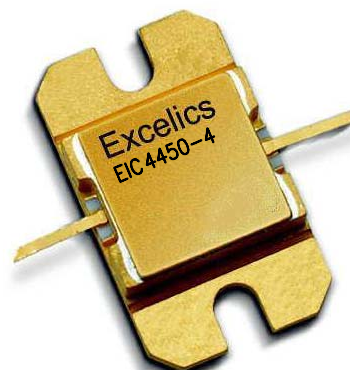


### FEATURES

- 4.40–5.00GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +36.5 dBm Output Power at 1dB Compression
- 11.5 dB Power Gain at 1dB Compression
- 37% Power Added Efficiency
- -46 dBc IM3 at PO = 25.5 dBm SCL
- 100% Tested for DC, RF, and R<sub>TH</sub>



Caution! ESD sensitive device.

### ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25°C)

SYMBOL	PARAMETERS/TEST CONDITIONS <sup>1</sup>	MIN	TYP	MAX	UNITS
P <sub>1dB</sub>	Output Power at 1dB Compression f = 4.40-5.00GHz V <sub>DS</sub> = 10 V, I <sub>DSQ</sub> ≈ 1100mA	35.5	36.5		dBm
G <sub>1dB</sub>	Gain at 1dB Compression f = 4.40-5.00GHz V <sub>DS</sub> = 10 V, I <sub>DSQ</sub> ≈ 1100mA	10.5	11.5		dB
ΔG	Gain Flatness f = 4.40-5.00GHz V <sub>DS</sub> = 10 V, I <sub>DSQ</sub> ≈ 1100mA			±0.6	dB
PAE	Power Added Efficiency at 1dB Compression V <sub>DS</sub> = 10 V, I <sub>DSQ</sub> ≈ 1100mA f = 4.40-5.00GHz		37		%
I <sub>d1dB</sub>	Drain Current at 1dB Compression f = 4.40-5.00GHz		1200	1500	mA
IM3	Output 3rd Order Intermodulation Distortion Δf = 10 MHz 2-Tone Test; Pout = 25.5 dBm S.C.L. <sup>2</sup> V <sub>DS</sub> = 10 V, I <sub>DSQ</sub> ≈ 65% IDSS f = 5.00GHz	-43	-46		dBc
I <sub>DSS</sub>	Saturated Drain Current V <sub>DS</sub> = 3 V, V <sub>GS</sub> = 0 V		2000	2500	mA
V <sub>P</sub>	Pinch-off Voltage V <sub>DS</sub> = 3 V, I <sub>DS</sub> = 20 mA		-2.5	-4.0	V
R <sub>TH</sub>	Thermal Resistance <sup>3</sup>		5.5	6.0	°C/W

Note: 1. Tested with 100 Ohm gate resistor.  
 2. S.C.L. = Single Carrier Level.  
 3. Overall R<sub>th</sub> depends on case mounting.

### ABSOLUTE MAXIMUM RATING FOR EFE

SYMBOLS	PARAMETERS	ABSOLUTE <sup>1</sup>	CONTINUOUS <sup>2</sup>
V <sub>ds</sub>	Drain-Source Voltage	15V	10V
V <sub>gs</sub>	Gate-Source Voltage	-5V	-4V
I <sub>gf</sub>	Forward Gate Current	48mA	14mA
I <sub>gr</sub>	Reverse Gate Current	-9.6mA	-2.4mA
P <sub>in</sub>	Input Power	36dBm	@ 3dB Compression
T <sub>ch</sub>	Channel Temperature	175C	175C
T <sub>stg</sub>	Storage Temperature	-65C to +175C	-65C to +175C
P <sub>t</sub>	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.

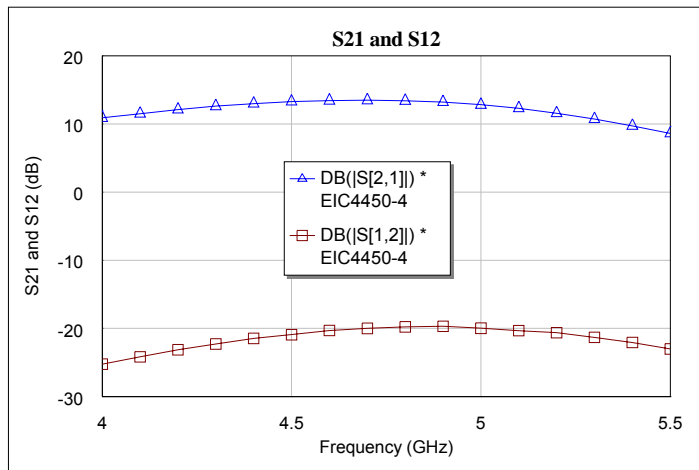
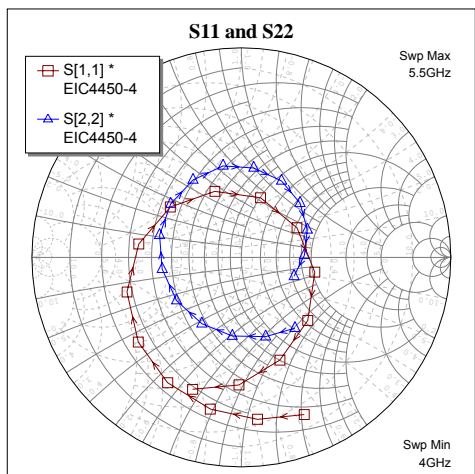
Specifications are subject to change without notice.

## 4.40-5.00 GHz 4-Watt Internally Matched Power FET

### PERFORMANCE DATA

Typical S-Parameters (T= 25°C, 50Ω system, de-embedded to edge of package)

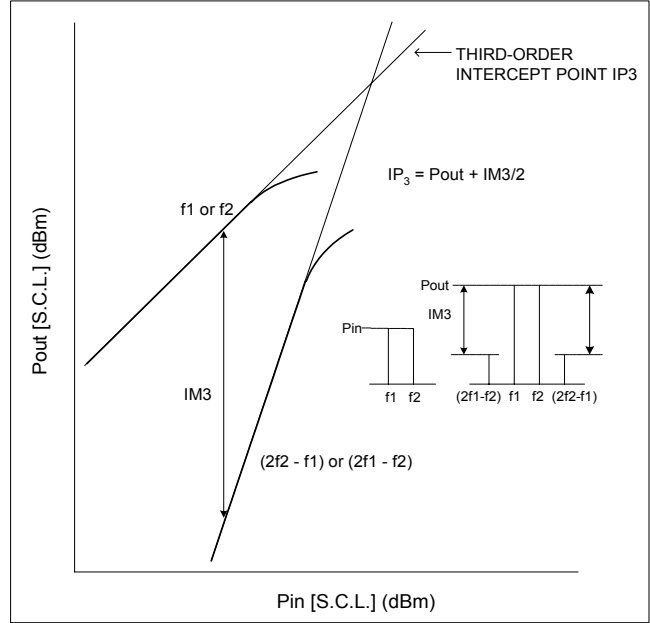
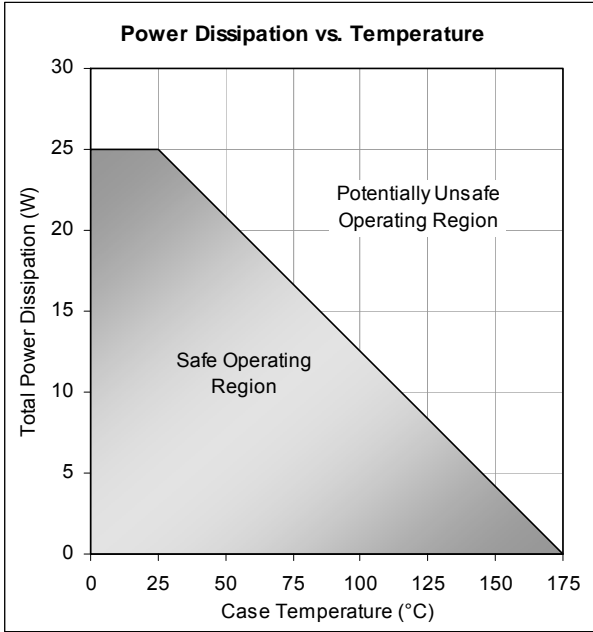
$V_{DS} = 10\text{ V}$ ,  $I_{DSQ} \approx 1100\text{mA}$



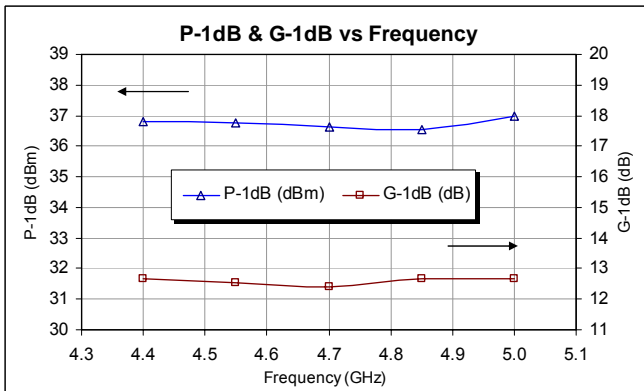
FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
4.00	0.808	-68.190	3.508	99.990	0.055	37.090	0.424	-52.880
4.25	0.713	-110.590	4.141	59.190	0.074	-2.750	0.368	-108.070
4.50	0.570	-163.190	4.620	13.810	0.090	-49.090	0.382	-171.490
4.75	0.383	129.460	4.719	-34.020	0.102	-96.850	0.429	132.270
5.00	0.301	28.000	4.375	-83.660	0.100	-145.990	0.431	82.100
5.25	0.481	-56.790	3.625	-132.810	0.090	165.590	0.364	33.460
5.50	0.671	-110.260	2.699	-177.940	0.071	122.650	0.268	-19.720
5.75	0.795	-149.080	1.929	141.910	0.053	84.390	0.240	-76.080
6.00	0.869	-179.020	1.365	106.080	0.040	51.160	0.290	-122.110
6.25	0.909	156.420	0.965	72.960	0.028	27.210	0.380	-155.490
6.50	0.933	135.760	0.681	42.570	0.020	0.750	0.488	178.060

Specifications are subject to change without notice.

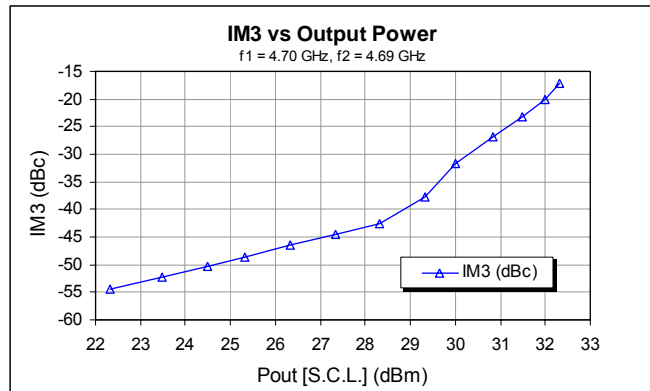
### Power De-rating Curve and IM3 Definition



### Typical Power Data (V<sub>DS</sub> = 10 V, I<sub>DSQ</sub> = 1100 mA)

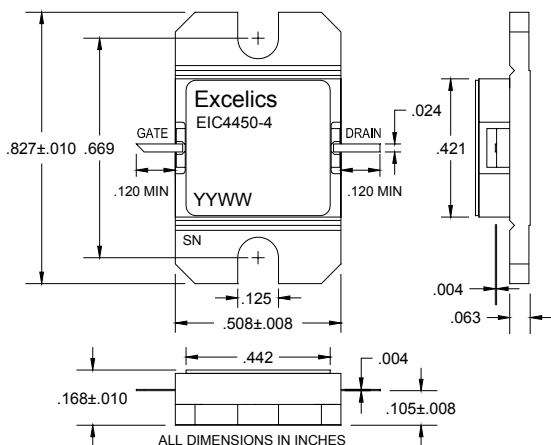
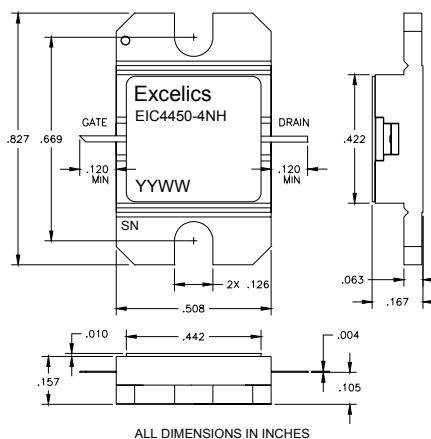


### Typical IM3 Data (V<sub>DS</sub> = 10 V, I<sub>DSQ</sub> ≈ 65% IDSS)



### PACKAGES OUTLINE

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

**EIC4450-4 (Hermetic)**

**EIC4450-4NH (Non-Hermetic)**

**Caution! ESD sensitive device.**

**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>
EIC4450-4	Hermetic	Industrial	4.40-5.00GHz	35.5	-43
EIC4450-4NH	Non-Hermetic	Industrial	4.40-5.00GHz	35.5	-43

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

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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