



EMP310-P1

ISSUED DATE: 07-01-04

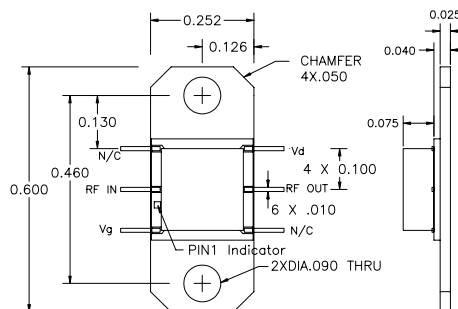
21.0 – 24.0 GHz Power Amplifier MMIC

FEATURES

- 21.0 – 24.0 GHz Operating Frequency Range
- 23.5dBm Output Power at 1dB Compression
- 12.0 dB Typical Small Signal Gain
- -40dBc OIMD3 @Each Tone Pout 13.5dBm

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 ($T_a = 25^\circ\text{C}$, 50 ohm, $V_{DD}=7\text{V}$, $I_{DQ}=170\text{mA}$)

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
F	Operating Frequency Range	21.0		24.0	GHz
P1dB	Output Power at 1dB Gain Compression	22.5	23.5		dBm
Gss	Small Signal Gain	10.0	12.0		dB
OIMD3	Output 3 rd Order Intermodulation Distortion @ $\Delta f=10\text{MHz}$, Each Tone Pout 13.5dBm		-40	-37	dBc
Input RL	Input Return Loss		-10	-8	dB
Output RL	Output Return Loss		-10	-8	dB
Idss	Saturate Drain Current $V_{DS}=3\text{V}$, $V_{GS}=0\text{V}$	211	264	317	mA
V_{DD}	Power Supply Voltage		7	8	V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		34		$^\circ\text{C/W}$
Tb	Operating Base Plate Temperature	-35		+85	$^\circ\text{C}$

ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION^{1,2}

SYMBOL	CHARACTERISTIC	VALUE
V_{DS}	Drain to Source Voltage	8 V
V_{GS}	Gate to Source Voltage	-4 V
I_{DD}	Drain Current	Idss
I_{GSF}	Forward Gate Current	4mA
P_{IN}	Input Power	@ 3dB compression
T_{CH}	Channel Temperature	150 $^\circ\text{C}$
T_{STG}	Storage Temperature	-65/150 $^\circ\text{C}$
P_T	Total Power Dissipation	3.4W

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_{HS} = ambient temperature

Specifications are subject to change without notice.

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