

2.7 GHz SILICON MIMIC WIDE BAND AMPLIFIER

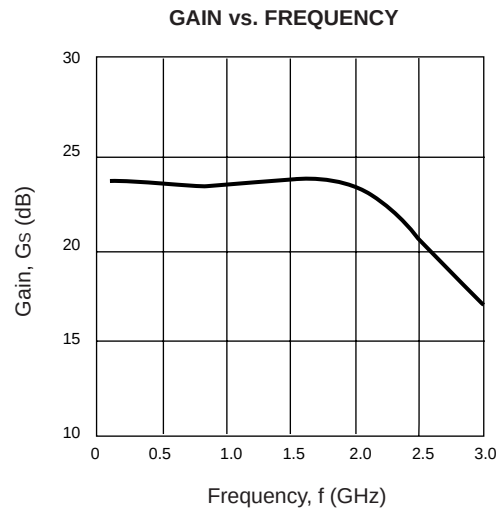
UPC2776T

FEATURES

- **WIDE FREQUENCY RESPONSE:** 2.7 GHz
- **FLAT GAIN RESPONSE:** ± 1.0 dB
- **HIGH GAIN:** 23 dB
- **MEDIUM OUTPUT POWER:** P_{1dB} : 6.0 dBm @ 1.0 GHz
- **5 V SINGLE SUPPLY VOLTAGE**
- **SMALL SURFACE MOUNT PACKAGE :** T06
- **TAPE AND REEL PACKAGING AVAILABLE**

DESCRIPTION AND APPLICATIONS

The UPC2776T is a Silicon Monolithic integrated circuit manufactured using the NESAT III process. This device is suitable for wide band IF blocks due to its high gain and flat response. The UPC2776T is designed as a low cost IC gain stage in DBS, TVRO, PCS, WLAN and other communication receivers.



ELECTRICAL CHARACTERISTICS ($V_{CC} = 5.0$ V, $T_A = 25$ °C, $Z_{IN} = Z_{OUT} = 50$ Ω)

PART NUMBER PACKAGE OUTLINE			UPC2776T T06		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
I_{CC}	Circuit Current (no signal)	mA	18	25	33
G_s	Small Signal Gain, $f = 1$ GHz	dB	21	23	26
f_u	Upper Limit Operating Frequency (The gain at f_u is 3 dB down from the gain at 0.1 GHz)	GHz	2.3	2.7	
ΔG_s	Gain Flatness, $f = 0.1 \sim 2.0$ GHz	dB		± 1.0	
P_{1dB}	Output Power at 1 dB Compression $f = 1$ GHz	dBm	+4	+6.0	
NF	Noise Figure, $f = 1$ GHz	dB		6.0	7.5
RL_{IN}	Input Return Loss, $f = 1$ GHz	dB	4.5	7.5	
RL_{OUT}	Output return Loss, $f = 1$ GHz	dB	15	20	
ISOL	Isolation, $f = 1$ GHz	dB	27	32	
P_{SAT}	Saturated Output Power, $f = 1$ GHz	dBm		8.5	
IM ₃	3rd Order Intermodulation Distortion, $f = 1$ GHz $P_o = 0$ dBm each tone, $f_1 = 1000$ MHz, $f_2 = 1002$ MHz	dBc		-30	
R_{TH}	Thermal Resistance (Junction to Ambient)	°C/W			200

ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CC}	Supply Voltage	V	6
I _{CC}	Total Circuit Current	mA	60
P _{IN}	Input Power	dBm	+10
P _T	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 parameters may result in permanent damage.
- 2. Mounted on 50 x 50 x 1.6 mm epoxy glass PWB (T_A = +85 °C)

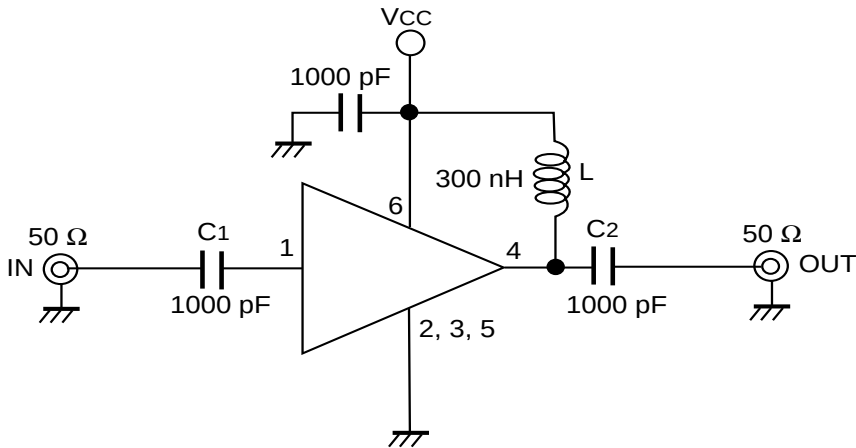
RECOMMENDED
OPERATING CONDITIONS

SYMBOL	PARAMETER	UNITS	MIN	TYP	MAX
V _{CC}	Supply Voltage	V	4.5	5.0	5.5

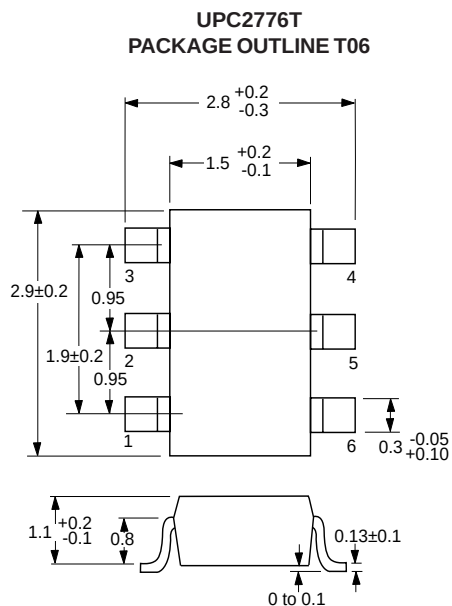
PIN FUNCTIONS

PIN	SYMBOL	APPLIED VOLTAGE (v)	DESCRIPTION	EQUIVALENT CIRCUIT
1	INPUT	—	RF signal input pin. An internal matching circuit, configured with resistors, improves match to 50 Ω over a wide band. A multi-feedback circuit is incorporated to minimize variations in h _{FE} and resistance values.	
2 3 5	GND	0	Ground pin. Form the ground pattern as large as possible to minimize ground impedance.	
4	OUTPUT	4.5 - 5.5	RF signal output pin. Connect an inductor between this pin and V _{CC} to supply current to the internal output transistors.	
6	V _{CC}		Power supply pin. This pin biases the internal input transistor.	

TEST CIRCUIT



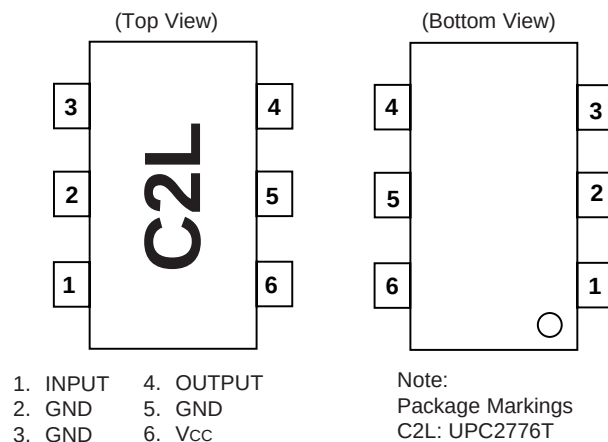
OUTLINE DIMENSIONS (Units in mm)



Note:

All dimensions are typical unless otherwise specified.

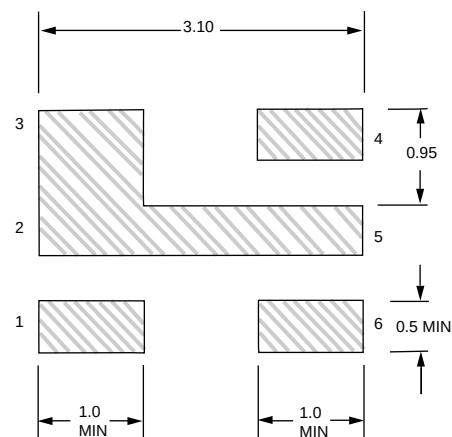
LEAD CONNECTIONS



ORDERING INFORMATION

PART NUMBER	QTY
UPC2776T-E3	3K/Reel

RECOMMENDED P.C.B. LAYOUT (Units in mm)



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