NEC

1.6 GHz DIFFERENTIAL WIDEBAND SILICON MMIC AMPLIFIER

UPC2726T

FEATURES

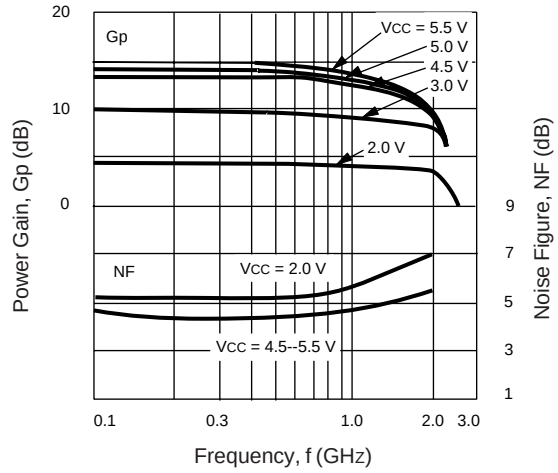
- **HIGH GAIN:** 15 dB Typical at 400 MHz
- **WIDEBAND FREQUENCY RESPONSE:** 1.6 GHz TYP
- **SINGLE POSITIVE DC SUPPLY**
- **SUPER SMALL PACKAGE**
- **TAPE AND REEL PACKAGING OPTION AVAILABLE**

DESCRIPTION

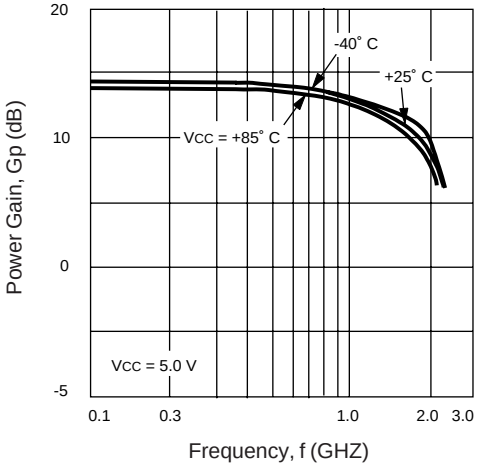
The UPC2726T is a Silicon Monolithic Integrated Circuit which is manufactured using the NESAT III process. The NESAT III process produces transistors with f_T approaching 20 GHz. This amplifier was designed as a buffer amplifier for circuits requiring differential inputs and outputs for increased common-mode rejection.

NEC's stringent quality assurance and test procedures ensure the highest reliability and performance.

NOISE FIGURE AND GAIN vs. FREQUENCY AND VOLTAGE



GAIN vs. FREQUENCY AND TEMPERATURE



ELECTRICAL CHARACTERISTICS (T_A = 25°C, Z_L = Z_S = 50 Ω, f = 400 MHz)

PART NUMBER PACKAGE OUTLINE			UPC2726T T06					
			Vcc = 5 V			Vcc = 2 V		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX	MIN	TYP	MAX
I_{CC}	Circuit Current (no signal)	mA	8	11.5	15		2.5	
G_S	Small Signal Gain	dB	11	15	17		4.5	
NF	Noise Figure	dB		4.5	6		5.1	
fu	Upper Limit Operating Frequency[1]	GHz	1.0	1.6			2.4	
P_{SAT}	Saturated Output Power	dBm	-5	-2			-14	
RL_{IN}	Input Return Loss	dB		2			1	
RL_{OUT}	Output Return Loss	dB		4			4	
ISOL	Isolation	dB		60			58	
OIP_3	SSB Output Third Order Intercept Point[2]	dBm		-2.5			-10	

Notes:
1. The gain at fu is 3 dB down from the gain at 400 MHz.
2. f_1 = 400 MHz, f_2 = 402 MHz, single side band.

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

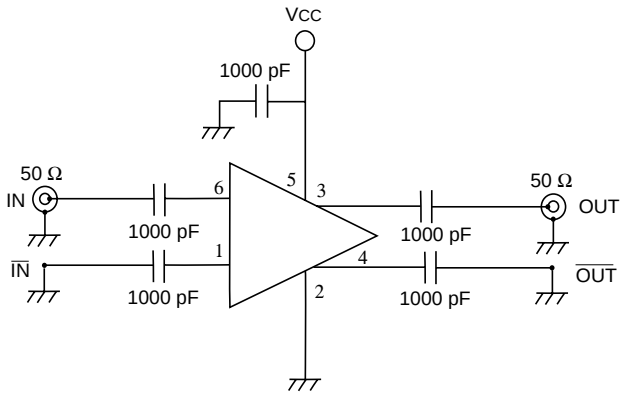
SYMBOLS	PARAMETERS	UNITS	RATINGS
V_{CC}	Supply Voltage	V	6.0
P_{IN}	Input Power	dBm	0
P_T	Total Power Dissipation[2]	mW	280
T_{OP}	Operating Temperature	°C	-40 to +85
T_{STG}	Storage Temperature	°C	-55 to +150

Notes:
1. Operation in excess of any one of these conditions may result in permanent damage.
2. Mounted on a 50 x 50 x 1.6 mm epoxy glass PWB (T_A = 85°C).

RECOMMENDED OPERATING CONDITIONS

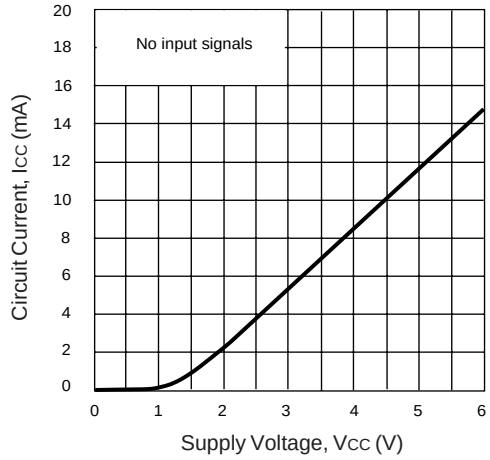
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V_{CC}	Supply Voltage	V	4.5	5.0	5.5
T_{OP}	Operating Temperature	°C	-40	25	85

TEST CIRCUIT

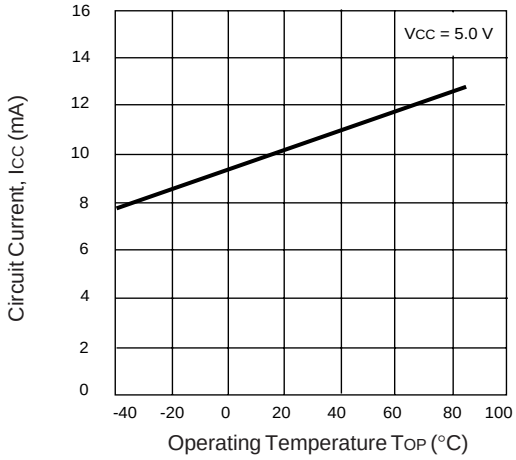


TYPICAL PERFORMANCE CURVES (T_A = 25° C)

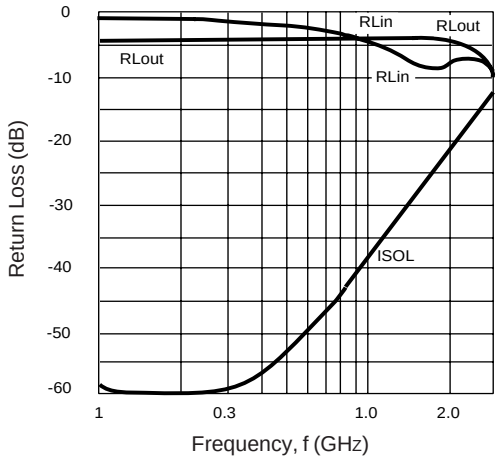
CIRCUIT CURRENT vs. VOLTAGE



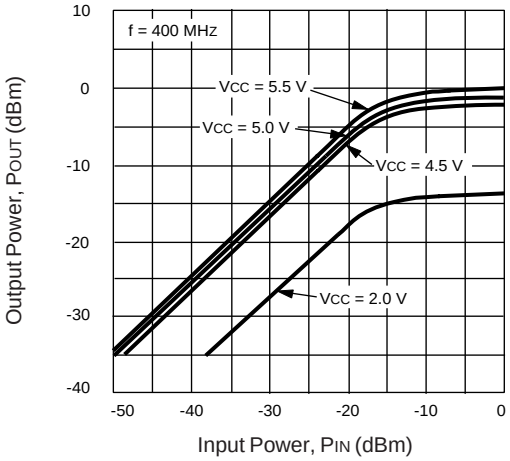
CIRCUIT CURRENT vs. OPERATING TEMPERATURE



RETURN LOSS vs. FREQUENCY

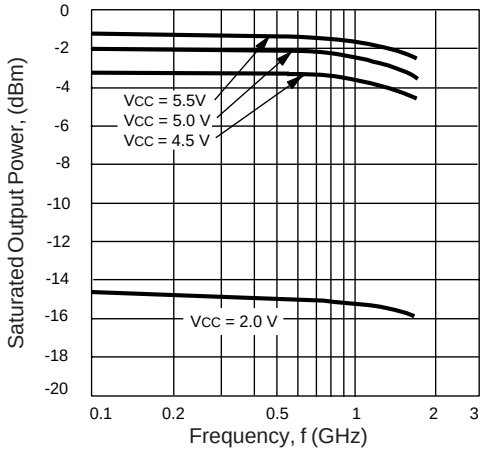


OUTPUT POWER vs. INPUT POWER AND VOLTAGE

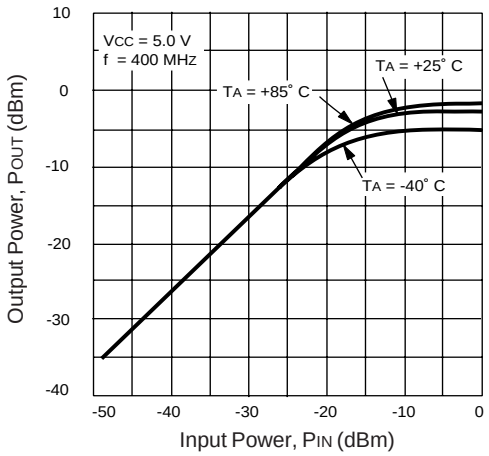


TYPICAL PERFORMANCE CURVES (T_A = 25°C)

SATURATED OUTPUT POWER vs. FREQUENCY AND VOLTAGE

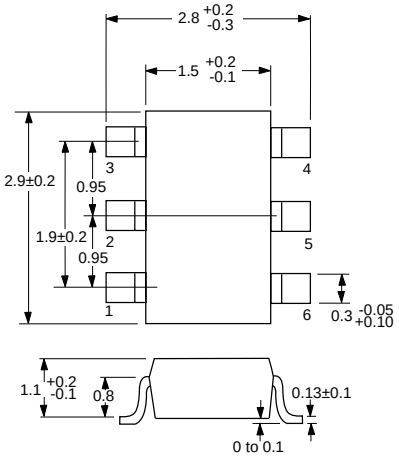


OUTPUT POWER vs. INPUT POWER AND TEMPERATURE



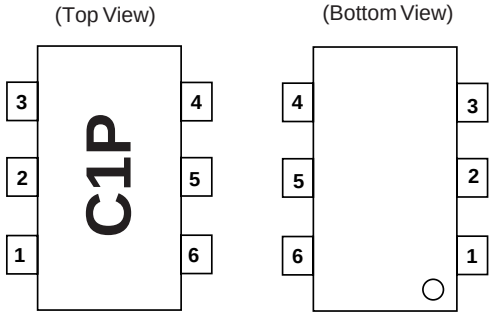
OUTLINE DIMENSIONS (Units in mm)

PACKAGE OUTLINE T06



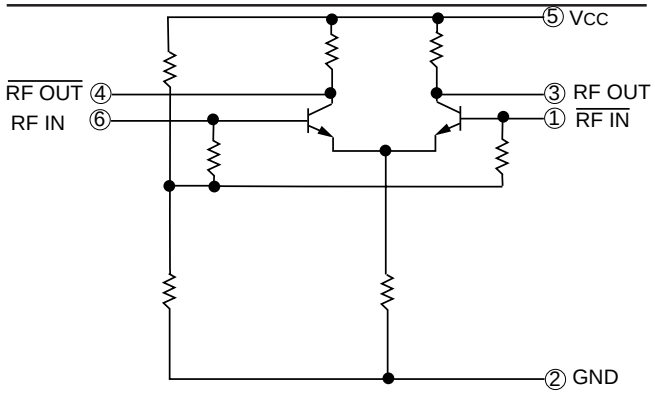
Note:
All dimensions are typical unless otherwise specified.

LEAD CONNECTIONS

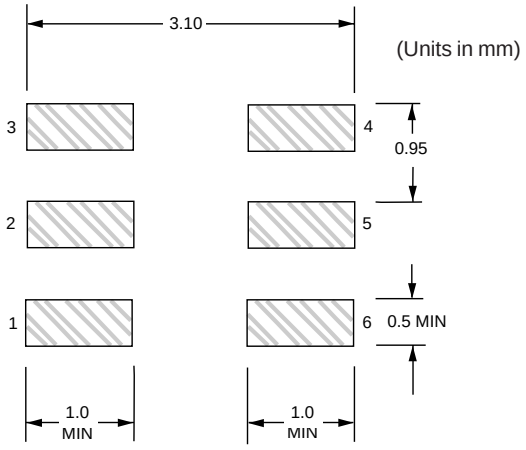


1. $\overline{\text{INPUT}}$
2. GND
3. OUTPUT
4. $\overline{\text{OUTPUT}}$
5. V_{CC}
6. INPUT

EQUIVALENT CIRCUIT



RECOMMENDED P.C.B. LAYOUT



ORDERING INFORMATION

PART NUMBER	QTY
UPC2726T-E3	3K/Reel

Note:
Embossed Tape, 8 mm wide.