITY
UPB1508GV-E1	1000/Reel

NOTE:
1. Embossed tape 8 mm wide.
   Pin 1 is in the tape pull-out direction.