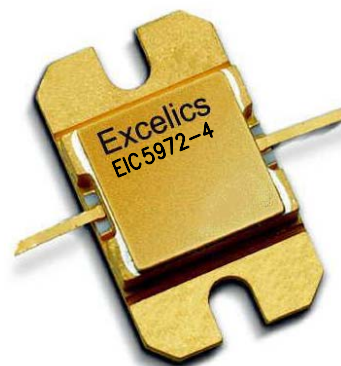


### FEATURES

- 5.90– 7.20GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +36.5 dBm Output Power at 1dB Compression
- 9.0 dB Power Gain at 1dB Compression
- 32% Power Added Efficiency
- -46 dBc IM3 at PO = 29.5 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 <sup>1</sup>	MIN	TYP	MAX	UNITS
$P_{1dB}$	Output Power at 1dB Compression $f = 5.90-7.20\text{GHz}$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 1100\text{mA}$	35.5	36.5		dBm
$G_{1dB}$	Gain at 1dB Compression $f = 5.90-7.20\text{GHz}$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 1100\text{mA}$	8.0	9.0		dB
$\Delta G$	Gain Flatness $f = 5.90-7.20\text{GHz}$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 1100\text{mA}$			$\pm 0.8$	dB
PAE	Power Added Efficiency at 1dB Compression $f = 5.90-7.20\text{GHz}$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 1100\text{mA}$		32		%
$I_{d1dB}$	Drain Current at 1dB Compression $f = 5.90-7.20\text{GHz}$		1200	1400	mA
IM3	Output 3rd Order Intermodulation Distortion $\Delta f = 10\text{ MHz}$ 2-Tone Test; $P_{out} = 29.5\text{ dBm S.C.L}^2$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 65\% IDSS$ $f = 7.20\text{GHz}$	-43	-46		dBc
$I_{DSS}$	Saturated Drain Current $V_{DS} = 3\text{ V}, V_{GS} = 0\text{ V}$		2000	2500	mA
$V_P$	Pinch-off Voltage $V_{DS} = 3\text{ V}, I_{DS} = 20\text{ mA}$		-2.5	-4.0	V
$R_{TH}$	Thermal Resistance <sup>3</sup>		5.5	6.0	$^\circ\text{C/W}$

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<sup>1,2</sup>

SYMBOLS	PARAMETERS	ABSOLUTE <sup>1</sup>	CONTINUOUS <sup>2</sup>
$V_{DS}$	Drain-Source Voltage	15	10V
$V_{GS}$	Gate-Source Voltage	-5	-4V
$I_{gsf}$	Forward Gate Current	43.2mA	14.4mA
$I_{gsr}$	Reverse Gate Current	-7.2mA	-2.4mA
$P_{in}$	Input Power	35.5dBm	@ 3dB Compression
$T_{ch}$	Channel Temperature	175 $^\circ\text{C}$	175 $^\circ\text{C}$
$T_{stg}$	Storage Temperature	-65 to +175 $^\circ\text{C}$	-65 to +175 $^\circ\text{C}$
$P_t$	Total Power Dissipation	25W	25W

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.

Excelics Semiconductor, Inc. 310 De Guigne Drive, Sunnyvale, CA 94085

Phone: 408-737-1711 Fax: 408-737-1868 Web: [www.excelics.com](http://www.excelics.com)

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Revised December 2007

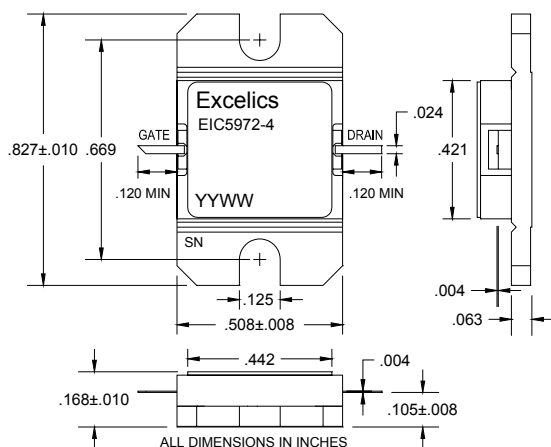
UPDATED 12/07/2007

## 5.90-7.20 GHz 4-Watt Internally Matched Power FET

### PACKAGES OUTLINE

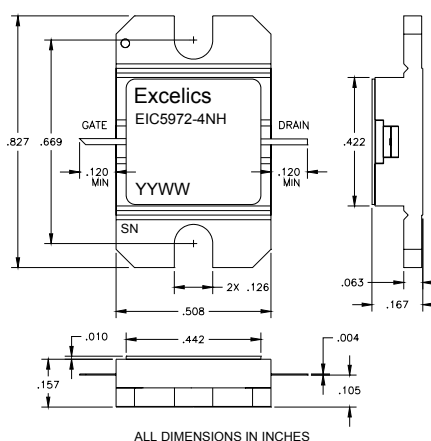
Dimensions in inches, Tolerance  $\pm .005$  unless otherwise specified

**EIC5972-4 (Hermetic)**



**Caution! ESD sensitive device.**

**EIC5972-4NH (Non-Hermetic)**



**Caution! ESD sensitive device.**

### ORDERING INFORMATION

Part Number	Packages	Grade <sup>1</sup>	f <sub>Test</sub> (GHz)	P <sub>1dB</sub> (min)	IM <sub>3</sub> (min) <sup>2</sup>
EIC5972-4	Hermetic	Industrial	5.90-7.20GHz	35.5	-43
EIC5972-4NH	Non-Hermetic	Industrial	5.90-7.20GHz	35.5	-43

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

### DISCLAIMER

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- 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

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