



# EMP108-P1

ISSUED DATE: 07-01-04

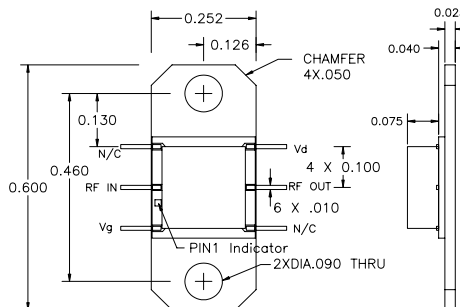
## 7.0 – 9.5 GHz Power Amplifier MMIC

### FEATURES

- 7.0 – 9.5 GHz Operating Frequency Range
- 24.0dBm Output Power at 1dB Compression
- 19.0 dB Typical Small Signal Gain
- -40dBc OIMD3 @Each Tone Pout 14dBm

### APPLICATIONS

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



Optional Packaging solutions are available contact the Excelics sales team for details.



**Caution! ESD sensitive device.**

### ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C, 50 ohm, V<sub>DD</sub>= 7 V, I<sub>DQ</sub>= 200 mA)

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
F	Operating Frequency Range	7.0		9.5	GHz
P1dB	Output Power at 1dB Gain Compression	22.5	24.0		dBm
G <sub>ss</sub>	Small Signal Gain	16.0	19.0		dB
OIMD3	Output 3 <sup>rd</sup> Order Intermodulation Distortion @Δf=10MHz, Each Tone Pout 14dBm		-40		dBc
Input RL	Input Return Loss		-12		dB
Output RL	Output Return Loss		-6		dB
I <sub>dss</sub>	Saturate Drain Current V <sub>DS</sub> =3V, V <sub>GS</sub> =0V	244	305	366	mA
V <sub>DD</sub>	Power Supply Voltage		7	8	V
R <sub>th</sub>	Thermal Resistance (Au-Sn Eutectic Attach)		30		°C/W
T <sub>b</sub>	Operating Base Plate Temperature	- 35		+ 85	°C

### ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION<sup>1,2</sup>

SYMBOL	CHARACTERISTIC	VALUE
V <sub>DS</sub>	Drain to Source Voltage	8 V
V <sub>GS</sub>	Gate to Source Voltage	- 4 V
I <sub>DD</sub>	Drain Current	I <sub>dss</sub>
I <sub>GSF</sub>	Forward Gate Current	4.5 mA
P <sub>IN</sub>	Input Power	@ 3dB compression
T <sub>CH</sub>	Channel Temperature	150°C
T <sub>STG</sub>	Storage Temperature	-65/150°C
P <sub>T</sub>	Total Power Dissipation	3.8W

1. Operating the device beyond any of the above rating may result in permanent damage.  
 2. Bias conditions must also satisfy the following equation  $V_{DS} \cdot I_{DS} < (T_{CH} - T_{HS}) / R_{TH}$ ; where T<sub>HS</sub> = ambient temperature

Specifications are subject to change without notice.

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