

NEC®

S-BAND SPDT MMIC SWITCH

UPG107B
UPG107P

DESCRIPTION

UPG107B is an S-Band SPDT (Single Pole Double Throw) GaAs FET switch which was developed for radar application. The device can operate from DC to 3.4 GHz. It is housed in an 8 pin high reliability ceramic flat package that is easy to install. It can be used in wide-band switching applications.

FEATURES

- **WIDE OPERATING FREQUENCY BAND:**
DC to 3.4 GHz
- **SWITCHING SPEED 5 ns TYPICAL**
- **HERMETICALLY SEALED PACKAGE ASSURES HIGH RELIABILITY**

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CONT}	Control Voltage	V	-6 to +0.6
P _{IN}	Input Power	dBm	+33
P _T *	Total Power Dissipation	W	1.5
T _C	Operating Case Temperature Range	°C	-65 to +125
T _{STG}	Storage Temperature	°C	-65 to +175

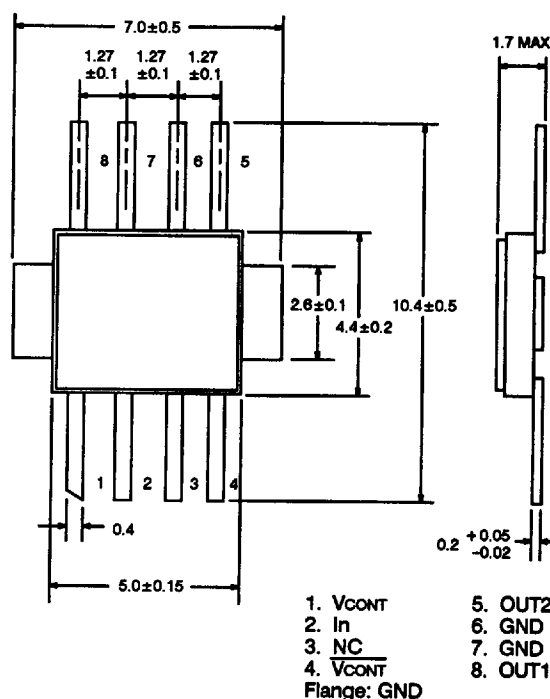
*T_c ≤ 125°C

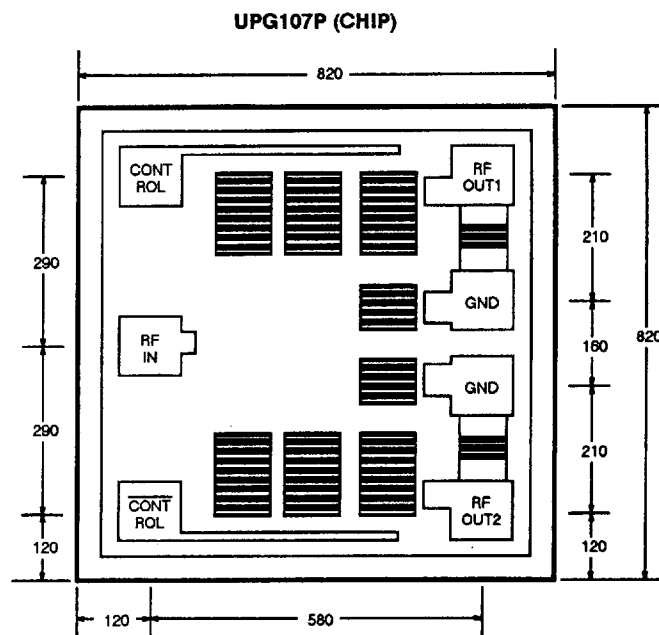
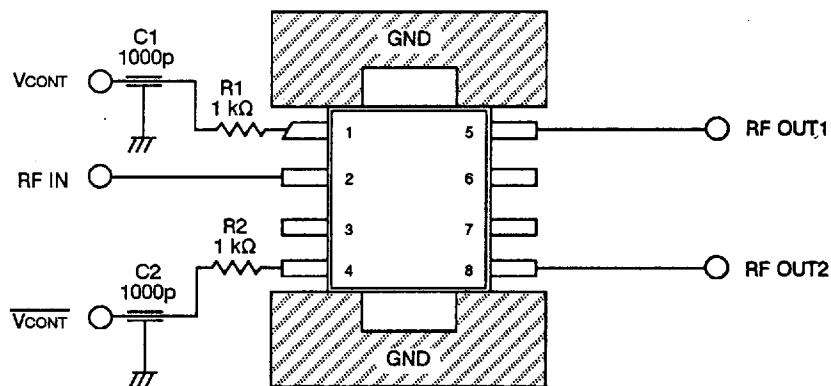
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

PART NUMBER PACKAGE OUTLINE				UPG107B BF08			
SYMBOLS	CHARACTERISTICS	TEST CONDITIONS		UNITS	MIN	TYP	MAX
LINS	Insertion Loss	$V_{CONT} = 0\text{ V}$ $\overline{V_{CONT}} = -5\text{ V}$ or $V_{CONT} = -5\text{ V}$ $\overline{V_{CONT}} = 0\text{ V}$	$f = \text{DC to } 3.4\text{ GHz}$	dB		1.4	1.7
RLIN	Input Return Loss			dB	14	17	
RLOUT(T)	Output Return Loss (through)			dB	10	13	
RLOUT(O)	Output Return Loss (open)			dB	8	9	
Po(1dB)	Output Power at 1 dB Gain Compression Point			dBm		+25	
tsw	Switching Speed			ns		5	
ISL	Isolation		$f = 3.4\text{ GHz}$	dB	26	30	
			$f = 1\text{ GHz}$	dB	35	40	

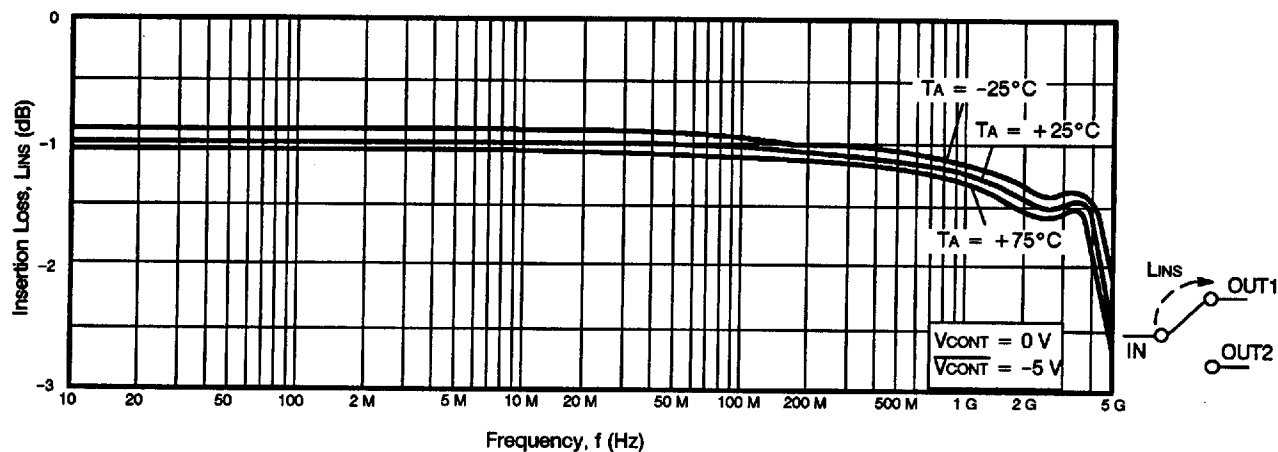
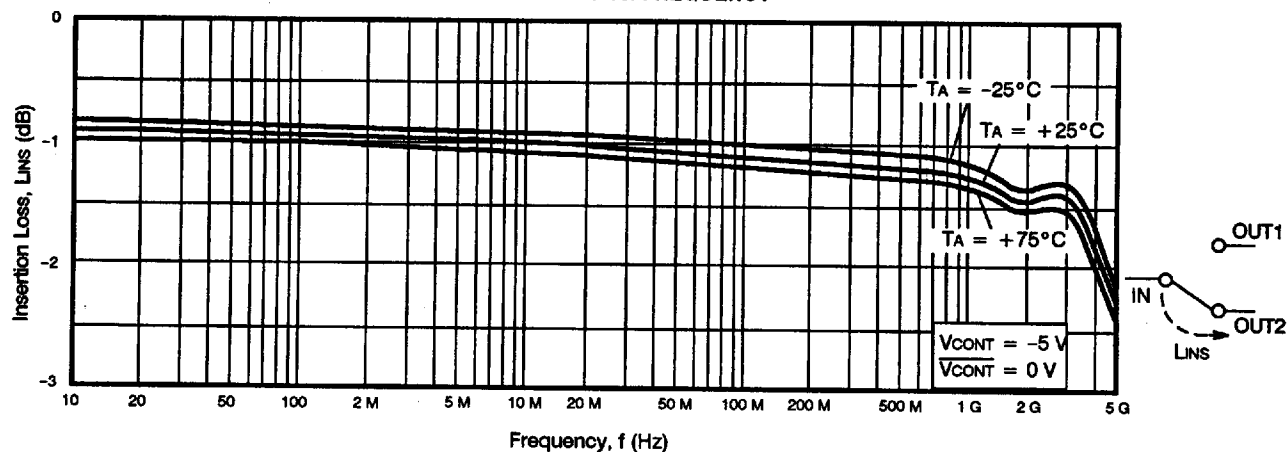
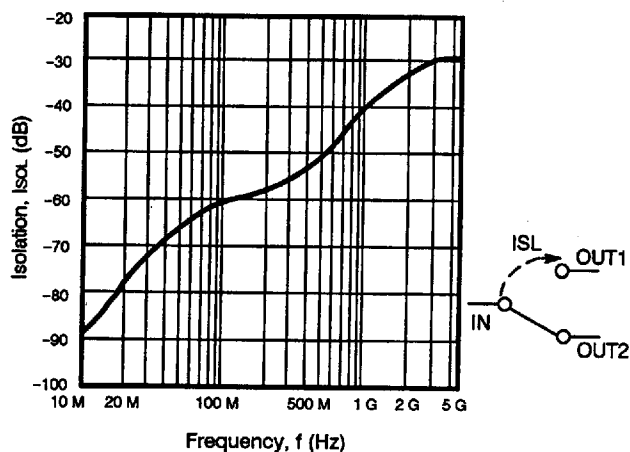
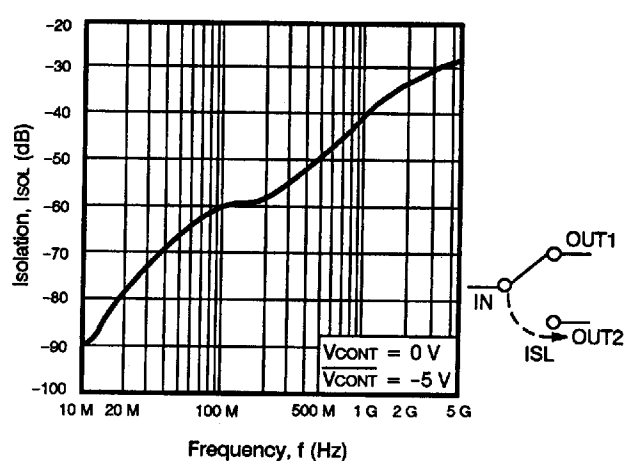
OUTLINE DIMENSIONS (Units in mm)

OUTLINE BF08



UPG107B, UPG107P**OUTLINE DIMENSIONS** (Units in μm)Bonding Area: 100 x 100 μm **APPLICATION CIRCUIT****Notes:**

1. C1 and C2 are de-coupling capacitors
2. R1 and R2 are chip resistors. (They should be mounted as close to the package leads as possible.)

TYPICAL PERFORMANCE CHARACTERISTICS ($T_A = 25^\circ\text{C}$)IN-OUT1
INSERTION LOSS vs. FREQUENCYIN-OUT2
INSERTION LOSS vs. FREQUENCYIN-OUT1
ISOLATION vs. FREQUENCYIN-OUT2
ISOLATION vs. FREQUENCY

TYPICAL PERFORMANCE CHARACTERISTICS (TA = 25°C)

