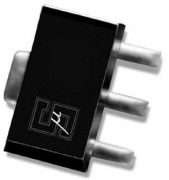
Stanford Microdevices

Preliminary

SXL-189

800-1000 MHz 50 Ohm Power MMIC Amplifier



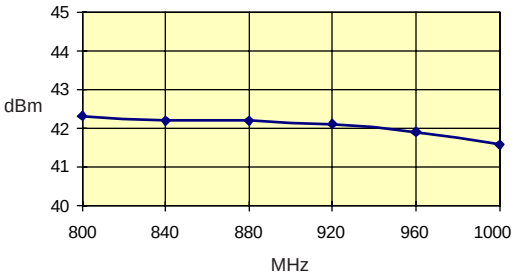
Product Description

Stanford Microdevices' SXL-189 amplifier is a high efficiency GaAs Heterojunction Bipolar Transistor (HBT) MMICs housed in low-cost surface-mountable plastic package. These HBT MMICs are fabricated using molecular beam epitaxial growth technology which produces reliable and consistent performance from wafer to wafer and lot to lot.

These amplifiers are specially designed for use as driver devices for infrastructure equipment in the 800-1000 MHz cellular bands.

Its high linearity make it an ideal choice for multi-carrier as well as digital applications.

Output Third Order Intercept Point vs. Frequency



Product Features

- **Patented High Reliability GaAs HBT Technology**
- **High Linearity Performance : +42dBm Typ. at 900 MHz**
- **Surface-Mountable Plastic Package**

Applications

- **Cellular Systems**
- **Multi-Carrier Applications**

Electrical Specifications at Ta = 25C

Symbol	Parameters: Test Conditions: Z_0 = 50 Ohms, f = 800-1000 MHz		Units	Min.	Typ.	Max.
P_{1dB}	Output Power at 1dB Compression	f = 800-1000 MHz	dBm		24.0	
S_{21}	Power Gain	f = 800-1000 MHz	dB		14.5	
S_{12}	Reverse Isolation	f = 800-1000 MHz	dB		30.0	
VSWR	Input VSWR	f = 800-1000 MHz	-		2.0:1	
VSWR	Output VSWR	f = 800-1000 MHz	-		2.0:1	
IP_3	Third Order Intercept Point	f = 800-1000 MHz	dBm		42.0	
NF	Noise Figure	f = 800-1000 MHz	dB		5.0	
I_d	Device Current	Vc=+5V	mA		110.0	

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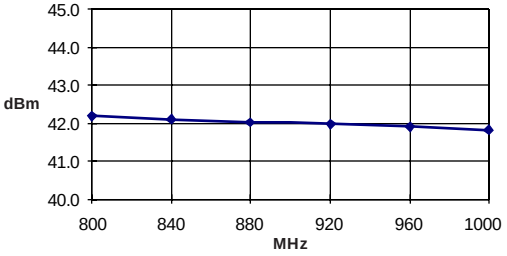
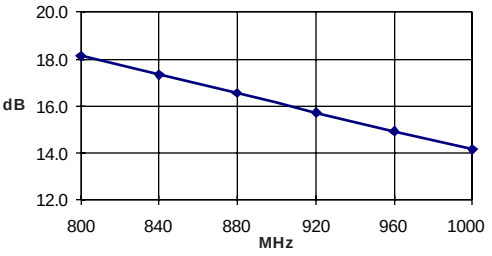
SXL-189 800-1000 MHz Power MMIC Amplifier

Typical Performance at 25° C (Vc = 5.0V, Ic=110mA)

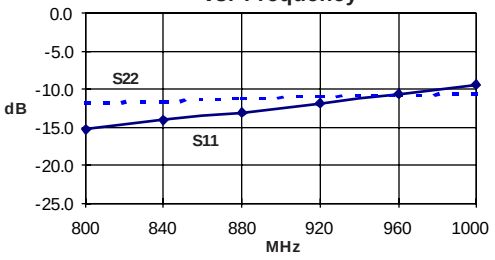
Output Third Order Intercept vs. Frequency



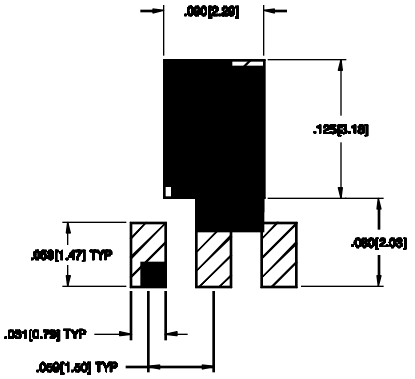
Power Gain vs. Frequency



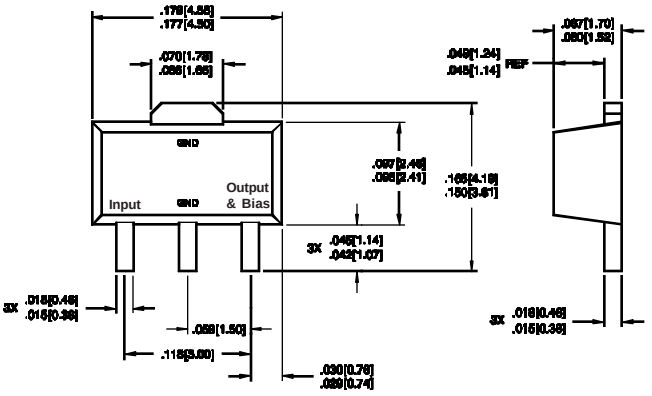
Input/Output Return Loss vs. Frequency



Recommended Land Pattern

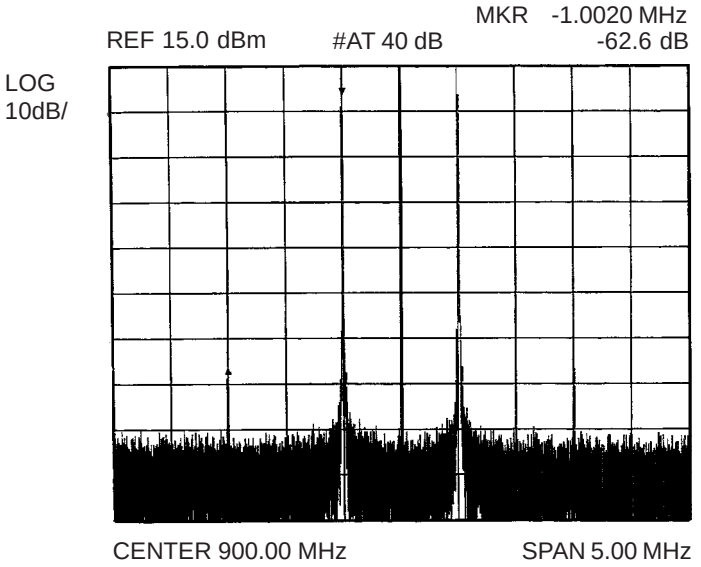


Outline Drawing



Pin assignments shown for reference only, not marked on part

Typical Third Order Intercept Point Performance at 900 MHz



Tone Power= +11dBm, IP3 = +42.3dBm

SXL-189 800-1000 MHz Power MMIC Amplifier

Absolute Maximum Ratings

Parameter	Absolute Maximum
Device Voltage	7V
Device Current	200mA
Power Dissipation	1500mW
RF Input Power	100mW
Junction Temperature	+150C
Operating Temperature	-45C to +85C
Storage Temperature	-65C to +150C

Notes:

1. Operation of this device above any one of these parameters may cause permanent damage.

MTTF vs. Temperature @ Id = 110mA

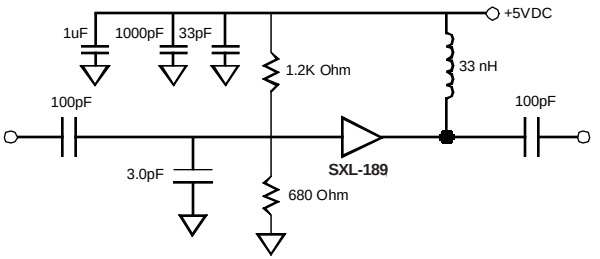
Lead Temperature	Junction Temperature	MTTF (hrs)
+25C	+90C	>10,000,000
+60C	+125C	>5,000,000
+85C	+150C	1,000,000

Thermal Resistance (Lead-Junction): 60° C/W

Part Number Ordering Information

Part Number	Devices Per Reel	Reel Size
SXL-189-TR1	500	7"
SXL-189-TR2	1000	13"
SXL-189-EB	Eval Board	-

Application Schematic and Bias Circuit for 900 MHz Operation



Board Layout and Matching Circuit at 900 MHz