EIC1314-2

UPDATED 08/20/2007

13.75-14.50GHz 2-Watt Internally-Matched Power FET

FEATURES

- **13.75 –14.50GHz Bandwidth**
- **Input/Output Impedance Matched to 50 Ohms**
- **+33.5 dBm Output Power at 1dB Compression**
- **6.5 dB Power Gain at 1dB Compression**
- **30% Power Added Efficiency**
- **-42 dBc IM3 at Po = 22.5 dBm SCL**
- **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 = 13.75-14.50GHz V_{DS} = 10 V, I_{DSQ} ≈ 550mA	32.5	33.5		dBm
G_{1dB}	Gain at 1dB Compression f = 13.75-14.50GHz V_{DS} = 10 V, I_{DSQ} ≈ 550mA	5.5	6.5		dB
ΔG	Gain Flatness f = 13.75-14.50GHz V_{DS} = 10 V, I_{DSQ} ≈ 550mA			±0.6	dB
PAE	Power Added Efficiency at 1dB Compression V_{DS} = 10 V, I_{DSQ} ≈ 550mA f = 13.75-14.50GHz		30		%
Id_{1dB}	Drain Current at 1dB Compression f = 13.75-14.50GHz		600	700	mA
IM3	Output 3rd Order Intermodulation Distortion Δf = 10 MHz 2-Tone Test; Pout = 22.5 dBm S.C.L[2] V_{DS} = 10 V, I_{DSQ} ≈ 65% IDSS f = 14.50GHz	-38	-42		dBc
I_{DSS}	Saturated Drain Current V_{DS} = 3 V, V_{GS} = 0 V		1040	1440	mA
V_P	Pinch-off Voltage V_{DS} = 3 V, I_{DS} = 10 mA		-2.5	-4.0	V
R_{TH}	Thermal Resistance[3]		11	12	°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 FOR EFD

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	15V	10V
Vgs	Gate-Source Voltage	-5V	-4V
Igf	Forward Gate Current	24mA	7.2mA
Igr	Reverse Gate Current	-4.8mA	-1.2mA
Pin	Input Power	33.0dBm	@ 3dB Compression
Tch	Channel Temperature	175C	175C
Tstg	Storage Temperature	-65C to +175C	-65C to +175C
Pt	Total Power Dissipation	12.5W	12.5W

Note: 1. Exceeding any of the above ratings may result in permanent damage.
2. Exceeding any of the above ratings may reduce MTTF below design goals.

EIC1314-2

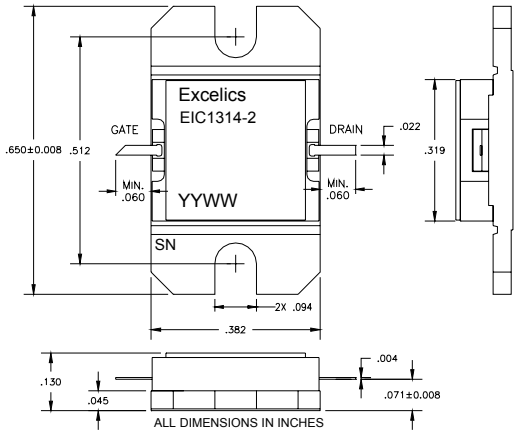
UPDATED 08/20/2007

13.75-14.50GHz 2-Watt Internally-Matched Power FET

PACKAGES OUTLINE

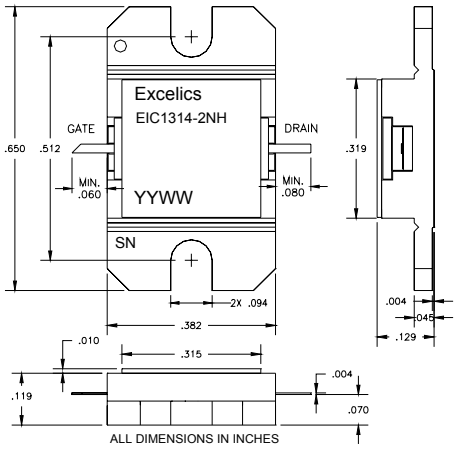
Dimensions in inches, Tolerance ± .005 unless otherwise specified

EIC1314-2 (Hermetic)



Caution! ESD sensitive device.

EIC1314-2NH (Non-Hermetic)



Caution! ESD sensitive device.

ORDERING INFORMATION

Part Number	Packages	Grade[1]	f_{Test} (GHz)	P_{1dB} (min)	IM_3 (min)[2]
EIC1314-2	Hermetic	Industrial	13.75-14.50GHz	32.5	-38
EIC1314-2NH	Non-Hermetic	Industrial	13.75-14.50GHz	32.5	-38

Notes: 1. Contact factory for military and hi-rel grades.
2. Exact test conditions are specified in "Electrical Characteristics" table.

DISCLAIMER

EXCELICS SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. EXCELICS DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN.

LIFE SUPPORT POLICY

EXCELICS SEMICONDUCTOR PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF EXCELICS SEMICONDUCTOR, INC. AS HERE IN:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness