



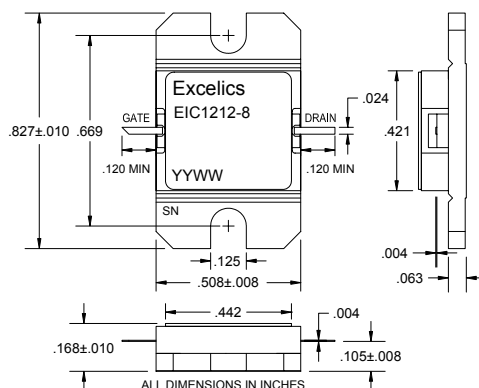
EIC1212-8

UPDATED 01/04/2006

12.20-12.70 GHz 8-Watt Internally Matched Power FET

FEATURES

- 12.20– 12.70GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +39.0 dBm Output Power at 1dB Compression
- 6.5 dB Power Gain at 1dB Compression
- 27% Power Added Efficiency
- -46 dBc IM3 at PO = 28.5 dBm SCL
- Hermetic Metal Flange Package
- 100% Tested for DC, RF, and R_{TH}



ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



Caution! ESD sensitive device.

SYMBOL	PARAMETERS/TEST CONDITIONS ¹	MIN	TYP	MAX	UNITS
P_{1dB}	Output Power at 1dB Compression $f = 12.20-12.70\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 2200\text{mA}$	38.5	39.0		dBm
G_{1dB}	Gain at 1dB Compression $f = 12.20-12.70\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 2200\text{mA}$	5.5	6.5		dB
ΔG	Gain Flatness $f = 12.20-12.70\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 2200\text{mA}$			± 0.6	dB
PAE	Power Added Efficiency at 1dB Compression $f = 12.20-12.70\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 2200\text{mA}$		27		%
I_{d1dB}	Drain Current at 1dB Compression $f = 12.20-12.70\text{GHz}$		2300	2600	mA
IM3	Output 3rd Order Intermodulation Distortion $\Delta f = 10\text{ MHz}$ 2-Tone Test; $P_{out} = 28.5\text{ dBm S.C.L}^2$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 65\% IDSS$ $f = 12.70\text{GHz}$	-43	-46		dBc
I_{DSS}	Saturated Drain Current $V_{DS} = 3\text{ V}$, $V_{GS} = 0\text{ V}$		4000	5000	mA
V_P	Pinch-off Voltage $V_{DS} = 3\text{ V}$, $I_{DS} = 40\text{ mA}$		-2.5	-4.0	V
R_{TH}	Thermal Resistance ³		3.5	4.0	$^\circ\text{C/W}$

Note: 1) Tested with 100 Ohm gate resistor.

2) S.C.L. = Single Carrier Level.

3) Overall R_{th} depends on case mounting.

ABSOLUTE MAXIMUM RATING^{1,2}

SYMBOL	CHARACTERISTIC	VALUE
V_{DS}	Drain to Source Voltage	10 V
V_{GS}	Gate to Source Voltage	-4.5 V
I_{DS}	Drain Current	IDSS
I_{GSF}	Forward Gate Current	80 mA
P_{IN}	Input Power	@ 3dB compression
P_T	Total Power Dissipation	38 W
T_{CH}	Channel Temperature	175 $^\circ\text{C}$
T_{STG}	Storage Temperature	-65/+175 $^\circ\text{C}$

Notes:

1. Operating the device beyond any of the above ratings may result in permanent damage or reduction of MTTF.

2. Bias conditions must also satisfy the following equation $P_T < (T_{CH} - T_{PKG})/R_{TH}$; where T_{PKG} = temperature of package, and $P_T = (V_{DS} * I_{DS}) - (P_{OUT} - P_{IN})$.

Specifications are subject to change without notice.

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