

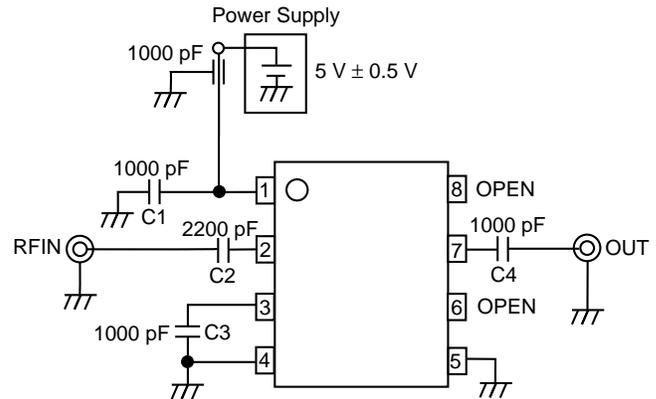
FEATURES

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

PART NUMBER PACKAGE OUTLINE			UPB1510GV S08		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
I _{CC}	Circuit Current, No Input Signal	mA		15	
f _{IN (u)1}	Upper Limit Operating Frequency 1, P _{IN} = -10 to +6 dBm	GHz	3.0		
f _{IN (u)2}	Upper Limit Operating Frequency 2, P _{IN} = -15 to +6 dBm	GHz	2.7		
f _{IN (L)}	Lower Limit Operating Frequency, P _{IN} = -15 to +6 dBm	GHz			0.5
P _{IN1}	Input Power 1, f _{IN} = 2.7 to 3.0 GHz	dBm	-10		+6
P _{IN2}	Input Power 2, f _{IN} = 1.0 to 2.7 GHz	dBm	-15		+6
P _{OUT}	Output Power, P _{IN} = 0 dBm, f _{IN} = 2.0 GHz	dBm	-12	-7	

UPB1510GV

ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CC}	Supply Voltage	V	6.0
V _{IN}	Input Voltage	V	6.0
P _D	Total Power Dissipation ²	mW	250
T _A	Operating Ambient Temp.	°C	-40 to +85
T _{STG}	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 (T_A = +85°C).

PRODUCT LINE-UP

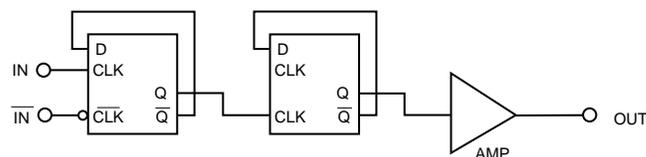
Product No.	I _{CC} (mA)	V _{CC} (V)	+4 f _{IN} (GHz)	Package
UPB585G	18	4.5 to 5.5	0.5 to 2.5	8 pin SOP
UPB1510GV	15	4.5 to 5.5	0.5 to 3.0	8 pin SSOP

Note: This table shows typical values only.

RECOMMENDED OPERATING CONDITIONS

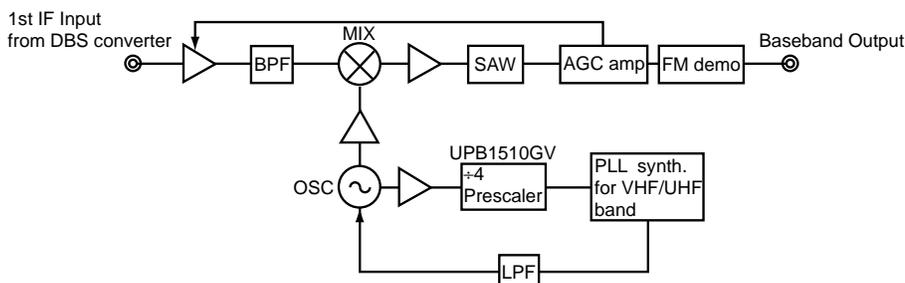
SYMBOL	PARAMETER	UNITS	MIN	TYP	MAX
V _{CC}	Supply Voltage	V	4.5	5.0	5.5
T _A	Operating Ambient Temp.	°C	-40	+25	+85

INTERNAL BLOCK DIAGRAM



SYSTEM APPLICATION EXAMPLE

RF UNIT BLOCK OF DBS TUNER

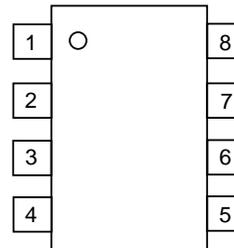
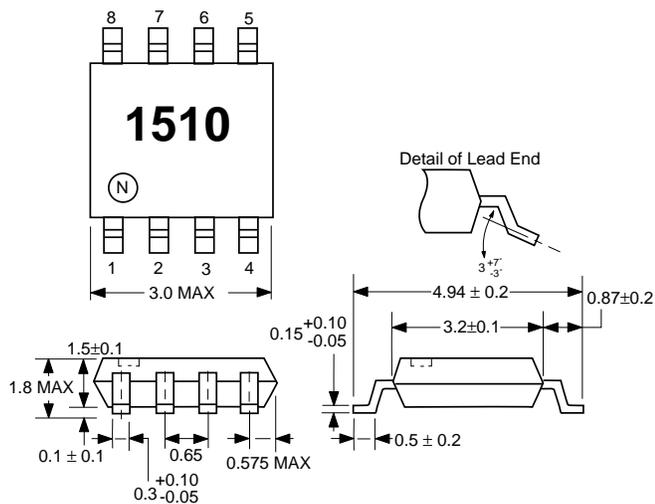


PIN DESCRIPTIONS

Pin No.	Symbol	Applied Voltage	Description
1	V _{CC}	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	IN-bar	-	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. $\overline{\text{IN}}$ 7. OUT
- 4. GND 8. NC

ORDERING INFORMATION

PART NUMBER	QUANTITY
UPB1510GV-E1	1000/Reel

Note:

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