



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		%
I _{d1dB}	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 R_{th} depends on case mounting.

ABSOLUTE MAXIMUM RATING FOR EFE

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	68mA	20.4mA
I _{gr}	Reverse Gate Current	-13.6mA	-3.4mA
P _{in}	Input Power	37dBm	@ 3dB Compression
T _{ch}	Channel Temperature	175C	175C
T _{stg}	Storage Temperature	-65C to +175C	-65C to +175C
P _t	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.

Specifications are subject to change without notice.

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page 1 of 4
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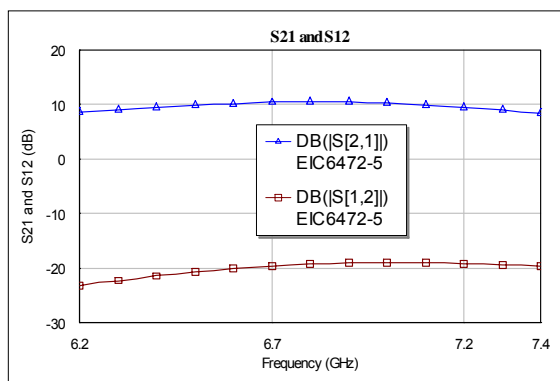
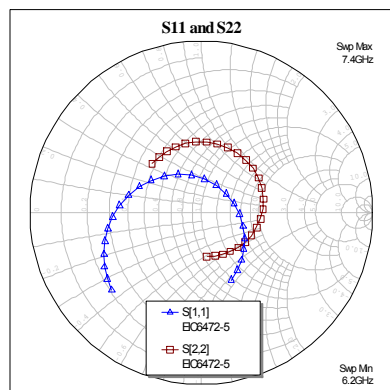
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PERFORMANCE DATA

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

$V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 1600\text{ mA}$



FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	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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page 2 of 4
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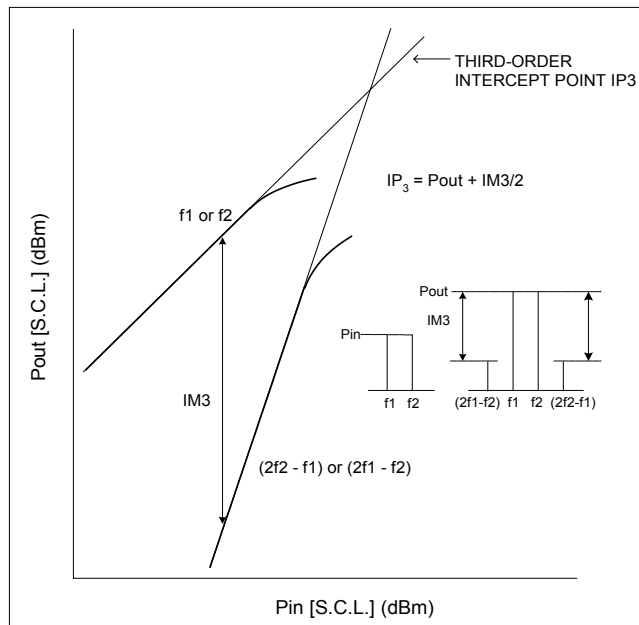
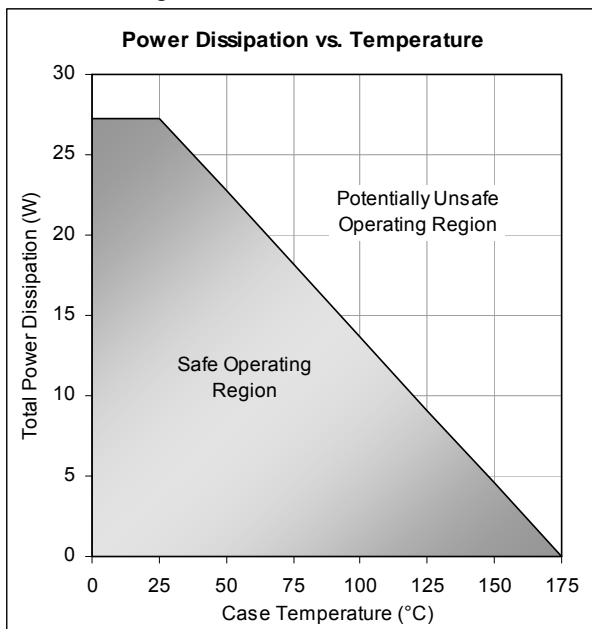


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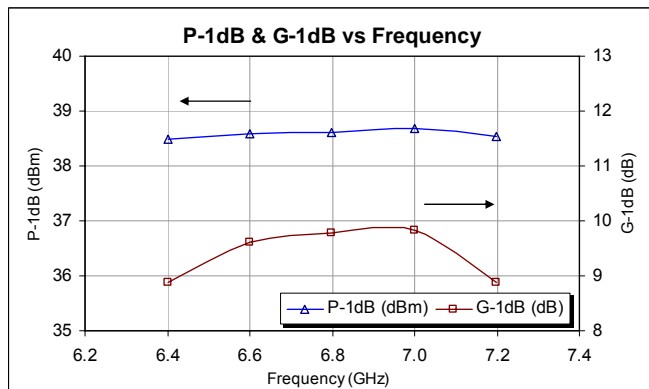
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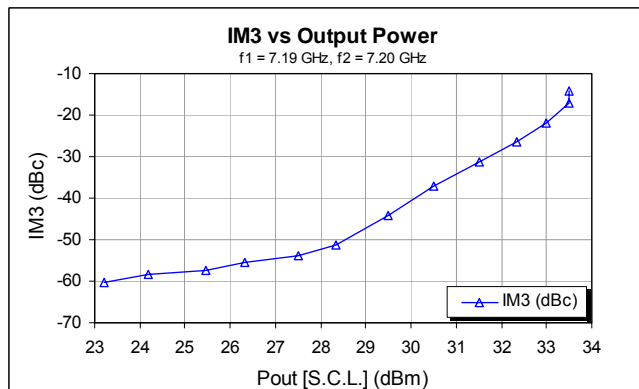
Power De-rating Curve and IM3 Definition



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



Typical IM3 Data ($V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 65\% IDSS$)



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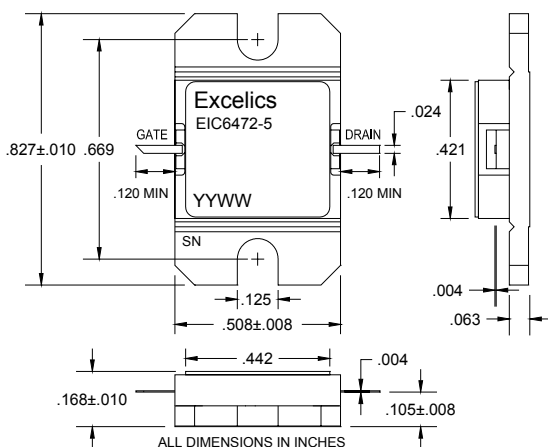
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PACKAGES OUTLINE

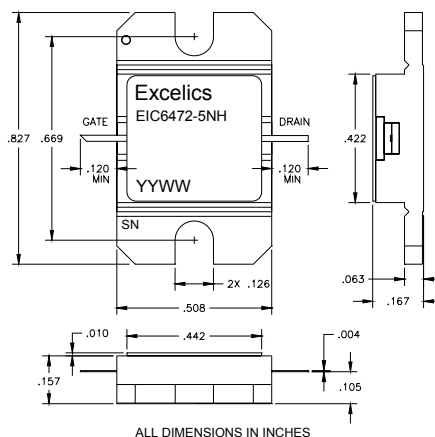
Dimensions in inches, Tolerance $\pm .005$ unless otherwise specified

EIC6472-5 (Hermetic)



Caution! ESD sensitive device.

EIC6472-5NH (Non-Hermetic)



Caution! ESD sensitive device.

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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page 4 of 4
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