EIC6472-5

UPDATED 08/21/2007

6.40-7.20GHz 5-Watt Internally-Matched Power FET

FEATURES

- **6.40–7.20GHz Bandwidth**
- **Input/Output Impedance Matched to 50 Ohms**
- **+37.5 dBm Output Power at 1dB Compression**
- **9.5 dB Power Gain at 1dB Compression**
- **36% Power Added Efficiency**
- **-46 dBc IM3 at PO = 26.5 dBm SCL**
- **100% Tested for DC, RF, and R_{TH}**

Caution! ESD sensitive device.

ELECTRICAL CHARACTERISTICS (T_a = 25°C)

SYMBOL	PARAMETERS/TEST CONDITIONS[1]	MIN	TYP	MAX	UNITS
P_{1dB}	Output Power at 1dB Compression f = 6.40-7.20GHz V_{DS} = 10 V, I_{DSQ} ≈ 1600mA	36.5	37.5		dBm
G_{1dB}	Gain at 1dB Compression f = 6.40-7.20GHz V_{DS} = 10 V, I_{DSQ} ≈ 1600mA	8.5	9.5		dB
ΔG	Gain Flatness f = 6.40-7.20GHz V_{DS} = 10 V, I_{DSQ} ≈ 1600mA			±0.6	dB
PAE	Power Added Efficiency at 1dB Compression V_{DS} = 10 V, I_{DSQ} ≈ 1600mA f = 6.40-7.20GHz		36		%
Id_{1dB}	Drain Current at 1dB Compression f = 6.40-7.20GHz		1600	1900	mA
IM3	Output 3rd Order Intermodulation Distortion Δf = 10 MHz 2-Tone Test; Pout = 26.5 dBm S.C.L[2] V_{DS} = 10 V, I_{DSQ} ≈ 65% IDSS f = 7.20GHz	-43	-46		dBc
I_{DSS}	Saturated Drain Current V_{DS} = 3 V, V_{GS} = 0 V		2900	3500	mA
V_P	Pinch-off Voltage V_{DS} = 3 V, I_{DS} = 30 mA		-2.5	-4.0	V
R_{TH}	Thermal Resistance[3]		5.0	5.5	°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 EFE

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	15V	10V
Vgs	Gate-Source Voltage	-5V	-4V
Igf	Forward Gate Current	68mA	20.4mA
Igr	Reverse Gate Current	-13.6mA	-3.4mA
Pin	Input Power	37dBm	@ 3dB Compression
Tch	Channel Temperature	175C	175C
Tstg	Storage Temperature	-65C to +175C	-65C to +175C
Pt	Total Power Dissipation	27W	27W

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.

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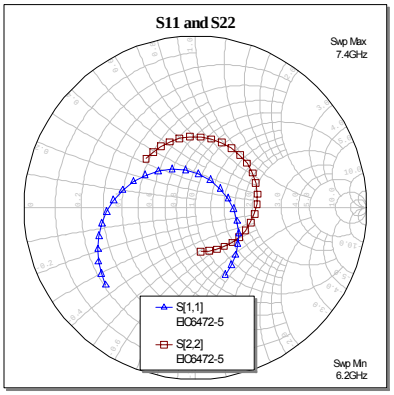
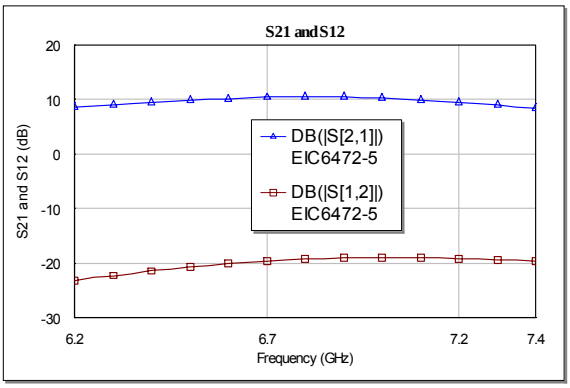
PERFORMANCE DATA

Typical S-Parameters (T= 25°C, 50Ω system, de-embedded to edge of package)
V_{DS} = 10 V, I_{DSQ} ≈ 1600mA





FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
6.0	0.7629	-118.57	2.4185	1.53	0.0585	-52.02	0.4058	165.86
6.2	0.6918	-139.21	2.6758	-23.13	0.0699	-77.86	0.406	135.1
6.4	0.5871	-163.34	2.96	-49.55	0.0853	-104.59	0.4145	102.93
6.6	0.4364	166.68	3.2173	-78.21	0.0995	-133.82	0.4095	68.04
6.8	0.2616	121.15	3.3405	-109.27	0.11	-163.54	0.3912	31.35
7.0	0.1825	36.84	3.2432	-140.81	0.1125	165.5	0.3476	-5.91
7.2	0.2935	-30.37	2.9709	-171.31	0.1103	136.64	0.2943	-43.52
7.4	0.4288	-65.99	2.6371	160.92	0.1048	108.35	0.258	-82.79
7.6	0.5358	-92.71	2.3342	134.72	0.0956	81.92	0.2598	-124.06
7.8	0.6038	-114.94	2.0509	109.91	0.0848	58.06	0.2872	-160.02
8.0	0.6452	-135.09	1.8022	86.06	0.076	35.71	0.3441	172.76

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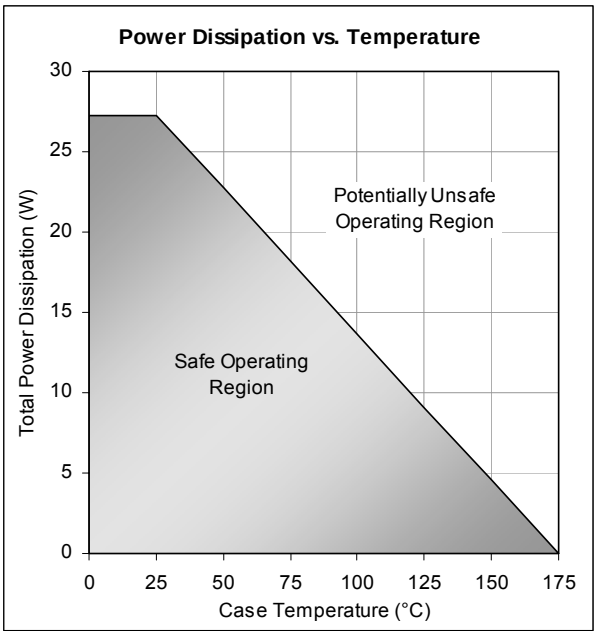
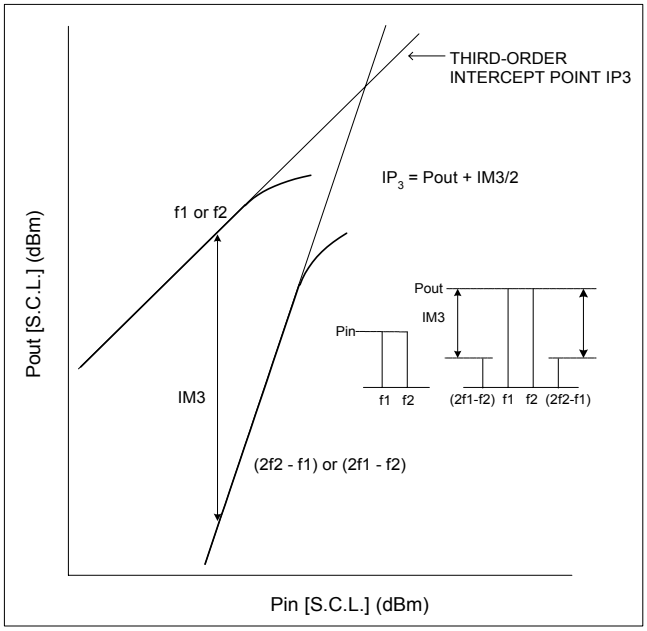
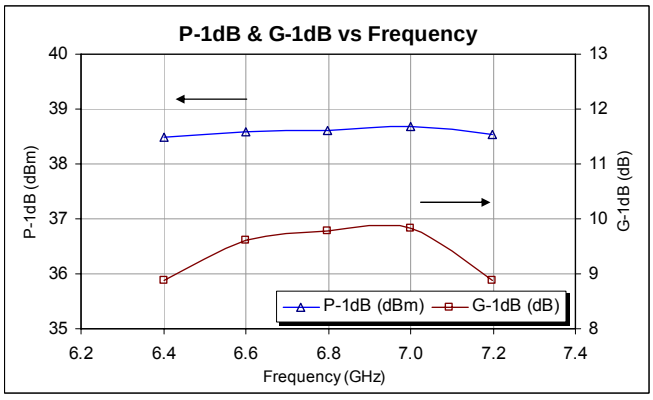
Power De-rating Curve and IM3 Definition

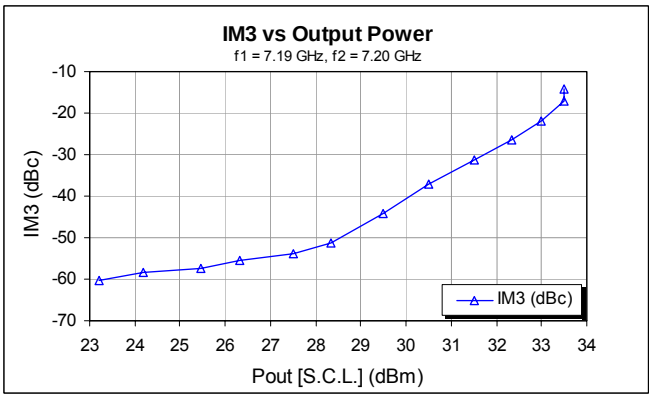




Typical Power Data (V_{DS} = 10 V, I_{DSQ} = 1600 mA)



Typical IM3 Data (V_{DS} = 10 V, I_{DSQ} ≈ 65% IDSS)



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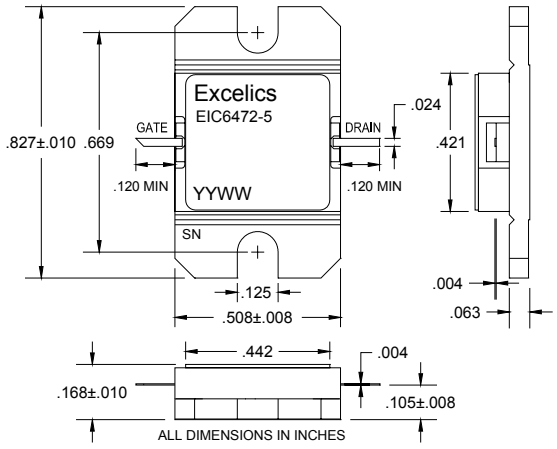
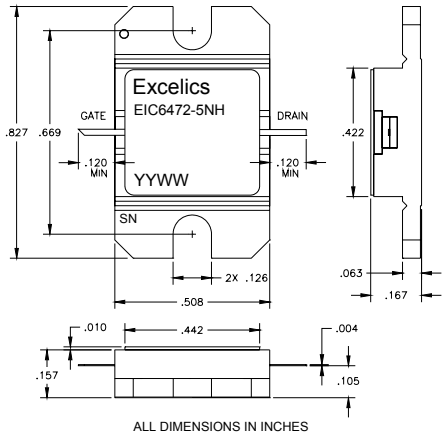
PACKAGES OUTLINE

Dimensions in inches, Tolerance ± .005 unless otherwise specified

EIC6472-5 (Hermetic)



EIC6472-5NH (Non-Hermetic)



Caution! ESD sensitive device.

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ORDERING INFORMATION

Part Number	Packages	Grade[1]	f_{Test} (GHz)	P_{1dB} (min)	IM_3 (min)[2]
EIC6472-5	Hermetic	Industrial	6.40-7.20GHz	36.5	-43
EIC6472-5NH	Non-Hermetic	Industrial	6.40-7.20GHz	36.5	-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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