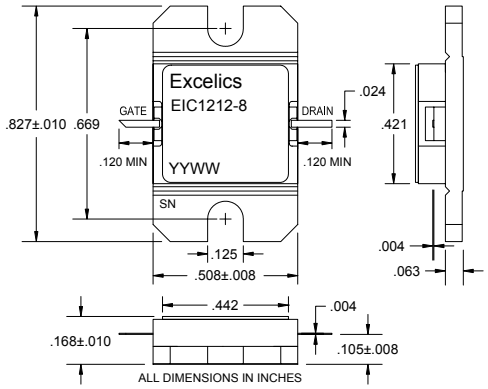
EIC1212-8

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°C)

Caution! ESD sensitive device.

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

Note: 1) Tested with 100 Ohm gate resistor. 2) S.C.L. = Single Carrier Level. 3) Overall Rth 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°C
T_{STG}	Storage Temperature	-65/+175°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 $P_T = (V_{DS} * I_{DS}) - (P_{OUT} - P_{IN})$.