

3.0 GHz DIVIDE BY 4 PRESCALER

UPB1510GV

FEATURES

• HIGH FREQUENCY OPERATION TO 3 GHz

• FIXED DIVIDE RATIO: ÷ 4

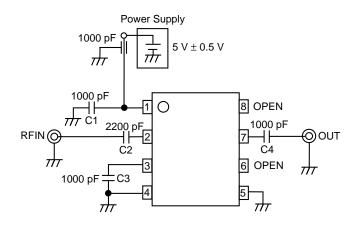
LOW CURRENT CONSUMPTION: 15 mA @ 5 V

SMALL PACKAGE: 8 PIN SSOP
AVAILABLE IN TAPE AND REEL

DESCRIPTION

The UPB1510GV is a Silicon MMIC digital prescaler manufactured with the NESAT™ IV silicon bipolar process. It features frequency response to 3 GHz, a divide-by-four ratio, and operates on a 5 volt supply while drawing only 15 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.

TEST CIRCUIT



ELECTRICAL CHARACTERISTICS (TA = -40 to +85°C, Vcc = 4.5 to 5.5 V, Zs = ZL = 50 Ω)

PART NUMBER PACKAGE OUTLINE			UPB1510GV \$08		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
Icc	Circuit Current, No Input Signal	mA		15	
fin (u)1	Upper Limit Operating Frequency 1, PIN = -10 to +6 dBm	GHz	3.0		
fin (u)2	Upper Limit Operating Frequency 2, PIN = -15 to +6 dBm	GHz	2.7		
fin (L)	Lower Limit Operating Frequency, PIN = -15 to +6 dBm	GHz			0.5
Pin1	Input Power 1, fin = 2.7 to 3.0 GHz	dBm	-10		+6
PIN2	Input Power 2, fin = 1.0 to 2.7 GHz	dBm	-15		+6
Роит	Output Power, PIN = 0 dBm, fIN = 2.0 GHz	dBm	-12	-7	

ABSOLUTE MAXIMUM RATINGS¹ (TA = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
Vcc	Supply Voltage	V	6.0
VIN	Input Voltage	V	6.0
Pb	Total Power Dissipation ²	mW	250
TA	Operating Ambient Temp.	°C	-40 to +85
Tstg	Storage Temperature	°C	-55 to +150

Notes:

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

INTERNAL BLOCK DIAGRAM

RECOMMENDED

SYMBOL

Vcc

TΑ

OPERATING CONDITIONS

Supply Voltage

PARAMETER

Operating Ambient Temp.

UNITS

٧

°С

MIN

4.5

-40

TYP

5.0

+25

MAX

5.5

+85

LD	L _D		
IN O CLK	CLK		
IN O—OCIK Q	H L	+ > -	O OUT
		✓ _{AMP}	

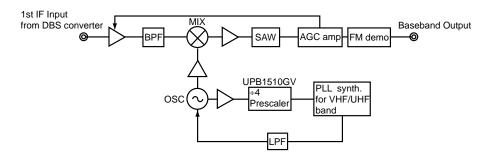
PRODUCT LINE-UP

Product No.	Icc (mA)	Vcc (V)	÷4 fin (GHz)	Package
UPB585G	18	4.5 to 5.5	0.5 to 2.5	8 pin SOP
UPB1510GV	15	4.5 to 5.5	0.5 to 3.0	8 pin SSOP

Note: This table shows typical values only.

SYSTEM APPLICATION EXAMPLE

RF UNIT BLOCK OF DBS TUNER

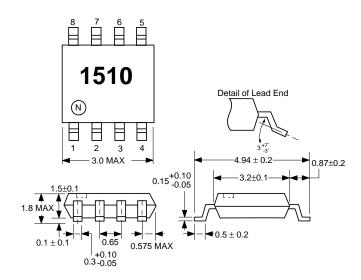


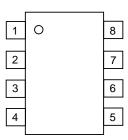
PIN DESCRIPTIONS

Pin No.	Symbol	Applied Voltage	Description	
1	VCC	4.5 to 5.5	Power supply pin. This pin must be decoupled with a bypass capacitor (e.g . 1000 pF).	
2	IN	-	Signal input pin. This pin should be coupled to source with a capacitor (e.g. 1000 pF).	
3	ĪN	-	Signal input bypass pin. This pin must be equipped with a bypass capacitor (e.g. 1000 pF) to ground.	
4	GND	0	Ground pin. Ground pattern on the board should be formed as wide as possible to minimize ground impedance.	
5	GND	0		
6	NC	_	No connection, this pin should be left open.	
7	OUT	-	Divided frequency output pin. This pin is designed as an emitter follower output, and should be coupled to the load with a capacitor (e.g. 1000 pF).	
8	NC	_	No connection, this pin should be left open.	

OUTLINE DIMENSIONS (Units in mm)

PACKAGE OUTLINE S08





PIN CONNECTIONS

1. Vcc	5. GND
2. IN	6. NC
3. IN	7. OUT
4. GND	8. NC

ORDERING INFORMATION

PART NUMBER	QUANTITY
UPB1510GV-E1	1000/Reel

Note:

Pin 1 is in the tape pull-out direction.

^{1.} Embossed tape 8 mm wide.