

Features

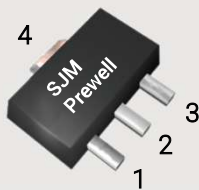
- 5 to 500MHz
- Gain 19.7dB @ 140MHz
- P1dB 24.2dBm @ 250MHz
- OIP3 44.0dBm @ 70MHz
- Lead-free / Green / **RoHS**  compliant SOT-89 Package

Applications

- Base station / Repeater / Mobile / Automotive / Military
 - FDD-LTE, TD-LTE, TDS-CDMA, CDMA, WCDMA, WiMAX, PCS, GSM, GPS, GPRS, TETRA
- IoT / Broadcasting / WLAN
 - FM, DMB, DVB, ISM

Functional Diagram

RF IN **1** RF OUT / Bias **3**
GND **2,4**



ESD/MSL

- 1 ESD sensitive device. Observe handling precautions.
- 2 HBM: Class 1C, JESD22-A114
- 3 CDM: Class C3, JESD22-C101F
- 4 MSL 3, J-STD-020

Description

The PW11A is a high performance InGaP HBT MMIC Amplifier and consists of Darlington pair amplifiers. The features of PW11A are high linear performance, high reliability as an IF amplifier and provide stable current variation over temperature. The PW11A operates from a single voltage supply and requires only two DC-blocking capacitors, a bias resistor and an inductor for operation. The device is a general purpose buffer amplifier that offers high dynamic range in a low cost surface-mounted plastic SOT-89 package. All devices are 100% RF and DC tested.

Specifications

Parameter	Units	Frequency (MHz)			
		70	140	250	500
S21	dB	19.7	19.7	19.5	19.1
S11	dB	-14	-14	-13	-12
S22	dB	-25	-40	-28	-21
P1dB	dBm	23.5	24.0	24.2	24.0
OIP3	dBm	44.0	43.4	41.6	41.2
NF	dB	4.4	4.4	4.5	4.6
V/I	V/mA	5/80			
Rth	°C/W	65			

1) Test Conditions : T=25°C, Supply Voltage=5V, 50ohm System

2) OIP3 measured with two tones at an output power of 8dBm/tone separated by 1MHz.

Absolute Maximum Ratings

Parameter	Rating	Unit
Device Voltage	6.0	V
Device Current	150	mA
RF Power Input	20	dBm
Storage Temperature	-55 to 150	°C
Ambient Operating Temperature	-40 to 85	°C
Junction Temperature	187	°C

1) Stresses above the maximum values listed have may cause permanent damage to the device.

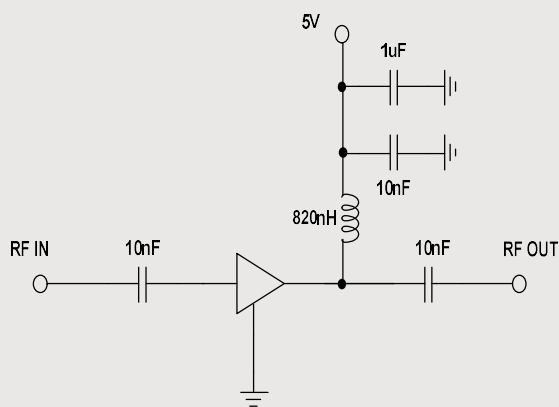
2) MTTF is more than 100 years.

3) Operation above operating voltage (5V) for extended periods may reduce reliability

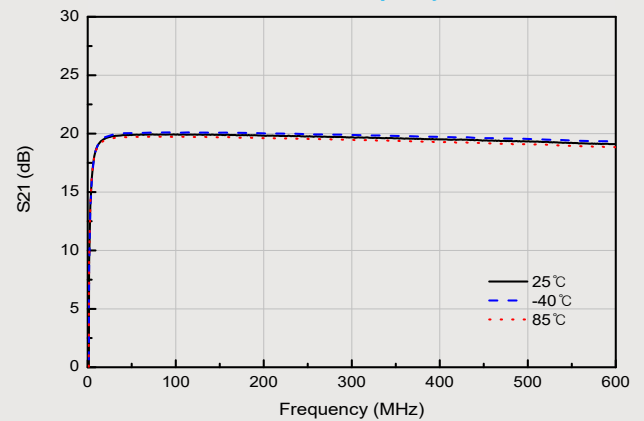
Typical RF Performance for 50MHz-500MHz Tuned Application Circuit

Supply Bias Voltage = 5V, Current= 80mA

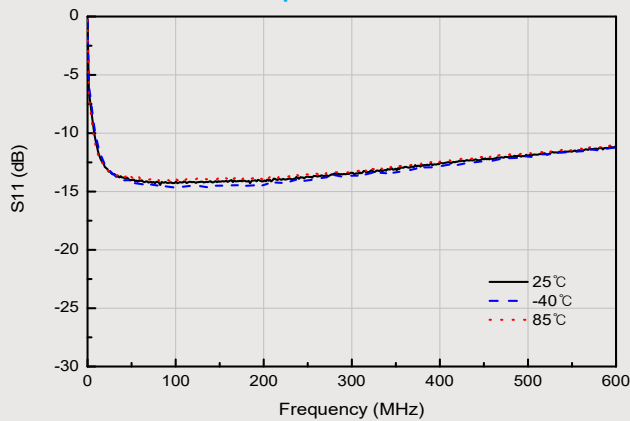
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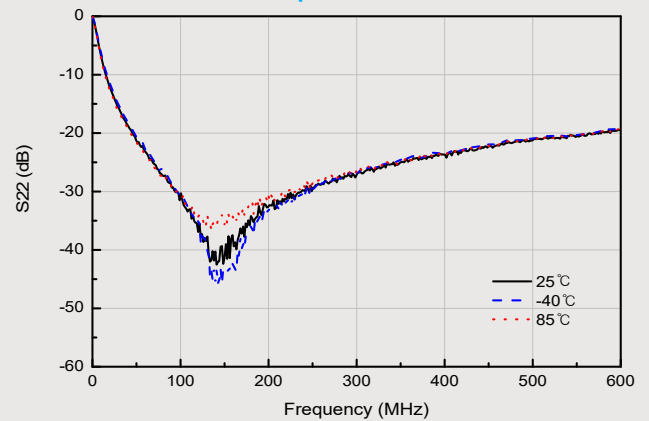
Gain vs. Frequency



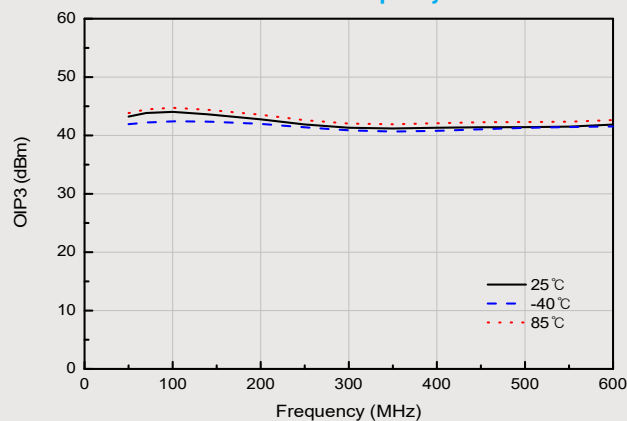
Input Return Loss



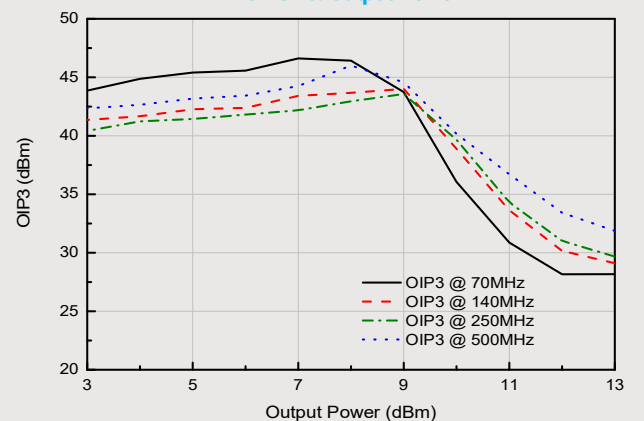
Output Return Loss



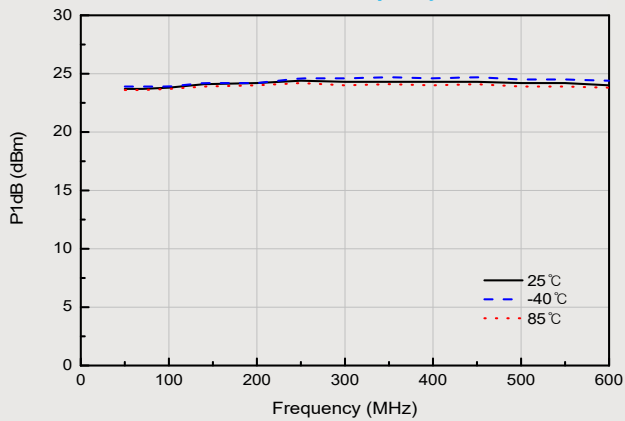
OIP3 vs. Frequency



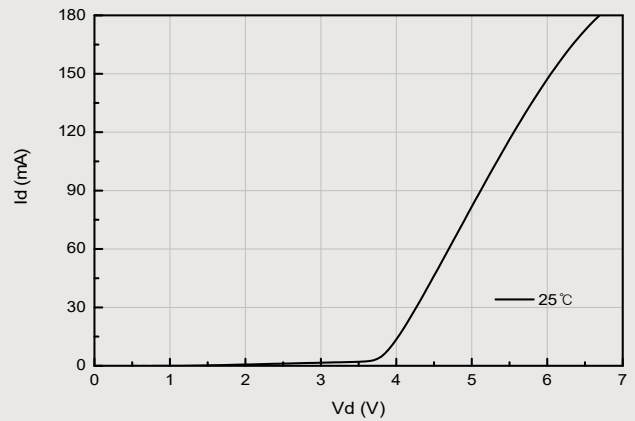
OIP3 vs. Output Power



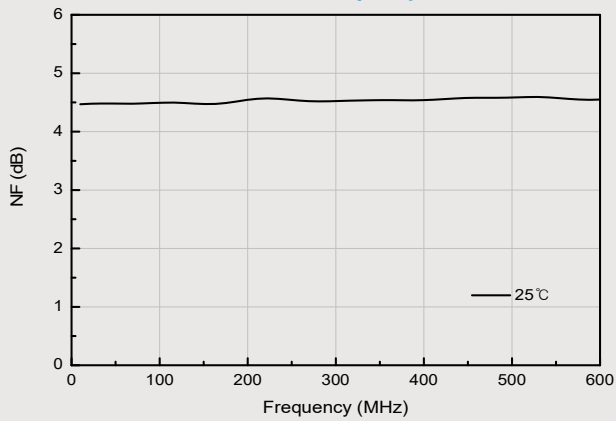
P1dB vs. Frequency



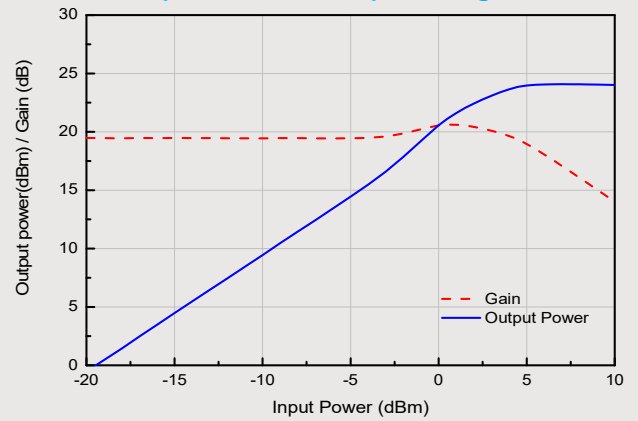
Id vs. Vd



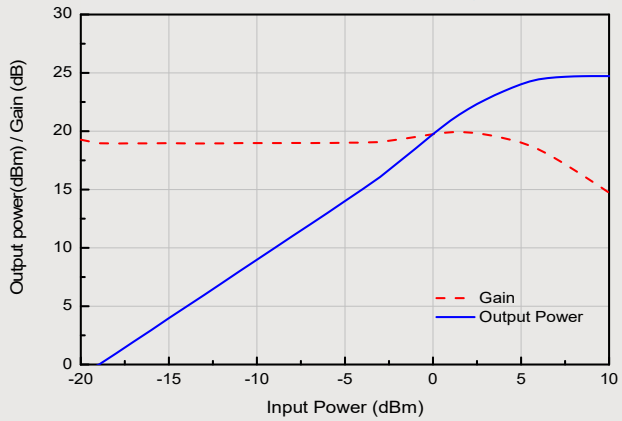
NF vs. Frequency



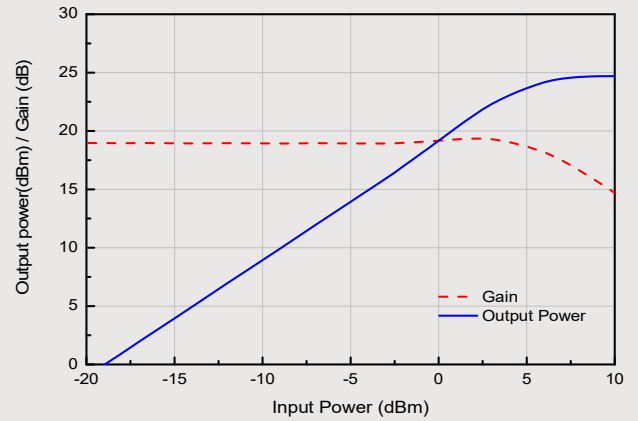
Output Power / Gain vs Input Power @ 70MHz

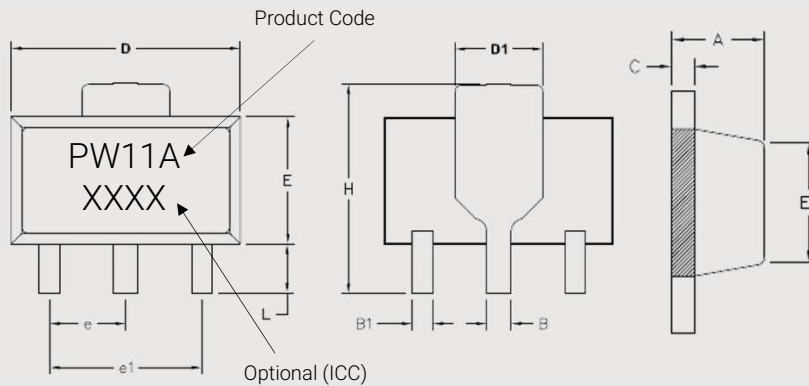


Output Power / Gain vs Input Power @ 250MHz

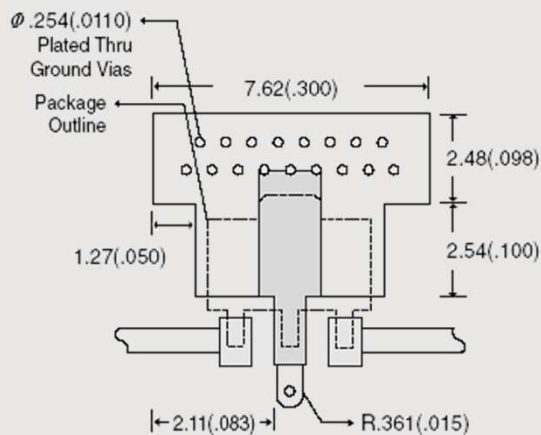
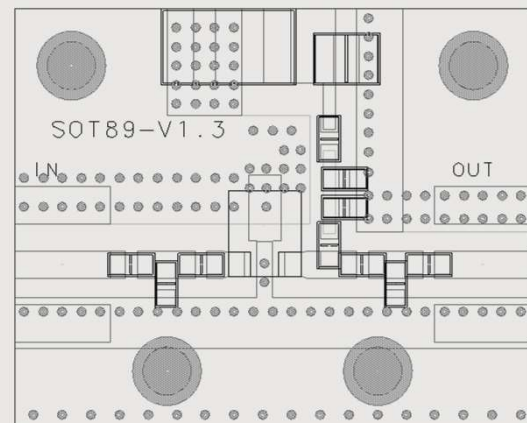


Output Power / Gain vs Input Power @ 500MHz



Lead-free /RoHS Compliant / Green SOT-89 Package Outline

REF.	DIMENSIONS (mm)	
	Min.	Max.
A	1.40	1.60
B	0.43	0.58
B1	0.36	0.54
C	0.35	0.46
D	4.30	4.70
D1	1.50	1.87
E	2.29	2.70
E1	2.13	2.18
e	1.5	
e1	3.0	
H	3.43	5.10
L	0.74	1.20

Land Pattern**Evaluation Board Layout (27 x 22)****Mounting Instructions**

- 1 Use a large ground pad area with many plated through-holes as shown.
- 2 We recommend 1 oz copper minimum.
- 3 Measurement for our data sheet was made on 0.8mm thick FR-4 Board.
- 4 RF trace width depends on the board material and construction.
- 5 Add mounting screws near the part to fasten the board to a heatsink.
- 6 Add as much copper as possible to inner and outer layers near the part to ensure optimal thermal performance.

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

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