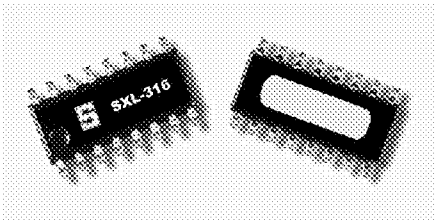
Stanford Microdevices

Preliminary

SXL-316

800-970 MHz 50 Ohm Power Amplifier Module



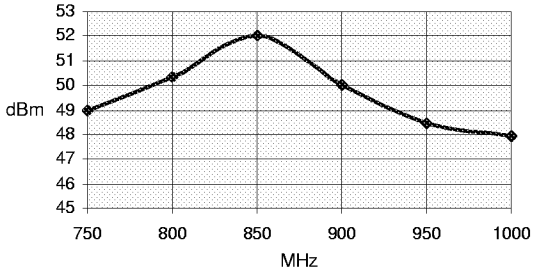
Product Description

Stanford Microdevices' SXL-316 amplifier is a high efficiency GaAs Heterojunction Bipolar Transistor (HBT) MMICs housed in low-cost surface-mountable ceramic 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 800-970 MHz cellular, ISM and narrowband PCS.

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 3rd Order Intercept : +52dBm Typ. at 850 MHz**
- **Surface-Mountable Power Plastic Package**

Applications

- **Multi-Carrier Systems**
- **Basestation Applications**

Electrical Specifications at Ta = 25C

Symbol	Parameters: Test Conditions: Z_0 = 50 Ohms, f = 800-970 MHz		Units	Min.	Typ.	Max.
P_{1dB}	Output Power at 1dB Compression	f = 820-880 MHz f = 800-970 MHz	dBm dBm	31.0	32.0 31.0	
S_{21}	Power Gain	f = 800-970 MHz	dB		14.0	
PAE	Power Added Efficiency	f = 820-880 MHz f = 800-970 MHz	% %		44 40	
VSWR	Input VSWR	f = 820-880 MHz f = 800-970 MHz	-		1.5:1 2.0:1	
VSWR	Output VSWR	f = 820-880 MHz f = 800-970 MHz	-		1.5:1 2.5:1	
IP_3	Third Order Intercept Point	f = 820-880 MHz f = 800-970 MHz	dBm dBm	46	52 48	
I_d	Device Current	Vc=+5V	mA		720	

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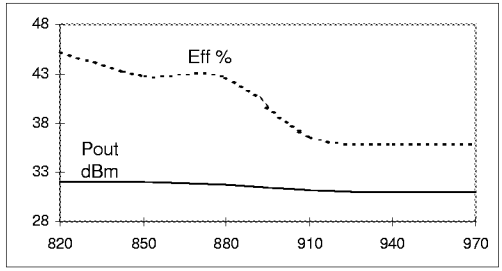
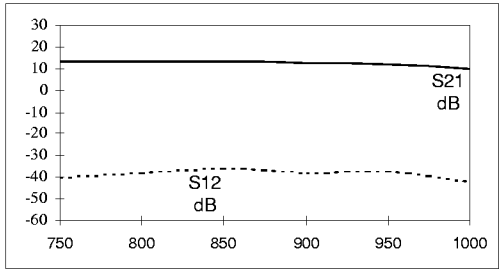
SXL-316 800-970 MHz Power MMIC Amplifier

Typical Performance at 25° C (Vc = 5.0V, Ic=720mA)

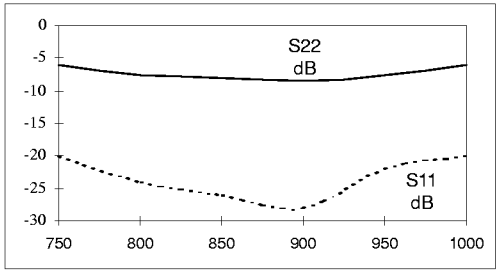
Output Power and Efficiency vs. Frequency



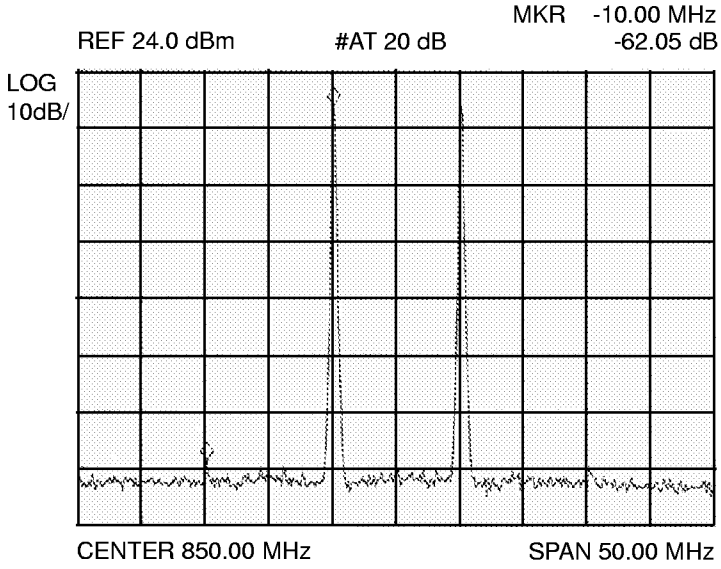
Gain and Isolation vs. Frequency



Input & Output Return Loss vs. Frequency



Third Order Intercept Point vs. Output Tone Power



Tone Power= +19dBm, IP3 = +50dBm

Absolute Maximum Ratings

Parameter	Absolute Maximum
Device Voltage	7V
Device Current	1000mA
Power Dissipation	6000mW
RF Input Power	100mW
Junction Temperature	+175C
Operating Temperature	-45C to +85C
Storage Temperature	-65C to +175C

Notes:

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

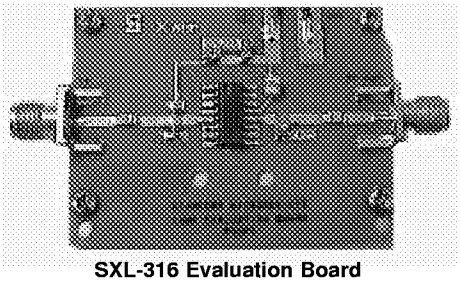
MTTF vs. Temperature @ Id = 720mA

Lead Temperature	Junction Temperature	MTTF (hrs)
+25C	+86C	>10,000,000
+60C	+121C	>1,000,000
+85C	+146C	500,000

Thermal Resistance (Lead-Junction): 30° C/W

Part Number Ordering Information

Part Number	Devices Per Reel	Reel Size
SXL-316-TR1	500	13"
SXL-316-TR2	1000	13"
SXL-316-BLK	100/TRAY	-



SXL-316 Evaluation Board (P/N SXL-316EB)

Application Schematic and Bias Circuit for 900 MHz Operation