CEL

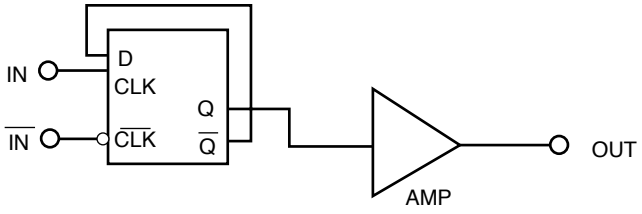
BIPOLAR DIGITAL INTEGRATED CIRCUITS
UPB1508GV

3.0 GHz DIVIDE BY 2 PRESCALER

FEATURES

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

INTERNAL BLOCK DIAGRAM



DESCRIPTION

The UPB1508GV is a Silicon RFIC digital prescaler manufac - tured 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	mA	7.6	12	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 to 3.0 GHz f_{IN} = 0.5 to 2.7 GHz	dBm dBm	-10 -15		+6 +6
P_{OUT}	Output Power, P_{IN} =0 dBm, f_{IN} = 2 GHz	dBm	-12	-7	

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

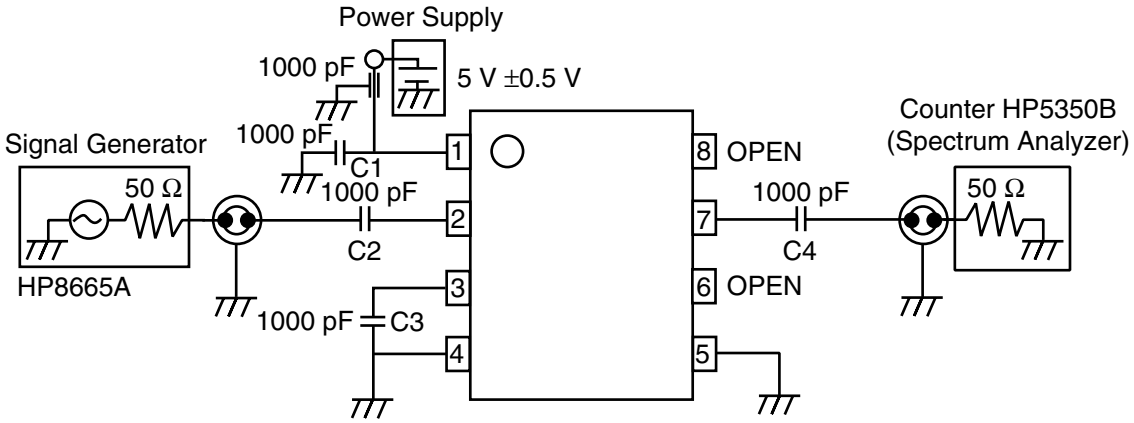
SYMBOLS	PARAMETERS	UNITS	RATINGS
V_{CC}	Supply Voltage	V	6.0
V_{IN}	Input Voltage	V	6.0
P_T	Total Power Dissipation[2]	mW	250
T_{OP}	Operating Temperature	°C	-40 to +85
T_{STG}	Storage Temperature	°C	-55 to +150

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

TEST CIRCUIT

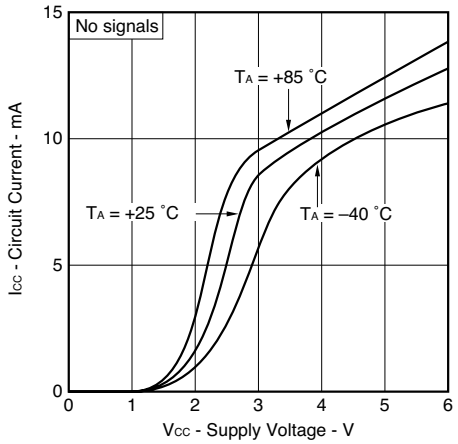


PIN DESCRIPTIONS

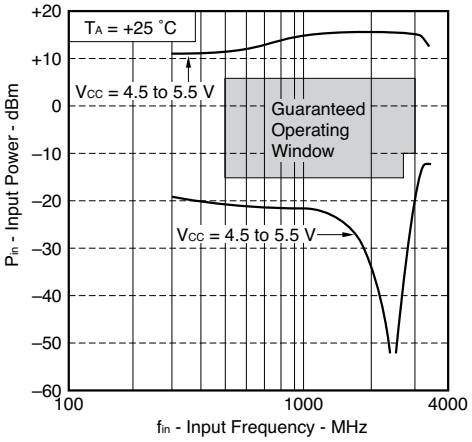
Pin no.	Symbol	Applied Voltage	Pin Voltage	Description
1	V_{CC}	4.5 to 5.5		Power supply pin. This pin must be equipped with bypass capacitor (eg 1000 pF) to ground.
2	IN		1.7 to 4.95	Signal input pin. This pin should be coupled with a capacitor (eg 1000 pF).
3	$\overline{IN}$		1.7 to 4.95	Signal input 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.

TYPICAL PERFORMANCE CURVES (Unless otherwise specified, T_A = 25°C)

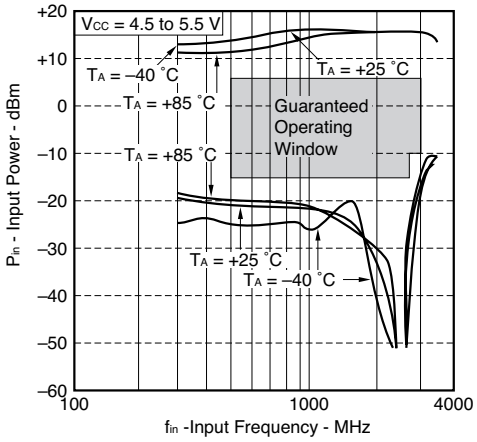
CIRCUIT CURRENT vs. SUPPLY VOLTAGE



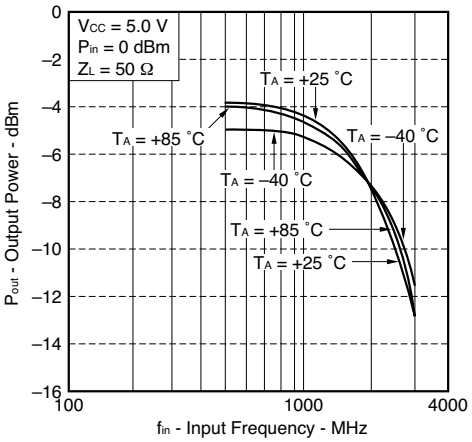
INPUT POWER vs. INPUT FREQUENCY



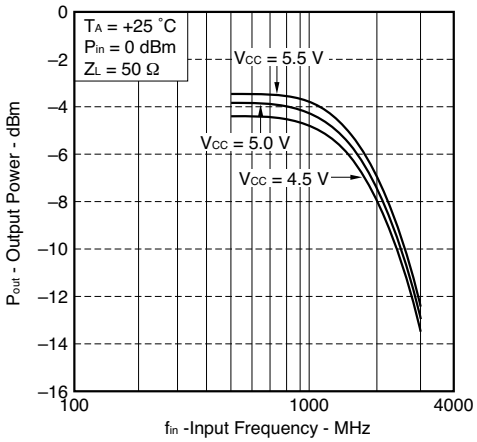
INPUT POWER vs. INPUT FREQUENCY



INPUT POWER vs. INPUT FREQUENCY

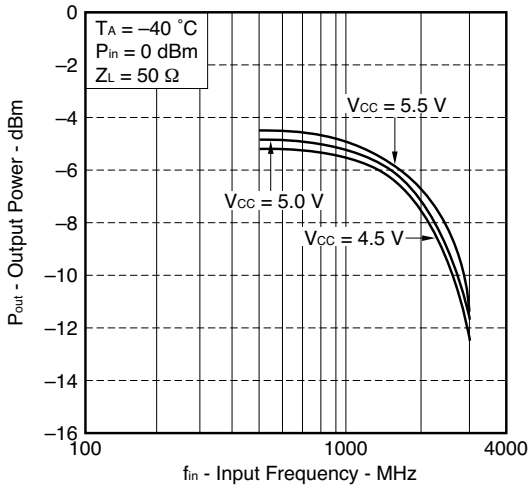


INPUT POWER vs. INPUT FREQUENCY

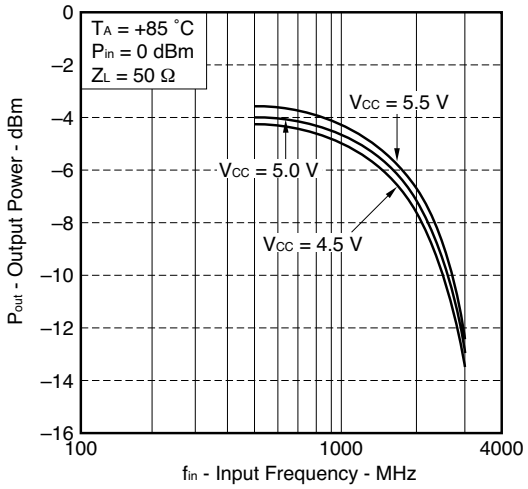


TYPICAL PERFORMANCE CURVES (Unless otherwise specified, T_A = 25 °C)

OUTPUT POWER vs. INPUT FREQUENCY



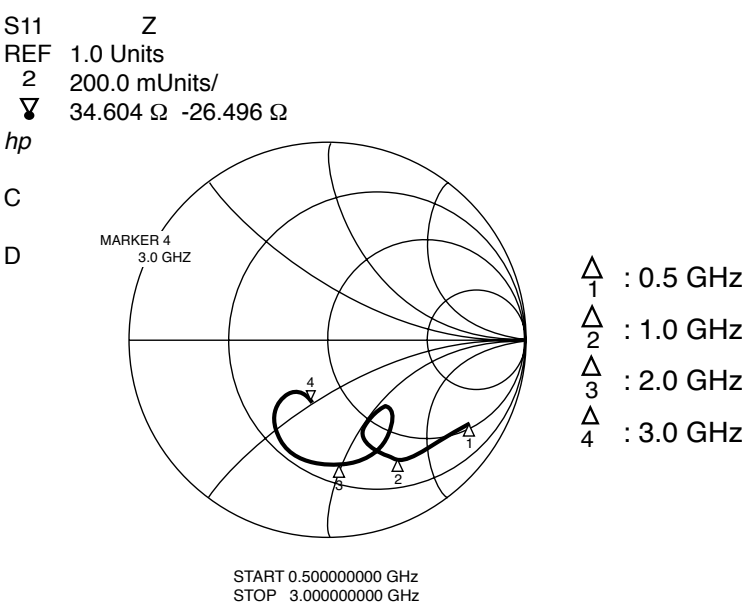
OUTPUT POWER vs. INPUT FREQUENCY



TYPICAL SCATTERING PARAMETERS (T_A = 25 °C)

S_{11} vs. INPUT FREQUENCY

V_{CC} = 5.0 V



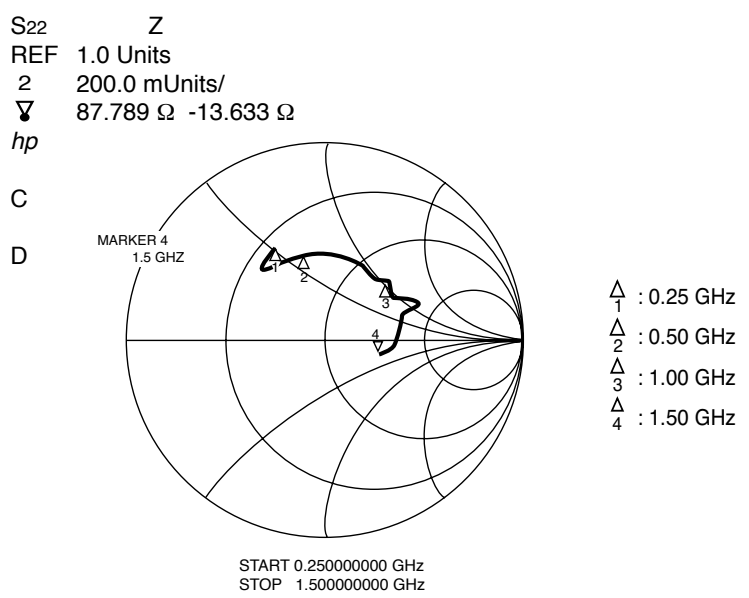
△1 : 0.5 GHz
△2 : 1.0 GHz
△3 : 2.0 GHz
△4 : 3.0 GHz

FREQUENCY	S_{11}	
GHz	MAG	ANG
0.5	0.850	-30.2
0.6	0.796	-37.8
0.7	0.790	-39.2
0.8	0.754	-45.2
0.9	0.766	-53.7
1.0	0.701	-57.6
1.1	0.660	-62.3
1.2	0.606	-67.2
1.3	0.571	-70.3
1.4	0.521	-70.6
1.5	0.495	-68.3
1.6	0.441	-60.6
1.7	0.479	-45.1
1.8	0.602	-62.3
1.9	0.595	-74.2
2.0	0.608	-82.9
2.1	0.603	-89.8
2.2	0.599	-97.3
2.3	0.588	-107.7
2.4	0.532	-122.0
2.5	0.396	-132.0
2.6	0.325	-127.1
2.7	0.270	-123.6
2.8	0.232	-122.7
2.9	0.258	-105.8
3.0	0.351	-103.7

TYPICAL SCATTERING PARAMETERS (T_A = 25 °C)

S_{22} vs. OUTPUT FREQUENCY

V_{CC} = 5.0 V, f_{in} = 498 MHz

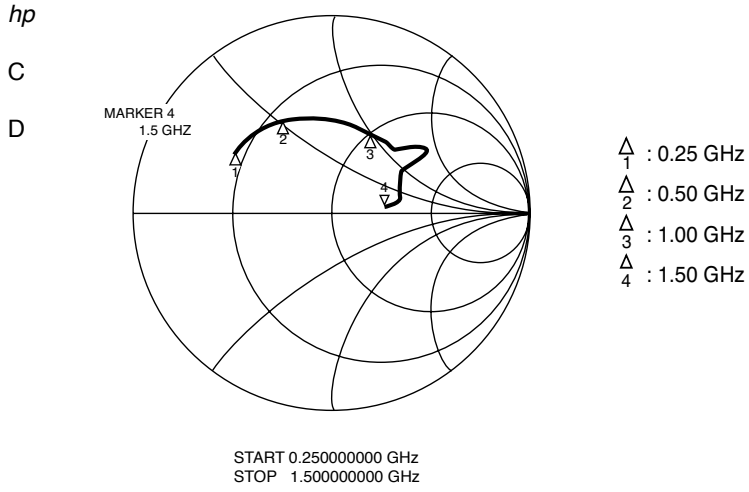


△1 : 0.25 GHz
△2 : 0.50 GHz
△3 : 1.00 GHz
△4 : 1.50 GHz

FREQUENCY GHz	S_{22} MAG	ANG
0.25	0.526	118.9
0.30	0.463	131.2
0.35	0.466	124.7
0.40	0.460	117.1
0.45	0.441	110.2
0.50	0.456	103.0
0.55	0.353	94.8
0.60	0.438	91.1
0.65	0.444	83.9
0.70	0.436	78.3
0.75	0.435	71.8
0.80	0.431	65.9
0.85	0.431	60.3
0.90	0.431	53.7
0.95	0.408	49.2
1.00	0.445	44.9
1.05	0.428	41.0
1.10	0.429	33.7
1.15	0.355	42.7
1.20	0.418	20.0
1.25	0.403	17.1
1.30	0.392	9.6
1.35	0.368	3.3
1.40	0.343	-3.4
1.45	0.319	-9.2
1.50	0.289-	14.1

S_{22} vs. OUTPUT FREQUENCY

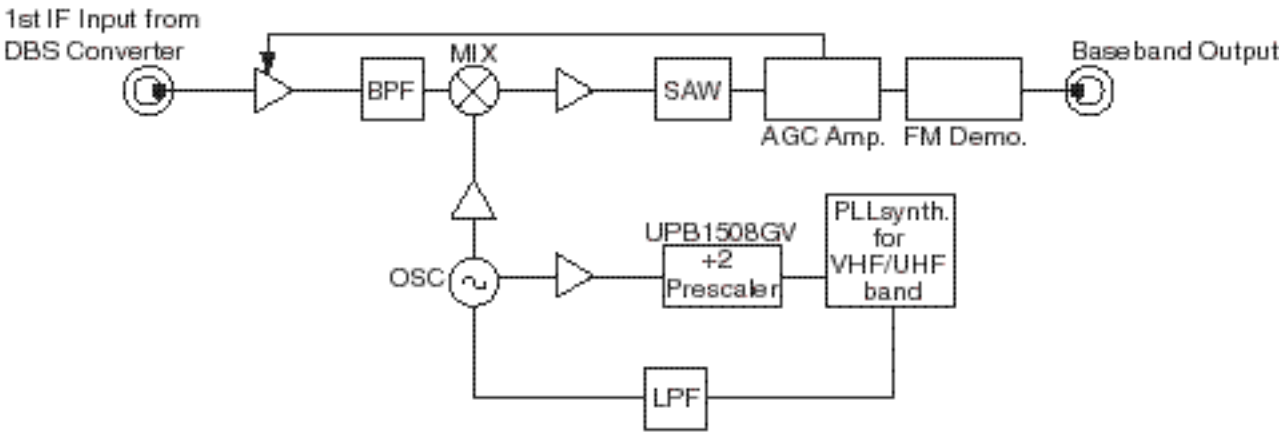
V_{CC} = 5.0 V, f_{in} = 3002 MHz



△1 : 0.25 GHz
△2 : 0.50 GHz
△3 : 1.00 GHz
△4 : 1.50 GHz

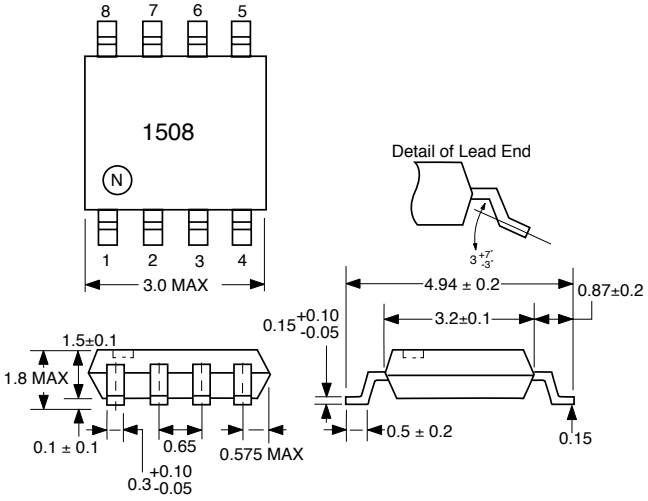
FREQUENCY GHz	S_{22} MAG	ANG
0.25	0.555	146.6
0.30	0.545	139.9
0.35	0.571	136.1
0.40	0.529	127.9
0.45	0.521	122.4
0.50	0.515	116.9
0.55	0.510	104.5
0.60	0.492	106.6
0.65	0.487	100.9
0.70	0.482	95.3
0.75	0.473	89.9
0.80	0.461	83.8
0.85	0.454	78.4
0.90	0.449	72.3
0.95	0.430	69.6
1.00	0.443	64.3
1.10	0.440	52.3
1.15	0.438	46.0
1.20	0.501	37.5
1.25	0.408	32.9
1.30	0.388	25.1
1.35	0.359	16.3
1.40	0.335	9.7
1.45	0.304	3.1
1.50	0.285	4.6

SYSTEM APPLICATION EXAMPLE

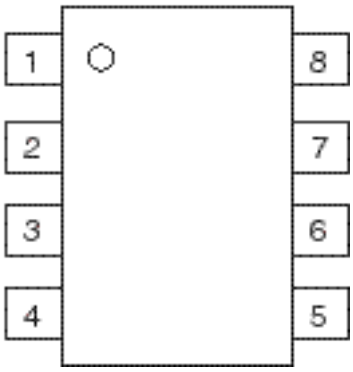


OUTLINE DIMENSIONS (Units in mm)

PACKAGE OUTLINE S08



PIN CONNECTION



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-A	1000/Reel

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

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9