

FEATURES

- 7 dBm P_{1dB} TYPICAL AT 1.9 GHz
- **LOW VOLTAGE:** 3 Volts
- **WIDE BANDWIDTH:** 2.9 GHz at -3 dB (UPC2762T)
- **HIGH GAIN:** 20 dB at 1.9 GHz (UPC2763T)
- **SUPER SMALL PACKAGE:** SOT-363 package
- **TAPE AND REEL PACKAGING OPTION AVAILABLE**

DESCRIPTION

The UPC2762TB and UPC2763TB are Silicon Monolithic integrated circuits which are manufactured using the NESAT™ III process. The NESAT™ III process produces transistors with f_T approaching 20 GHz. These amplifiers were designed for 900 MHz and 1.9 GHz receivers in cellular, cordless telephone and PCN applications. The UPC2762/63TB are pin compatible and have comparable performance as the larger UPC2762/63T, so they are suitable for use as a replacement to help reduce system size. These IC's are housed in a 6 pin super minimold or SOT-363 package. Operating on a 3 volt supply these ICs are ideally suited for hand-held, portable designs.

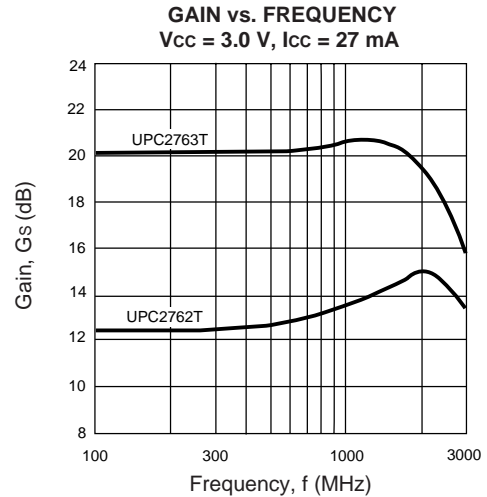
NEC's stringent quality assurance and test procedures ensure the highest reliability and performance.

ELECTRICAL CHARACTERISTICS (T_A = 25°C, Z_L = Z_S = 50Ω, V_{CC} = 3.0 V)

PART NUMBER PACKAGE OUTLINE			UPC2762TB S06			UPC2763TB S06		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX	MIN	TYP	MAX
I _{CC}	Circuit Current (no signal)	mA		27	35		27	35
G _s	Small Signal Gain, f = 900 MHz	dB	11	13	16	18	20	23
	f = 1900 MHz	dB	11.5	15.5	17.5	18	21	24
f _U	Upper Limit Operating Frequency (The gain at f _U is 3 dB down from the gain at 0.1 GHz)	GHz	2.7	2.9		2.3	2.7	
P _{1dB}	Output Power at 1 dB Compression Point, f = 900 MHz	dBm	+5.5	+8		+7	+9.5	
	f = 1900 MHz	dBm	+4.5	+7		+4	+6.5	
P _{SAT}	Saturated Output Power, f = 900 MHz	dBm		9			11	
	f = 1900 MHz	dBm		8.5			8	
NF	Noise Figure, f = 900 MHz	dB		6.5	8.0		5.5	7.0
	f = 1900 MHz	dB		7	9.0		5.5	7.5
RL _{IN}	Input Return Loss, f = 900 MHz	dB	6	9		8	11	
	f = 1900 MHz	dB	5.5	8.5		8	11	
RL _{OUT}	Output Return Loss, f = 900 MHz	dB	8	11		5	7	
	f = 1900 MHz	dB	9	12		6	9	
ISOL	Isolation, f = 900 MHz	dB	22	27		25	30	
	f = 1900 MHz	dB	20	25		24	29	
OIP ₃	SSB Output Third Order Intercept Point f = 900, 902 MHz	dBm		+12			+17	
	P _{OUT} = +4 dBm f = 1900, 1902 MHz	dBm		+9			+11	
PADJ	Adjacent Channel Power, Δf = ±50 KHz	dBc		-64			-61	
	f = 900 MHz, π/4 QPSK wave ¹ , Δf = ±100 KHz P _O = +4 dBm	dBc		-64			-62	

Note:

1. π/4 QPSK modulated wave input, data rate 42 kbps.



UPC2762TB, UPC2763TB

ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CC}	Supply Voltage	V	3.6
I _{CC}	Total Supply Current	mA	70
P _{IN}	Input Power	dBm	+10
P _T	Total Power Dissipation ²	mW	200
T _{OP}	Operating Temperature	°C	-40 to +85
T _{STG}	Storage Temperature	°C	-55 to +150

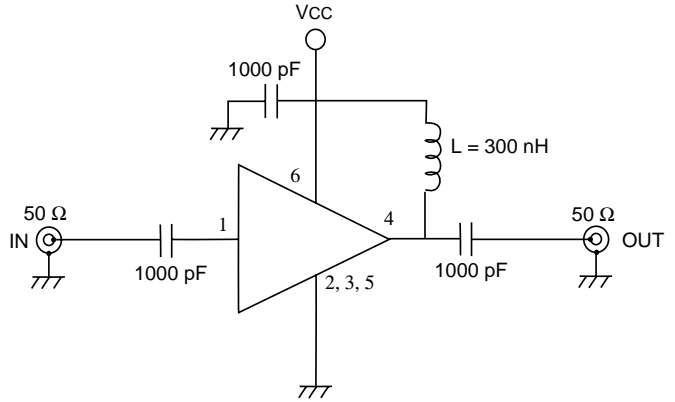
Notes:

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

RECOMMENDED OPERATING CONDITIONS

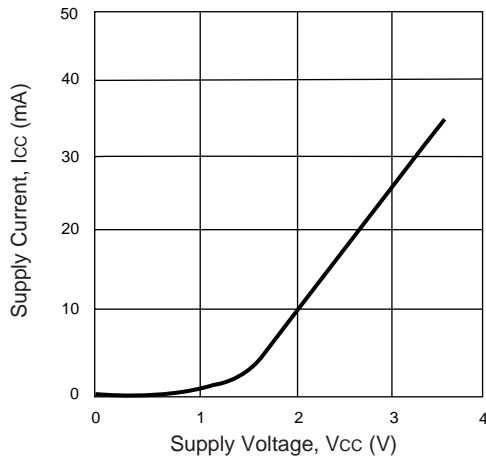
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V _{CC}	Supply Voltage	V	2.7	3	3.3
T _{OP}	Operating Temperature	°C	-40	25	85

TEST CIRCUIT

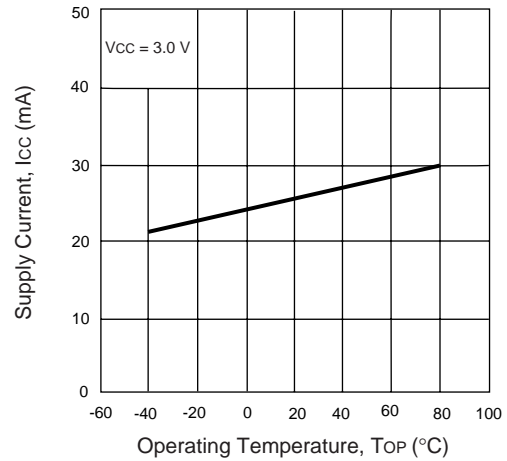


TYPICAL PERFORMANCE CURVES (T_A = 25°C)

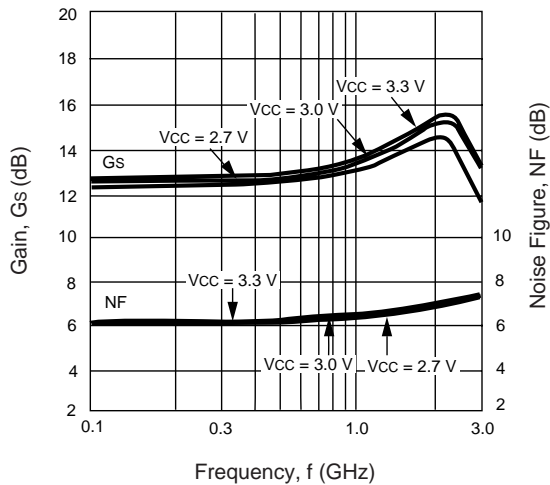
UPC2762/63TB
SUPPLY CURRENT vs.
SUPPLY VOLTAGE



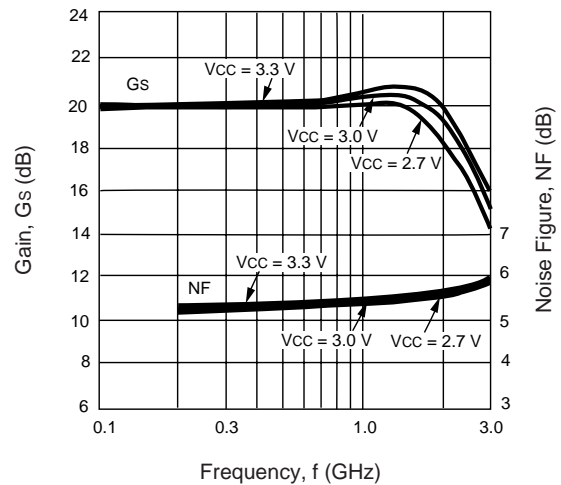
UPC2762/63TB
SUPPLY CURRENT vs.
OPERATING TEMPERATURE



UPC2762TB
NOISE FIGURE AND GAIN vs.
FREQUENCY AND VOLTAGE

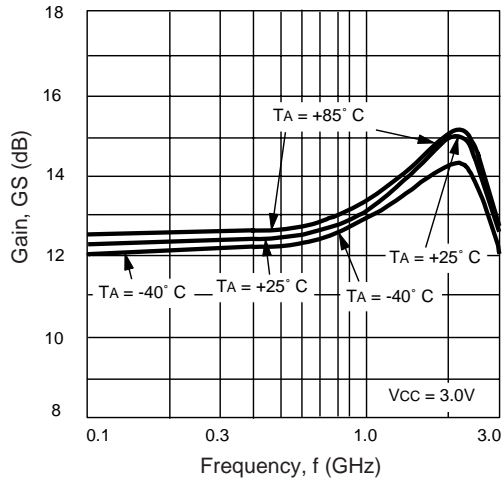


UPC2763TB
NOISE FIGURE AND GAIN vs.
FREQUENCY AND VOLTAGE

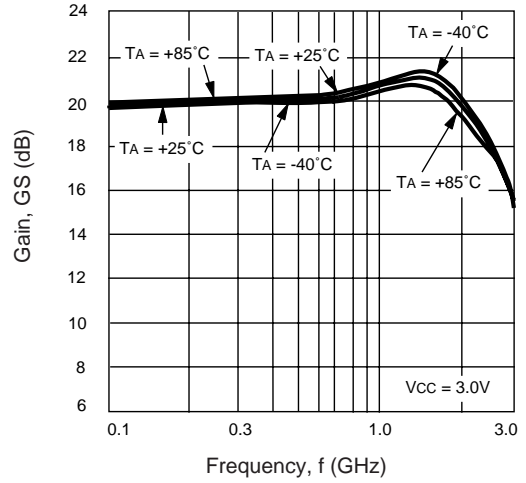


TYPICAL PERFORMANCE CURVES (TA = 25°C)

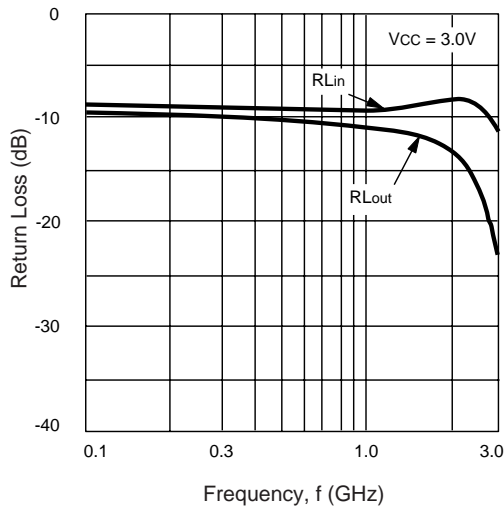
UPC2762TB
GAIN vs. FREQUENCY AND TEMPERATURE



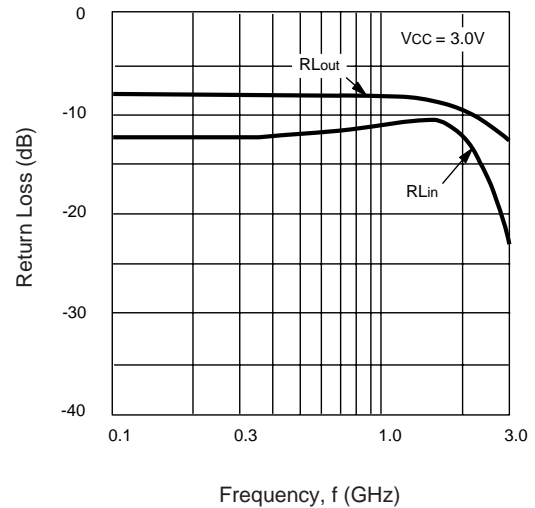
UPC2763TB
GAIN vs. FREQUENCY AND TEMPERATURE



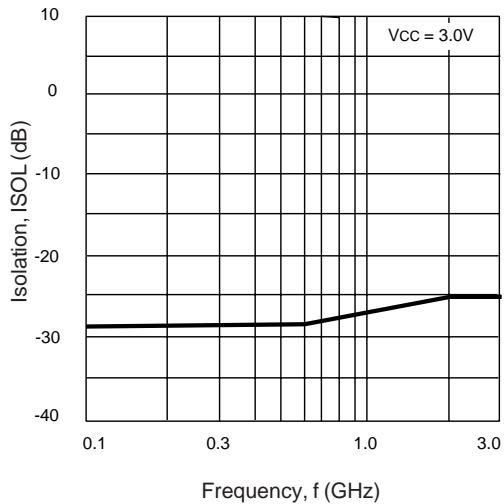
UPC2762TB
INPUT AND OUTPUT
RETURN LOSS vs. FREQUENCY



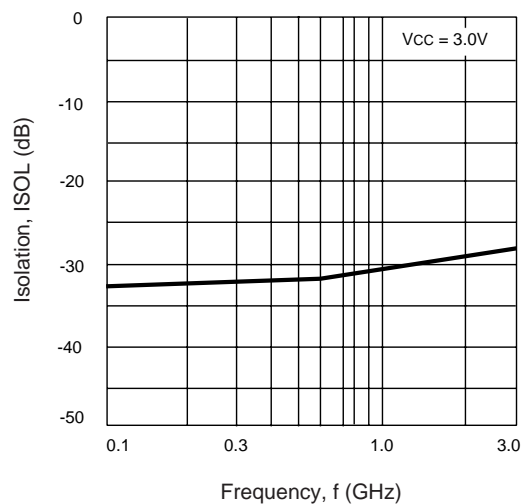
UPC2763TB
INPUT AND OUTPUT
RETURN LOSS vs. FREQUENCY



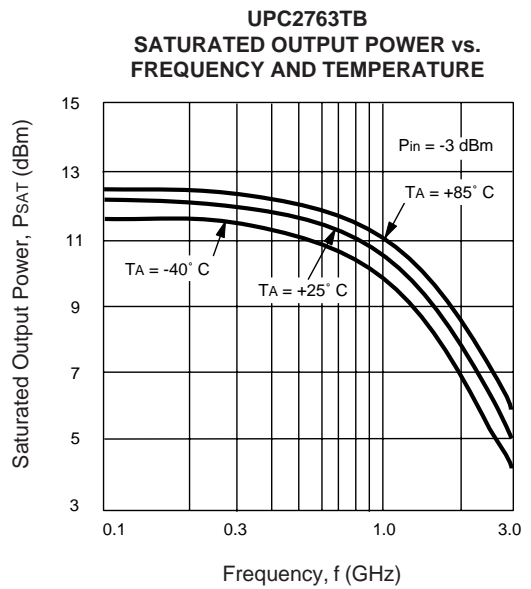
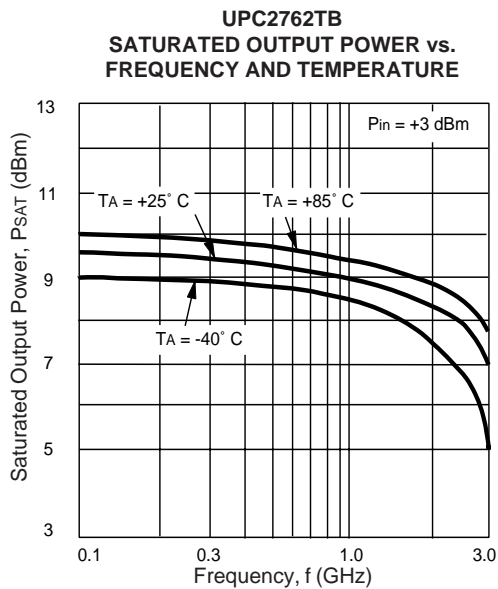
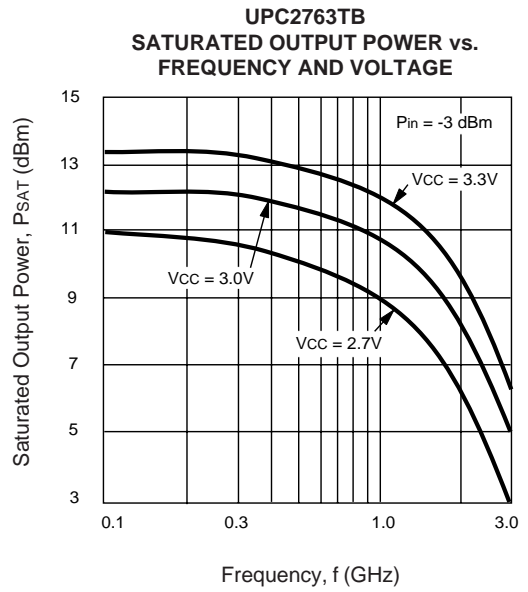
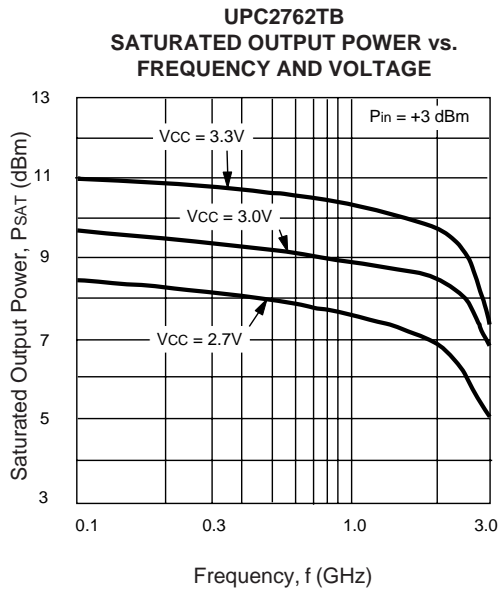
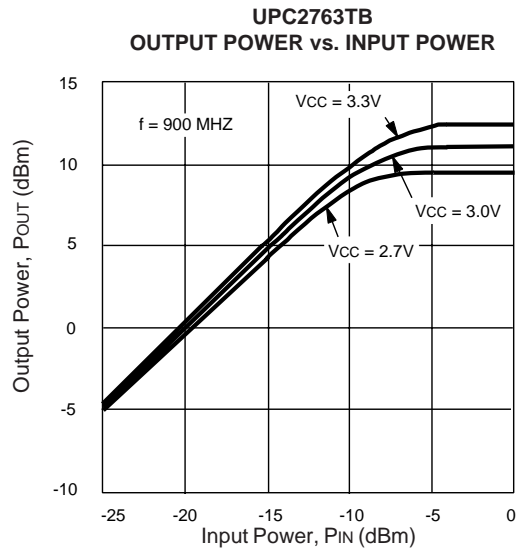
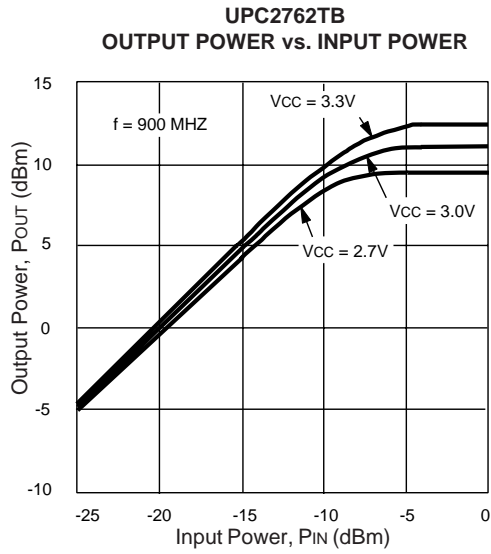
UPC2762TB
ISOLATION vs. FREQUENCY



UPC2763TB
ISOLATION vs. FREQUENCY



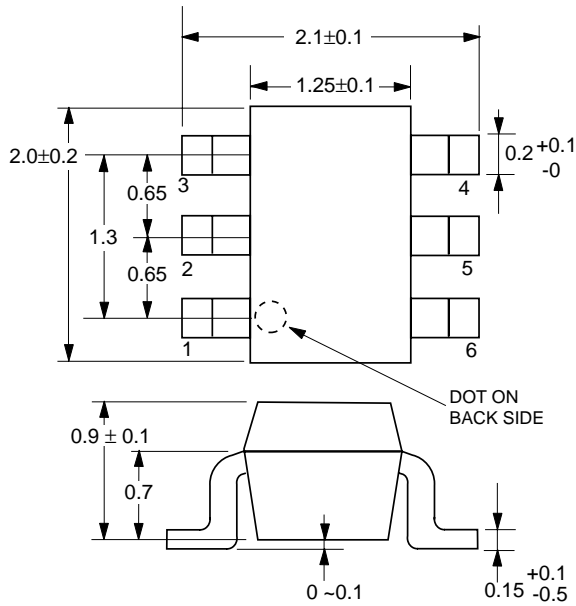
TYPICAL PERFORMANCE CURVES (TA = 25°C)



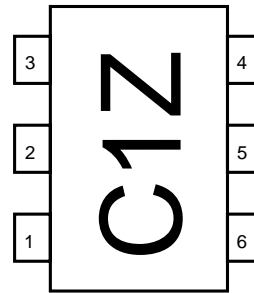
OUTLINE DIMENSIONS (Units in mm)

LEAD CONNECTIONS

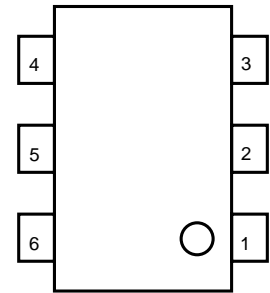
PACKAGE OUTLINE S06



(Top View)



(Bottom View)



- 1. INPUT
- 2. GND
- 3. GND
- 4. OUTPUT
- 5. GND
- 6. Vcc

Note: Package Marking
 C1Z: UPC2762TB
 C2A: UPC2763TB

PIN DESCRIPTIONS

Pin No.	Pin Name	Applied Voltage (V)	Description	Internal Equivalent Circuit
1	Input	–	Signal input pin. An internal matching circuit, configured with resistors, enables 50 Ω connection over a wide bandwidth. A multi-feedback circuit is designed to cancel the deviations of hFE and resistance. This pin must be coupled to the signal source with a blocking capacitor.	<p>* UPC2762TB does not have this capacitor</p>
4	Output	2.7 to 3.3	Signal output pin. Connect an inductor between this pin and Vcc to supply current to the internal output transistors.	
6	Vcc		Power supply pin. This pin should be externally equipped with a bypass capacitor to minimize ground impedance.	
2 3 5	GND	0	Ground pins. These pins should be connected to system ground with minimum inductance. Ground pattern on the board should be formed as wide as possible. All the ground pins must be connected together with wide ground pattern to minimize impedance difference.	

ORDERING INFORMATION

PART NUMBER	QTY
UPC2762TB-E3	3K/Reel
UPC2763TB-E3	3K/Reel

Note:
 Embossed Tape, 8 mm wide. Pins 1, 2 and 3 face perforated side of tape.

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