1.9 GHz BANDWIDTH GENERAL PURPOSE SILICON MMIC AMPLIFIER

UPC1675B UPC1675G UPC1675P

FEATURES

- **WIDE BANDWIDTH:**
  1900 MHz TYP at 3 dB Point for UPC1675G
  2100 MHz TYP at 3 dB Point for UPC1675B, UPC1675P
- **HIGH ISOLATION**
- **SINGLE POWER SUPPLY:** Vcc = 5 V
- **INPUT/OUTPUT MATCHED TO 50 Ω**
- **LOW COST**

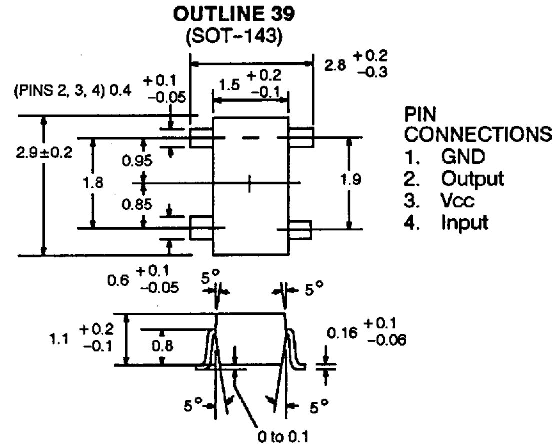
DESCRIPTION

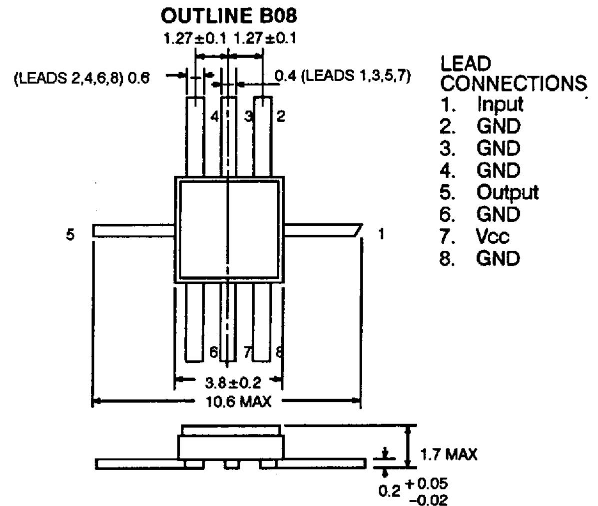
The UPC1675 is a silicon monolithic integrated circuit designed for wide-band amplifiers covering the HF to UHF bands. The series is available in two package styles: a surface mount package (UPC1675G), an 8 lead ceramic flat package (UPC1675B) and in chip form (UPC1675P).

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V_{CC}	Power Supply Voltage	V	6
P_T	Total Power Dissipation UPC1675B UPC1675G	 W mW	 1.5 (T_C = +125°C) 200
T_{OP}	Operating Temperature UPC1675B/P UPC1675G	 °C °C	 -55 to +125 -40 to +85
T_{STG}	Storage Temperature UPC1675B/P UPC1675G	 °C °C	 -65 to +200 -55 to +150

OUTLINE DIMENSIONS (Units in mm)



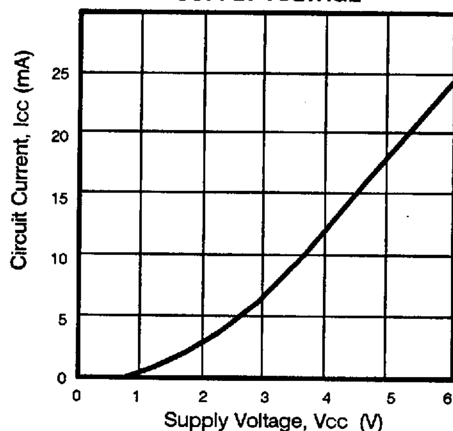


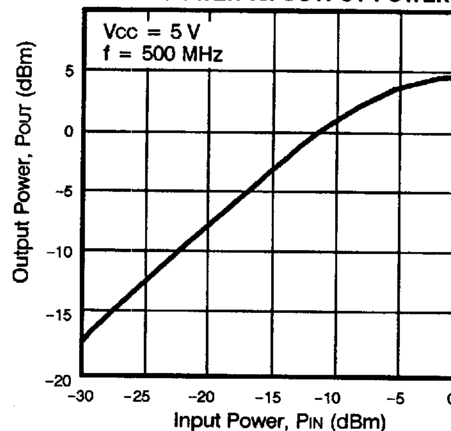
ELECTRICAL CHARACTERISTICS (T_A = 25°C)

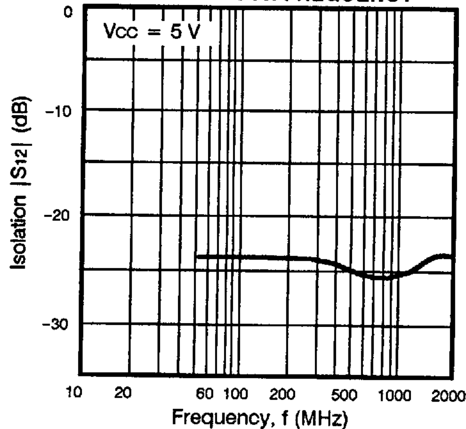
PART NUMBER PACKAGE OUTLINE			UPC1675B* B08			UPC1675G 39			UPC1675P 00 (CHIP)		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
I_{CC}	Supply Current at Vcc = 5 V	mA	12	17	22	12	17	22	12	17	22
$\lvert S_{21}\rvert^2$	Power Gain at Vcc = 5 V, f = 500 MHz	dB	10	12	14	10	12	14	10	12	14
NF	Noise Figure at Vcc = 5 V, f = 500 MHz	dB		5.5	7		5.5	7		5.5	7
BW	Bandwidth at Vcc = 5 V, 3 dB down	MHz	1800	2100			1900		1800	2100	
$\lvert S_{12}\rvert$	Isolation at Vcc = 5 V, f = 500 MHz	dB	21	25			24.5				
$\lvert S_{11}\rvert$	Input Return Loss at Vcc = 5 V, f = 500 MHz	dB	9	12		9	12		9	12	
$\lvert S_{22}\rvert$	Output Return Loss at Vcc = 5 V, f = 500 MHz	dB	10	13		8	12				
P_{OUT}	Maximum Output Power at Vcc = 5 V, f = 500 MHz	dBm	2	4		2	4.5		2	4.5	

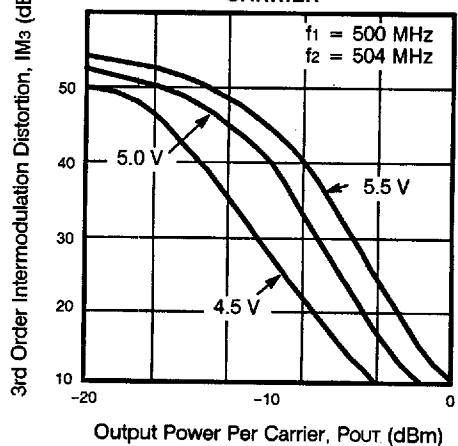
*Case shall be connected to GND for stable RF operation and better thermal dissipation.

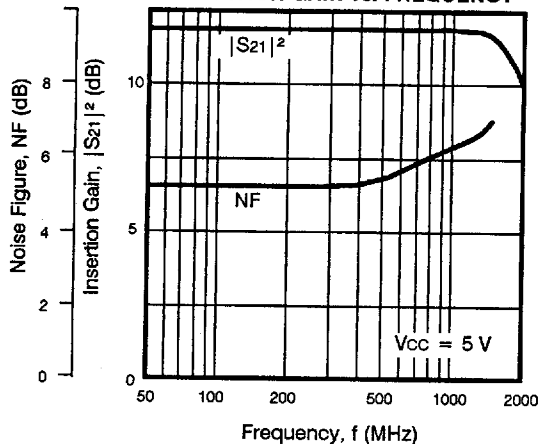
TYPICAL PERFORMANCE CHARACTERISTICS (T_A = 25°C)

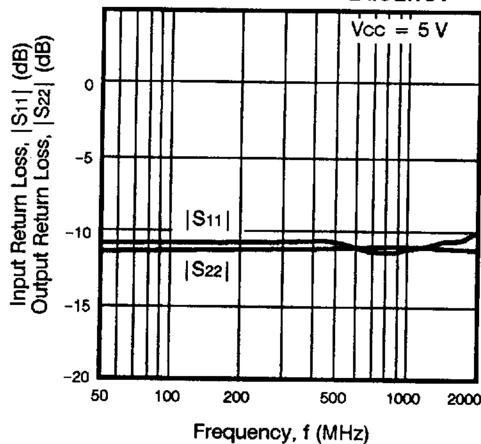












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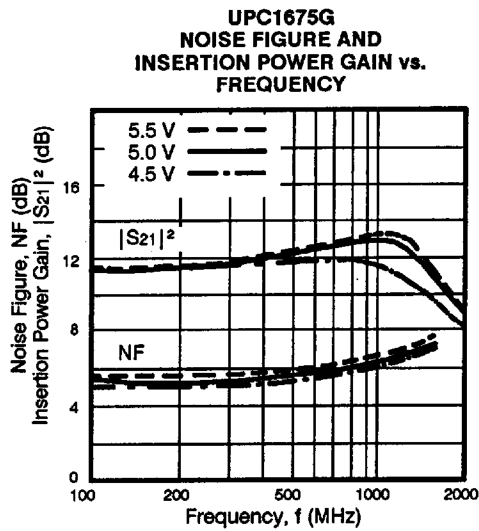
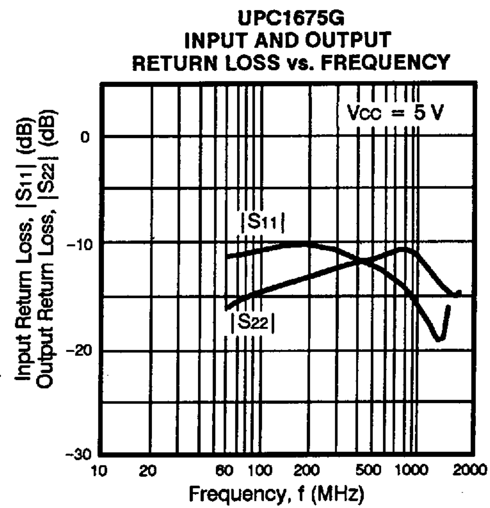
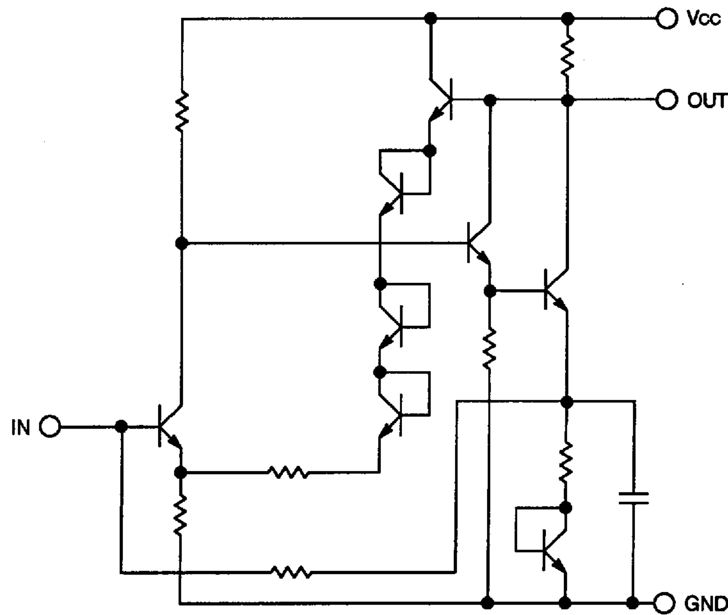
TYPICAL PERFORMANCE CHARACTERISTICS (T_A = 25°C)

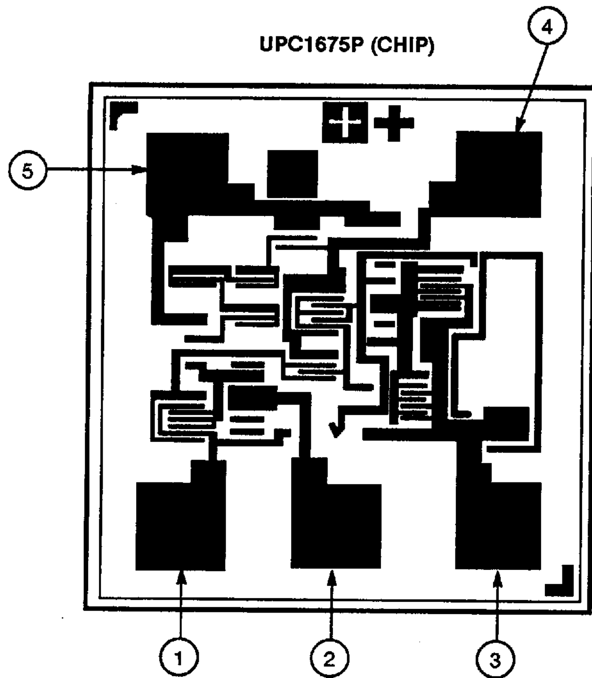




EQUIVALENT CIRCUIT



CHIP DIMENSIONS



- DIE SIZE
  0.60 mm x 0.65 mm
- THICKNESS
  170 ± 30 μm
- Ti/Pt/Au
  METALLIZATION
- PAD SIZE
  100 μm x 100 μm

BONDING PAD NO.	BONDING PAD POSITION (μm)		PAD CONNECTION
	X AXIS	Y AXIS	
1	-185	-210	INPUT
2	-5	-210	GND
3	+185	-210	GND
4	+185	+210	OUTPUT
5	-175	+210	Vcc

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