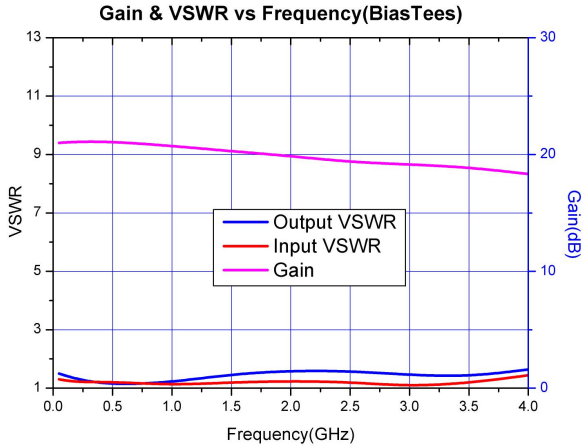
Product Description

SG850 is a high performance InGaP HBT MMIC amplifier utilizing a Darlington configuration with an active bias network. The active bias network provides stable current over temperature and process Beta variations. Designed to run directly from a 5V supply, the SG850 does not require a dropping resistor as compared to typical Darlington amplifiers. The SG850 product is designed for high linearity 5V gain block applications that require small size and minimal external components.



SG850

RoHS Compliant & Green Package

0.05-4G，Cascadable
Active Bias InGaP/GaAs HBT Amplifier

Product Features:

- **Wideband Flat Gain to4GHz**
- **IP3=40dBm @ 1218MHz**
- **P1dB=23dBm@1218MHz**
- **Single +5V Supply**
- **1000V ESD，Class 1C**
- **MSL 1 moisture rating**

Applications:

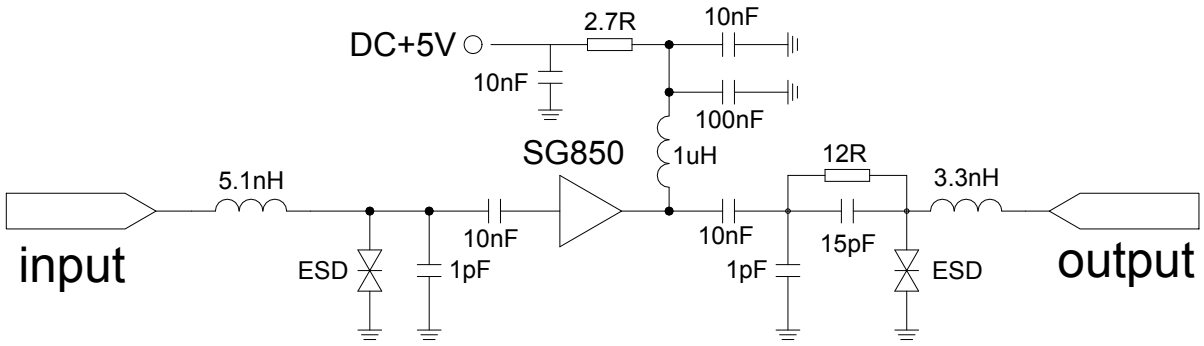
- **IF & Driver Amplifier**
- **Cellular, PCS, GSM, UMTS**
- **Wireless Data, Satellite Terminals**

Typical RF Performance at Key Operating Frequencies (With 45 ~ 1218MHz Application Circuit)

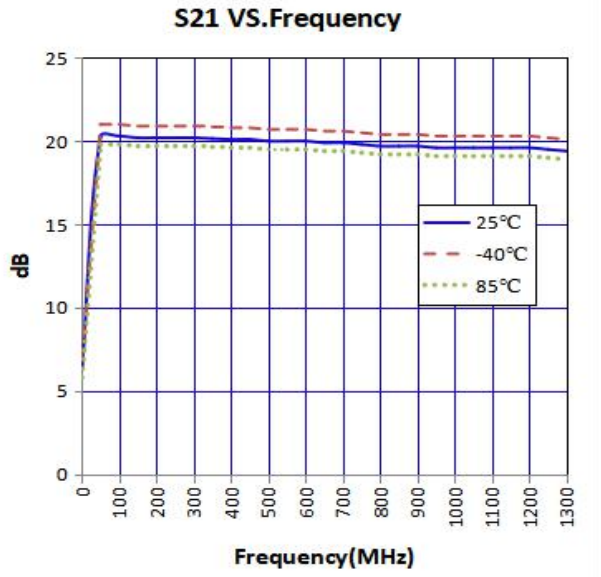
PARAMETER		UNIT	MIN	TYP	MAX	Condition
Frequency		MHz	45		1218	
Gain		dB		20		45MHz ~ 1218MHz
Gain Flatness		dB		0.7		45MHz ~ 1218MHz
Input Return Loss		dB		-18		45MHz ~ 550MHz
				-12		550MHz ~ 1218MHz
Output Return Loss		dB		-18		45MHz ~ 550MHz
				-12		550MHz ~ 1218MHz
Noise Figure		dB		3	3.2	45MHz ~ 1218MHz
CSO	45 ~ 1218MHz	dBc			60	135 channel, +15dBmV/ch
CTB		dBc			70	135 channel, +15dBmV/ch
XMOD		dBc			80	135 channel, +15dBmV/ch
DC Current		mA		80		Vdd = 5.0V

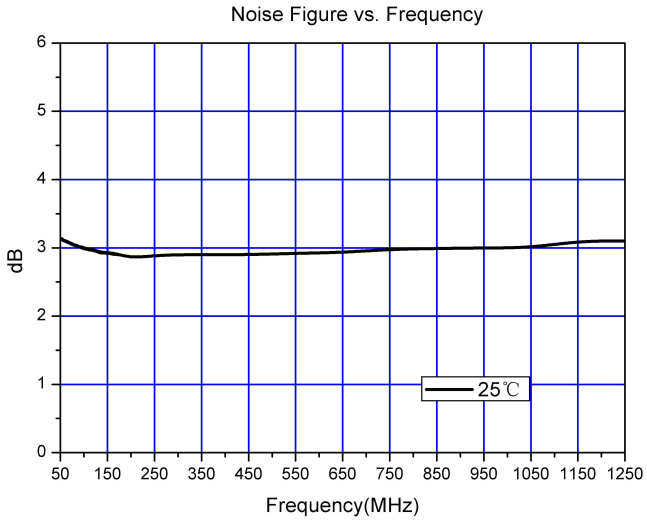
NOTE

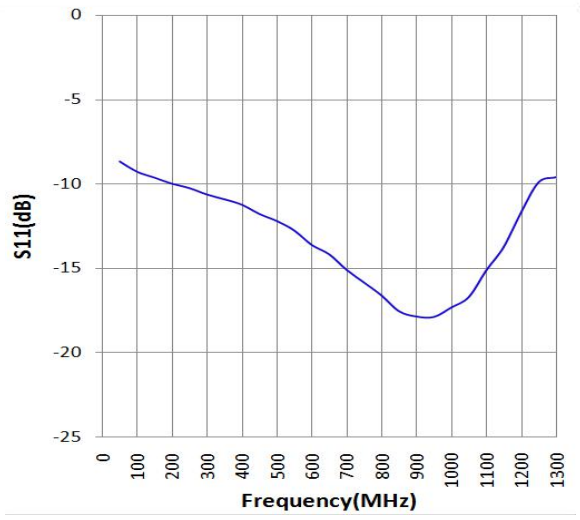
1. Test conditions:Test Freq = 550MHz, T=25℃, Vdd=5V, 75Ω system

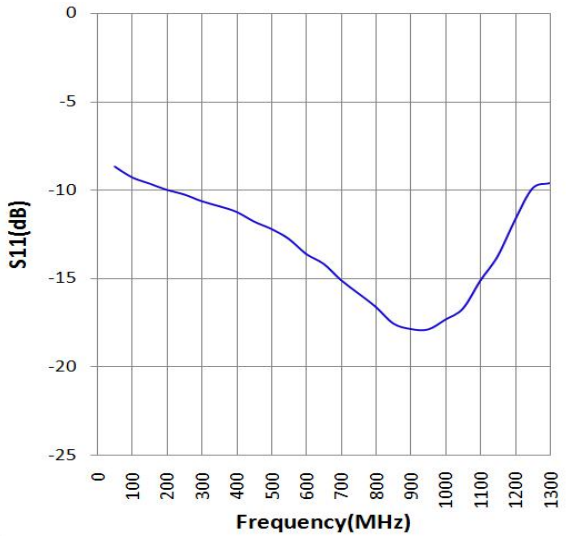


Data on Charts taken with 45MHz~1218MHz Application Circuit



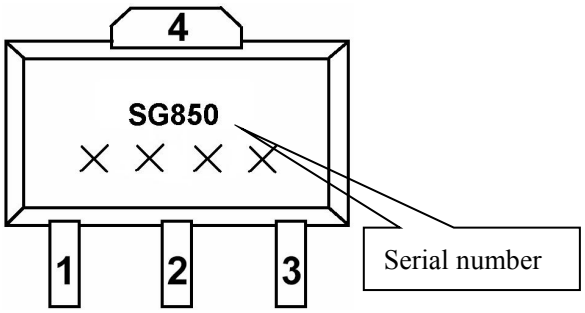






Pin	Function	Description
1	RF IN	RF input pin. This pin requires an external DC blocking capacitor.
2，4	GND	Connecting to ground. Use via holes for best performance to reduce lead inductance.
3	RF OUT / BIAS	RF output and bias pin. DC blocking capacitor is necessary for proper operating.

Marking and Pin Definition



ESD Class 1C

Appropriate precautions in handing , packaging and testing devices must be observed!

Moisture Sensitivity Level Rating: Level 1

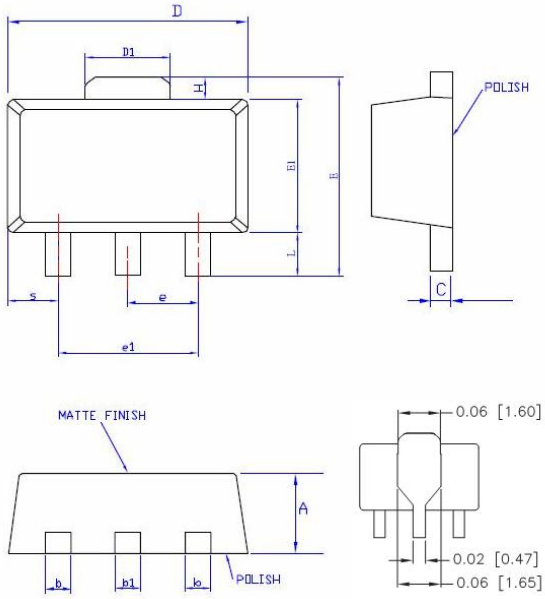
Mounting Instructions

1. Solder the copper pad on the backside of the device package to the ground plane.
2. Use a large ground pad area with many plated through-holes.
3. Measurement for this data sheet is made on 0.5 mm thick FR-4 board with 3.38 dielectric constant.

Absolute Maximum Ratings

Parameter	Absolute Limit
Max. Dvice Current (ID)	110 mA
Max. Device Voltage (VD)	5.5V
Max. RF Input Power	20 dBm
Max. Junction Temp. (TJ)	+150℃
Max. Operating Dissipated Power	0.66 W
Operating Temp. Range (TL)	-40℃ to +85℃
Max. Storage Temp.	+150℃
Operation beyond any one of these limits may cause permanent damage.	

SOT89 Packaging



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.40	1.50	1.60	0.055	0.059	0.063
L	0.89	1.04	1.20	0.0350	0.041	0.047
b	0.36	0.42	0.48	0.014	0.016	0.018
b1	0.41	0.47	0.53	0.016	0.018	0.020
C	0.38	0.40	0.43	0.014	0.015	0.017
D	4.40	4.50	4.60	0.173	0.177	0.181
D1	1.40	1.60	1.75	0.055	0.062	0.069
E	3.94	—	4.25	0.155	—	0.167
E1	2.40	2.50	2.60	0.094	0.098	0.102
e1	2.90	3.00	3.10	0.114	0.118	0.122
H	0.35	0.40	0.45	0.014	0.016	0.018
S	0.65	0.75	0.85	0.026	0.030	0.034
e	1.40	1.50	1.60	0.054	0.059	0.063

For informational purpose only and is subject to change without notice