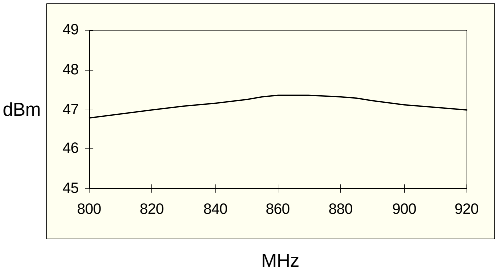
Product Description

Stanford Microdevices' SXQ-1 amplifier is a highly linear power amplifier module housed in a low cost ceramic surface-mount package. This module utilizes GaAs Hetero-junction Field Effect Transistors (HFET). A balanced configuration is used to obtain high-linearity and a good input/output match to 50 ohms.

These amplifiers are specially designed for use as driver devices for infrastructure equipment in the 800-920 MHz cellular, ISM and narrowband PCS bands.

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

Typical Output Third Order Intercept Point vs. Frequency



Preliminary

SXQ-1

800-920 MHz 50 Ohm Power Amplifier Module

Product Features

- **Patented, High Reliability GaAs HFET Technology**
- **High Linearity Performance : +48dBm Typ. at 850 MHz**
- **Surface-Mountable Ceramic Package**

Applications

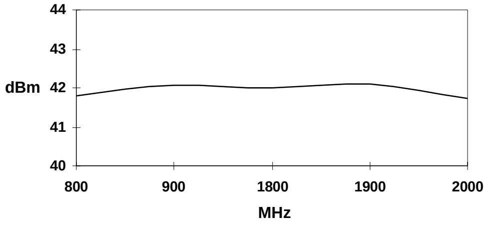
- **AMPS/GSM Cellular Systems**
- **Multi-Carrier Applications**

Electrical Specifications at Ta = 25C

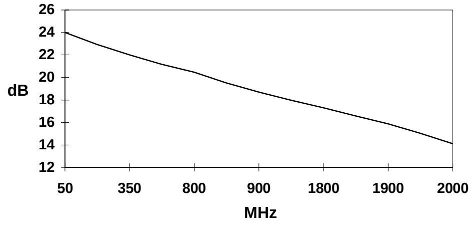
Symbol	Parameters: Test Conditions: Z_0 = 50 Ohms, f = 800-920 MHz		Units	Min.	Typ.	Max.
P_{1dB}	Output Power at 1dB Compression	f = 800-920 MHz	dBm		32.5	
$\lvert S_{21} \rvert$	Power Gain	f = 800-920 MHz	dB		22	
$\lvert S_{12} \rvert$	Reverse Isolation	f = 800-920 MHz	dB		36	
VSWR	Input VSWR	f = 800-920 MHz	-		1.2:1	
VSWR	Output VSWR	f = 800-920 MHz	-		1.2:1	
IP_3	Third Order Intercept Point	f = 800-920 MHz	dBm		47.5	
I_d	Device Current	Vd=+15V	mA		330	

Typical Performance at 25° C (Vd = 15.0V, Ic=330mA)

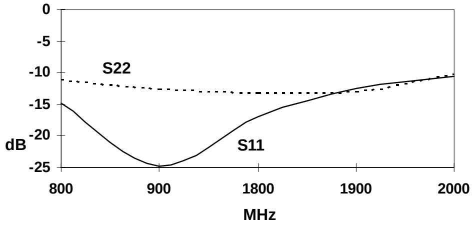
Output Third Order Intercept vs. Frequency



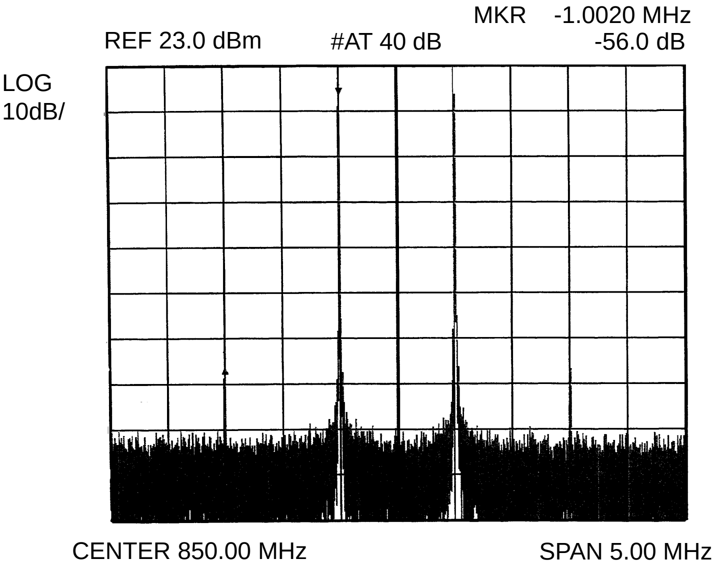
Power Gain vs. Frequency



Input/Output Return Loss vs. Frequency



Typical Third Order Intercept Point Performance at 850 MHz



Tone Power= +20dBm, IP3 = +48dBm

Preliminary

SXQ-1 800-920 MHz Power Amplifier Module

Absolute Maximum Ratings

Parameter	Absolute Maximum
Device Voltage	18V
Device Current	400mA
Power Dissipation	7200mW
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 = 330mA

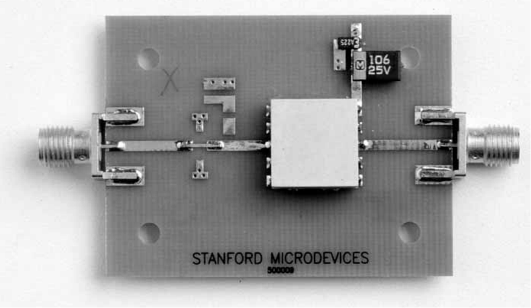
Lead Temperature	Junction Temperature	MTTF (hrs)
+25C	+75C	>10,000,000
+60C	+110C	>5,000,000
+85C	+135C	>1,000,000

Thermal Resistance (Lead-Junction): 10° C/W

Part Number Ordering Information

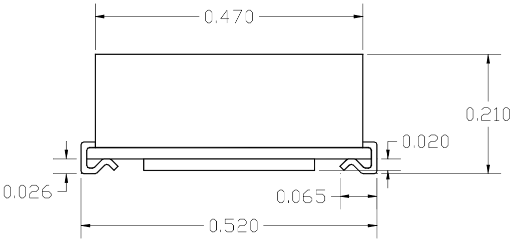
Part Number	Devices Per Reel	Reel Size
SXQ-1-TR1	500	7"
SXQ-1-TR2	1000	13"
SXQ-1-EB	Evaluation Board	-

Evaluation Board with Bias Circuit

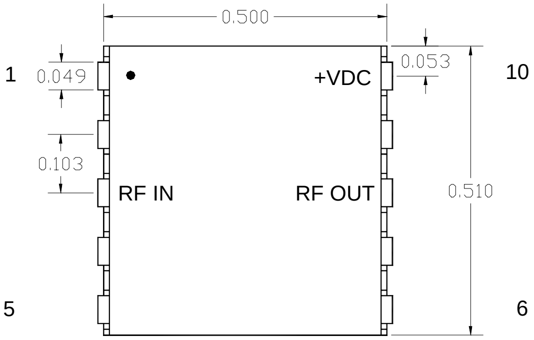


Package Outline

Front View



Top View



Footprint Outline and Detail