



EIC1414-2

UPDATED 08/20/2007

14.00-14.50GHz 2-Watt Internally-Matched Power FET

FEATURES

- 14.00 –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 $P_o = 22.5$ dBm SCL
- 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 $f = 14.00\text{-}14.50\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 550\text{mA}$	32.5	33.5		dBm
G_{1dB}	Gain at 1dB Compression $f = 14.00\text{-}14.50\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 550\text{mA}$	5.5	6.5		dB
ΔG	Gain Flatness $f = 14.00\text{-}14.50\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 550\text{mA}$			± 0.6	dB
PAE	Power Added Efficiency at 1dB Compression $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 550\text{mA}$ $f = 14.00\text{-}14.50\text{GHz}$		30		%
I_{d1dB}	Drain Current at 1dB Compression $f = 14.00\text{-}14.50\text{GHz}$		600	700	mA
IM3	Output 3rd Order Intermodulation Distortion $\Delta f = 10\text{ MHz}$ 2-Tone Test; $P_{out} = 22.5\text{ dBm S.C.L}^2$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 65\% IDSS$ $f = 14.50\text{GHz}$	-38	-42		dBc
I_{DSS}	Saturated Drain Current $V_{DS} = 3\text{ V}$, $V_{GS} = 0\text{ V}$		1040	1440	mA
V_P	Pinch-off Voltage $V_{DS} = 3\text{ V}$, $I_{DS} = 10\text{ mA}$		-2.5	-4.0	V
R_{TH}	Thermal Resistance ³		11	12	$^\circ\text{C/W}$

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 FOR EFD

SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	15V	10V
V_{gs}	Gate-Source Voltage	-5V	-4V
I_{gf}	Forward Gate Current	24mA	7.2mA
I_{gr}	Reverse Gate Current	-4.8mA	-1.2mA
P_{in}	Input Power	33.0dBm	@ 3dB Compression
T_{ch}	Channel Temperature	175C	175C
T_{stg}	Storage Temperature	-65C to +175C	-65C to +175C
P_t	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.

Specifications are subject to change without notice.

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EIC1414-2

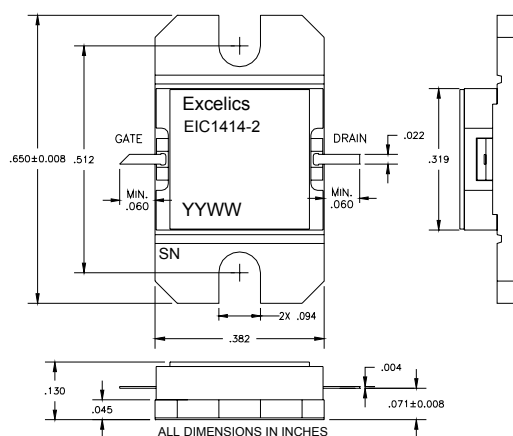
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PACKAGES OUTLINE

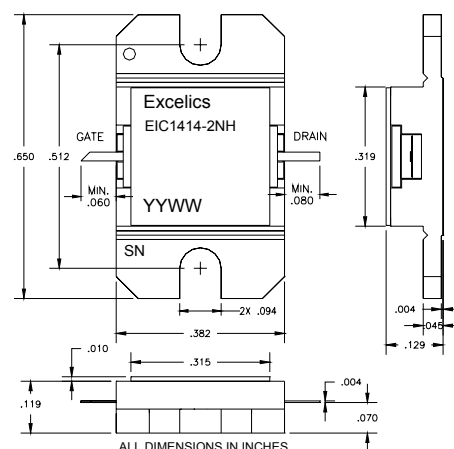
Dimensions in inches, Tolerance $\pm .005$ unless otherwise specified

EIC1414-2 (Hermetic)



Caution! ESD sensitive device.

EIC1414-2NH (Non-Hermetic)



Caution! ESD sensitive device.

ORDERING INFORMATION

Part Number	Packages	Grade ¹	f _{Test} (GHz)	P _{1dB} (min)	IM ₃ (min) ²
EIC1414-2	Hermetic	Industrial	14.00-14.50GHz	32.5	-38
EIC1414-2NH	Non-Hermetic	Industrial	14.00-14.50GHz	32.5	-38

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

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