RFMA0912-1W-SMP

ISSUED 06/30/2005

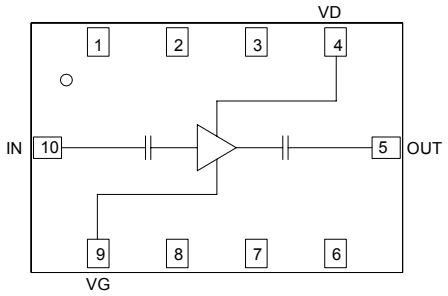
9.5 – 11.7 GHz Power AMPLIFIER MMIC

FEATURES

- **9.5 – 11.7GHz Operating Frequency Range**
- **30dBm Output Power at 1dB Compression**
- **32 dB Typical Small Signal Gain**
- **-41dBc OIMD3 @Each Tone Pout 19dBm**
- **Small Surface Mount Package**

APPLICATIONS

- **Point-to-point and point-to-multipoint radio**
- **Military Radar Systems**



ELECTRICAL CHARACTERISTICS (T_a = 25 °C, V_{DD}=7V, Idsq=900mA)

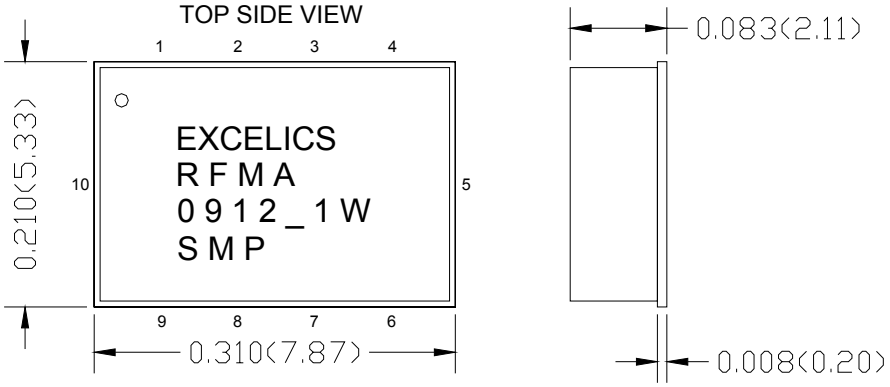
SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
F	Operating Frequency Range	9.5		11.7	GHz
P_{1dB}	Output Power at 1dB Gain Compression	29	30		dBm
Gss	Small Signal Gain	29	32		dB
OIMD3	Output 3rd Order Intermodulation Distortion @Δf=10MHz, Each Tone Pout 19dBm V_{DD} =7V, Idsq=60%±10%Idss		-41	-38	dBc
Input RL	Input Return Loss		-10	-8	dB
Output RL	Output Return Loss		-6		dB
Idss	Saturated Drain Current	1120	1400	1680	mA
V_{DD}	Drain Voltage		7	8	V
Rth	Thermal Resistance		11		°C/W

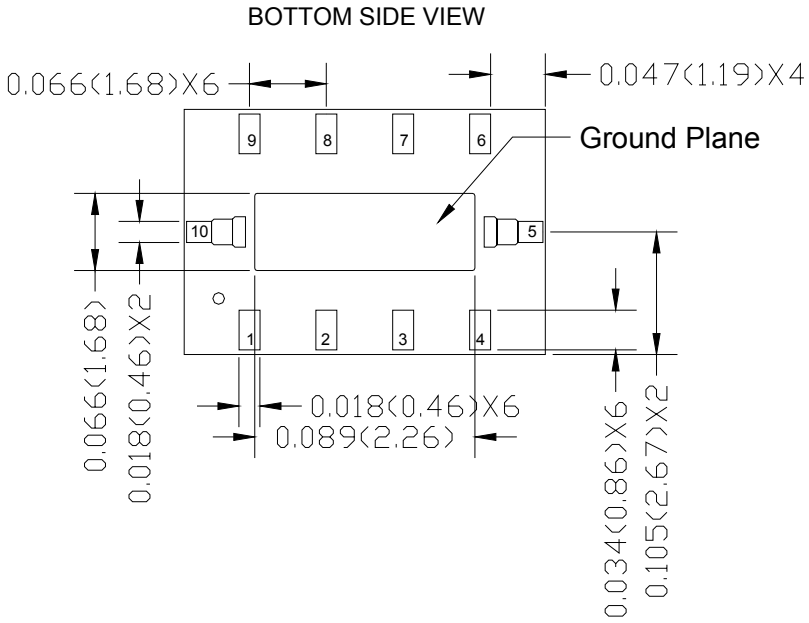
MAXIMUM RATINGS AT 25°C[1,2]

SYMBOL	CHARACTERISTIC	ABSOLUTE	CONTINOUS
V_{DS}	Drain to Source Voltage	12V	8 V
V_{GS}	Gate to Source Voltage	-8V	-3 V
I_{DD}	Drain Current	Idss	1.9A
I_{GSF}	Forward Gate Current	132mA	22mA
P_{IN}	Input Power	20dBm	@ 3dB compression
T_{CH}	Channel Temperature	175°C	150°C
T_{STG}	Storage Temperature	-65/175°C	-65/150°C
P_T	Total Power Dissipation	15.0W	12.6W

1. Operating the device beyond any of the above rating may result in permanent damage.
2. Bias conditions must also satisfy the following equation V_{DS}*I_{DS} < (T_{CH} –T_{HS})/R_{TH}; where T_{HS} = Base Plate Temperature

Package Dimension and Pin Assignment



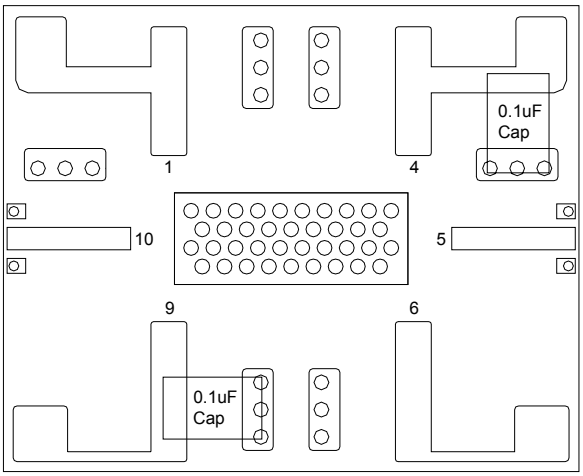


PIN	Assignment
1	N/C
2	N/C
3	N/C
4	VD
5	OUT
6	N/C
7	N/C
8	N/C
9	VG
10	IN

NOTES:

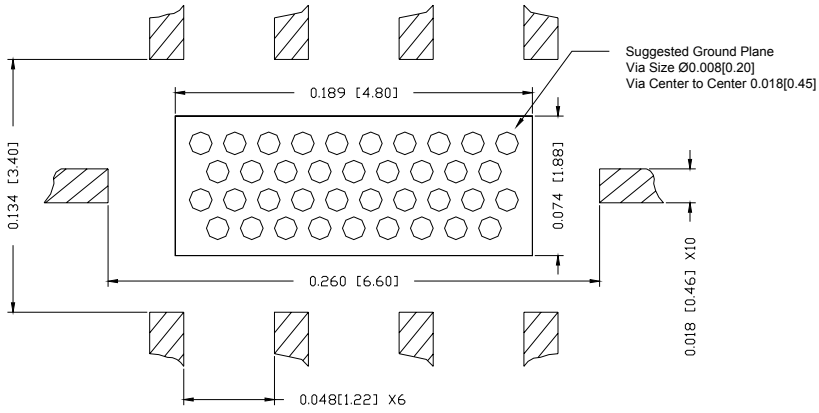
1. Material: Plastic
2. Plating: Gold over Nickel
3. Ground Plane Must be Soldered to PCB RF Ground.
4. ° Indicates PIN 1.
5. All Dimensions are in Inches (Millimeters).
6. All Tolerances are ±0.003 (±0.08).

Evaluation Board



The grounded Co-Planar Wave Guide (CPWG) PCB input/output transitions allow use of Ground_Signal_Ground (GSG) probes for testing. Suggested probe pitch is 500um. Alternatively, the evaluation board can be mounted in a metal housing with SMA coaxial connectors.

Suggested PCB Land Pattern



Notes:

1. All Dimensions Are In Inches [Millimeters]
2. All Tolerances Are ±0.003[0.08]
3. Suggested PCB Material Is Rogers4003 with 1/2oz Copper
4. Suggested PCB Thickness is 8mil