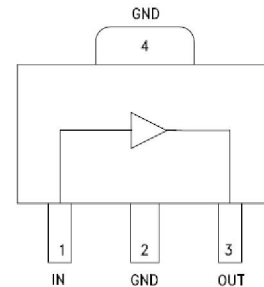


Features

- ◎ DC - 3.5 GHz
- ◎ +21 dBm P_{1dB} at 1 GHz
- ◎ +37dBm OIP3 at 1 GHz
- ◎ 17.5dB Gain at 1GHz
- ◎ 3.6 dB Noise Figure at 2GHz
- ◎ SOT – 89 Package Style

- ★ W-LAN / ISM
- ★ Wideband Instrumentation
- ★ IF&RF Applications

Functional Diagram



MARK N47

Description

The *F247* is a general-purpose buffer amplifier that offers high dynamic range in a low-cost surface-mount package. at 1000MHz the *F247* typically provides 17.5 dB of gain, +37 dBm Output IP3, and +21dBm P1dB. The *F247* consists of Darlington pair amplifiers using the high reliability InGaP/GaAs HBT process technology and only requires DC-blocking capacitors, a bias resistor, and an inductive RF choke for operation.

Applications

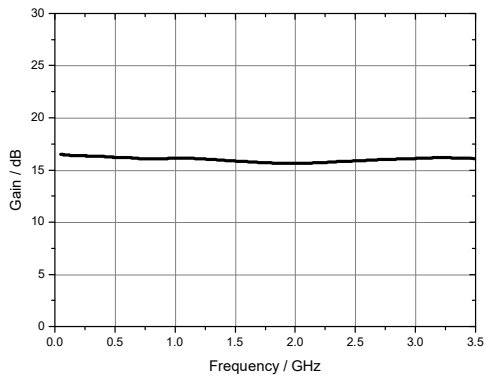
- ★ PA Driver Amplifier
- ★ CATV / FTTX

Electrical Characteristics (V_{cc}= 5V, T_A = +25°C)

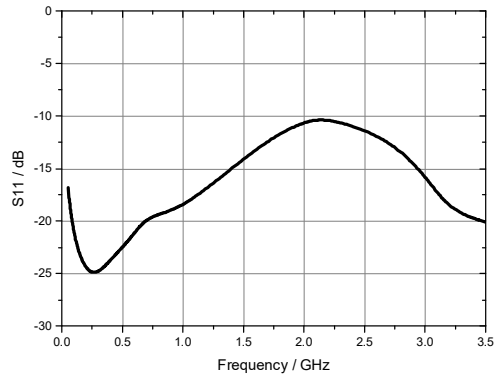
Parameter		Min.	Typ.	Max.	Units
Gain	DC~1.0GHz		17.5		dB
	1.0~2.0 GHz		16.0		
	2.0~3.5 GHz		15.5		
Input return Loss	DC ~3.5 GHz	11	20		dB
Output return Loss	DC ~3.5 GHz	13	20		dB
Reverse Isolation	DC ~3.5 GHz		24		dB
Output Power for 1 dB Compression (P1dB)	DC~1.0GHz		21		dBm
	1.0~2.0 GHz		20		
	2.0~3.5 GHz		18		
Output Third Order Intercept (IP3)	DC~1.0GHz		36		dBm

	1.0~2.0 GHz		33		
	2.0~3.5 GHz		29		
Noise Figure			3.6		dB
Device Voltage			5.0		V
Supply Current		70	78		mA

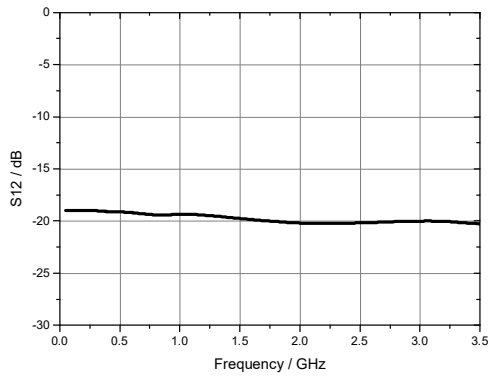
Gain vs. Frequency @ T=+25C



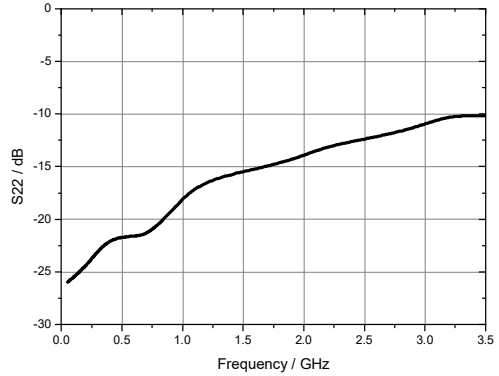
S11 vs. Frequency @ T=+25C

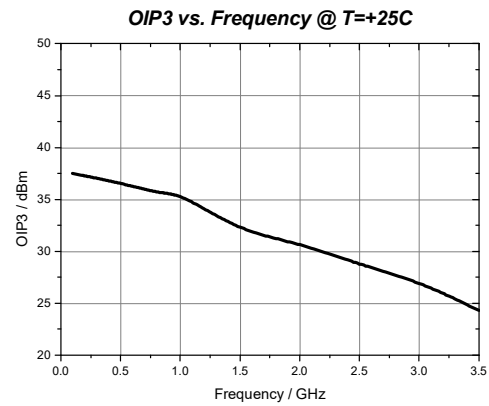
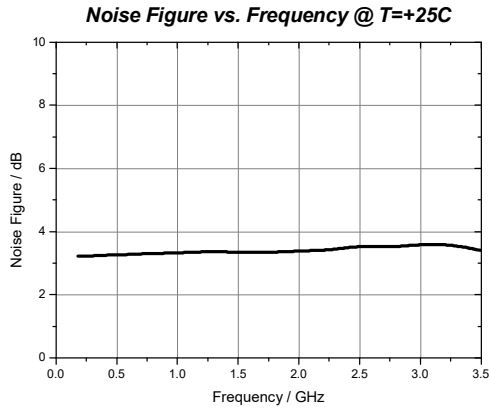


S12 vs. Frequency @ T=+25C



S22 vs. Frequency @ T=+25C





Absolute Maximum Ratings

Device Current	75mA
Storage Temperature	-65 to +150°C
Operating Temperature	-55 to +125°C
ESD Sensitivity (HBM)	Class 1C



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

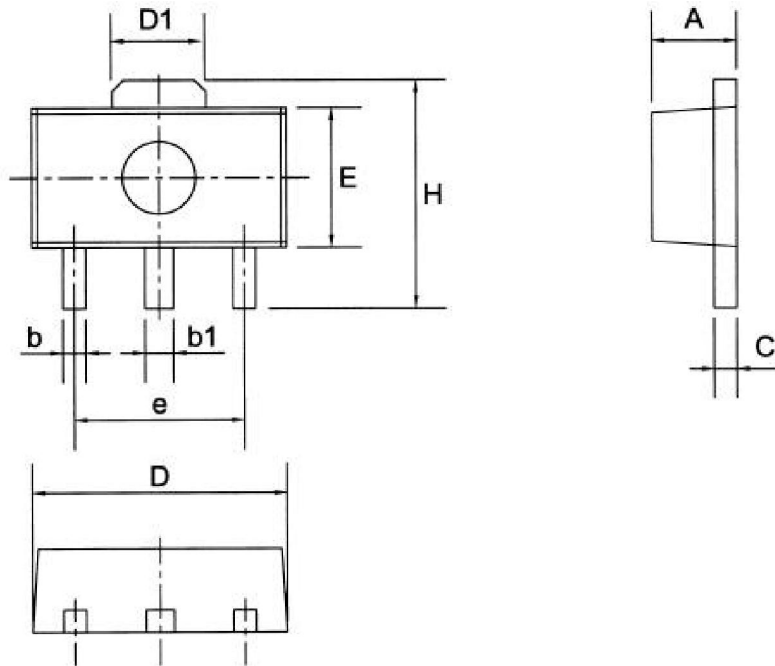
ESD Rating: Class 1C

Value: Passes between 1000 and 2000V

Test: Human Body Model (HBM)

Standard: JEDEC Standard JESD22-A114

Outline Drawing

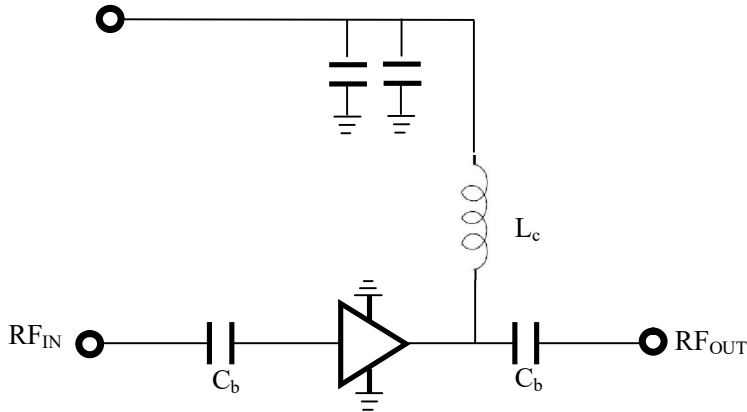


Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min	Nom	Max	Min	Nom	Max
A	1.30	1.50	1.70	0.051	0.059	0.067
b	0.25	0.40	0.55	0.010	0.016	0.022
b1	0.40	0.50	0.60	0.016	0.020	0.024
C	0.30	0.40	0.50	0.012	0.016	0.020
D	4.30	4.50	4.70	0.169	0.177	0.185
D1	1.45	1.65	1.85	0.057	0.065	0.073
E	2.30	2.50	2.70	0.091	0.098	0.106
e	2.90	3.00	3.10	0.114	0.118	0.122
H	3.90	4.10	4.30	0.154	0.161	0.169

Pin Descriptions

Pin number	Function	Description
1	RF _{IN}	This pin is DC coupled; An off chip DC blocking capacitor is required.
2, 4	GND	These pins and package bottom must be connected to RF/DC ground.
3	RF _{OUT}	RF output and DC Bias for the output stage.

Application Circuit



Recommended Component Values

Component	Frequency		Unit
	0.05GHz~1GHz	1GHz~3.5GHz	
C _b	1000	100	pF
L _c	1000	33	nH
C _{d1}	0.1	0.1	uF
C _{d2}	1000	1000	pF

Evaluation Board Layout

