

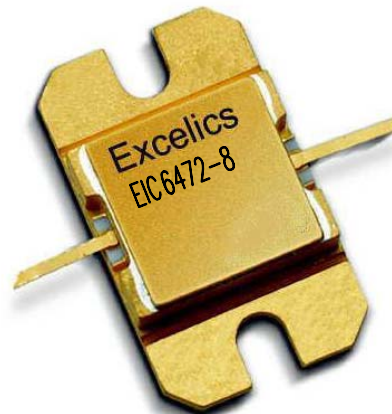


EIC6472-8

6.40-7.20 GHz 8-Watt Internally-Matched Power FET

FEATURES

- 6.40 – 7.20 GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +39.5 dBm Output Power at 1dB Compression
- 9.5 dB Power Gain at 1dB Compression
- 36% Power Added Efficiency
- -46 dBc IM3 at $P_o = 28.5$ dBm SCL
- Hermetic Metal Flange Package
- 100% Tested for DC, RF, and R_{TH}



DESCRIPTION

The EIC6472-8 is a high power, highly linear, single stage MFET amplifier in a flange mount package. This amplifier features Excelics' unique MESFET transistor technology.



Caution! ESD sensitive device.

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

SYMBOL	PARAMETERS/TEST CONDITIONS ¹	MIN	TYP	MAX	UNITS
P_{1dB}	Output Power at 1dB Compression $f = 6.40\text{-}7.20\text{GHz}$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 2200\text{mA}$	38.5	39.5		dBm
G_{1dB}	Gain at 1dB Compression $f = 6.40\text{-}7.20\text{GHz}$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 2200\text{mA}$	8.5	9.5		dB
ΔG	Gain Flatness $f = 6.40\text{-}7.20\text{GHz}$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 2200\text{mA}$			± 0.6	dB
PAE	Power Added Efficiency at 1dB Compression $V_{DS} = 10\text{ V}, I_{DSQ} \approx 2200\text{mA}$ $f = 6.40\text{-}7.20\text{GHz}$		36		%
I_{d1dB}	Drain Current at 1dB Compression $f = 6.40\text{-}7.20\text{GHz}$		2200	2600	mA
IM3	Output 3rd Order Intermodulation Distortion $\Delta f = 10\text{ MHz}$ 2-Tone Test; $P_{out} = 28.5\text{ dBm}$ S.C.L. ² $V_{DS} = 10\text{ V}, I_{DSQ} \approx 65\% I_{DSS}$ $f = 7.20\text{ GHz}$	-43	-46		dBc
I_{DSS}	Saturated Drain Current $V_{DS} = 3\text{ V}, V_{GS} = 0\text{ V}$		4000	4500	mA
V_P	Pinch-off Voltage $V_{DS} = 3\text{ V}, I_{DS} = 40\text{ mA}$		-2.5	-4.0	V
R_{TH}	Thermal Resistance ³		3.5	4	$^\circ\text{C/W}$

Notes:

1. Tested with 100 Ohm gate resistor.
2. S.C.L. = Single Carrier Level.
3. Overall R_{th} depends on case mounting.

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

page 1 of 4
Revised October 2003
www.DataSheet4U.com



EIC6472-8

ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION^{1,2}

SYMBOL	CHARACTERISTIC	VALUE
V _{DS}	Drain to Source Voltage	10 V
V _{GS}	Gate to Source Voltage	-4.5 V
I _{DS}	Drain Current	IDSS
I _{GSF}	Forward Gate Current	80 mA
P _{IN}	Input Power	@ 3dB compression
P _T	Total Power Dissipation	32 W
T _{CH}	Channel Temperature	150°C
T _{STG}	Storage Temperature	-65/+150°C

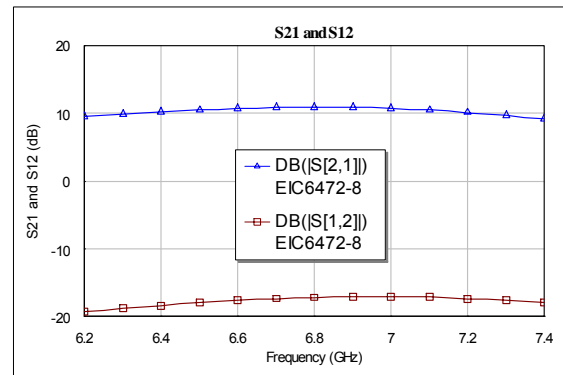
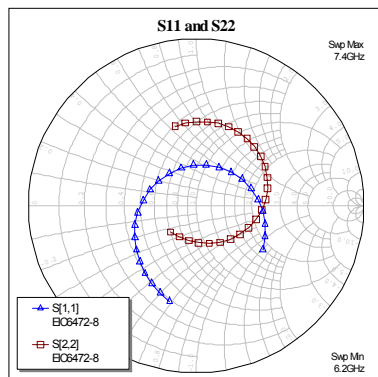
Notes:

- Operating the device beyond any of the above ratings may result in permanent damage or reduction of MTTF.
- Bias conditions must also satisfy the following equation $P_T < (T_{CH} - T_{PKG})/R_{TH}$; where T_{PKG} = temperature of package, and $P_T = (V_{DS} * I_{DS}) - (P_{OUT} - P_{IN})$.

PERFORMANCE DATA

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

V_{DS} = 10 V, I_{DSQ} ≈ 2200mA



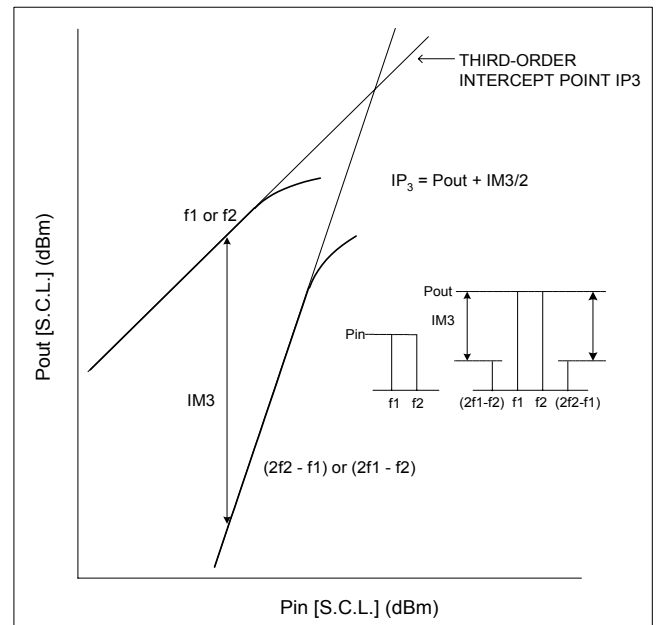
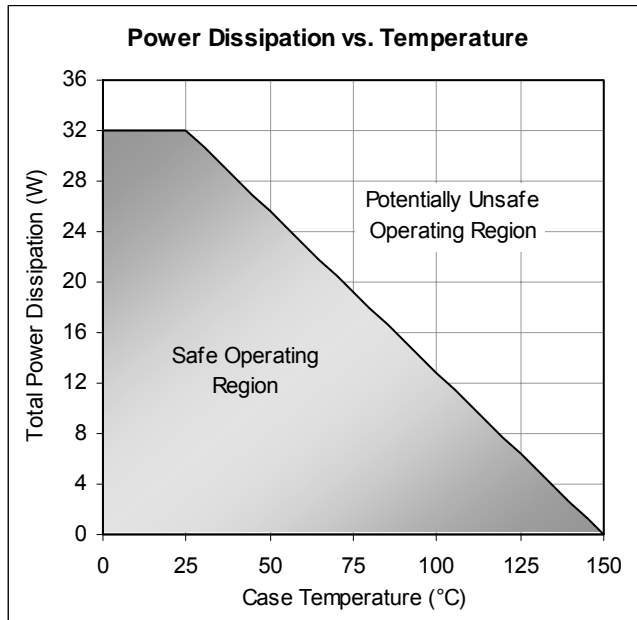
FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.8	0.7691	-59.89	2.4709	37.54	0.0842	-23	0.3937	169.91
6.0	0.6925	-81.02	2.737	11.91	0.097	-47.68	0.4423	135.72
6.2	0.5944	-105.44	3.0092	-14.9	0.1089	-73.62	0.493	104.65
6.4	0.4754	-134.77	3.2245	-43.07	0.1208	-101.3	0.5112	75.2
6.6	0.3499	-173.19	3.4136	-72.55	0.1315	-129.81	0.4959	45.51
6.8	0.2507	129.61	3.4973	-103.52	0.1389	-160.34	0.4386	13.78
7.0	0.2665	59.43	3.4291	-135.28	0.1408	169	0.3388	-22.61
7.2	0.3712	5.6	3.2015	-167.15	0.1359	138.35	0.2387	-70.85
7.4	0.4764	-33.41	2.8736	162.48	0.1272	108.36	0.2196	-134.09
7.6	0.5578	-67.13	2.5143	132.86	0.1125	79.22	0.3012	174.34
7.8	0.6096	-97.26	2.1393	104.58	0.0965	51.48	0.4095	141.65
8.0	0.6451	-124.95	1.7837	77.58	0.0825	26.06	0.5064	118.52

Specifications are subject to change without notice.

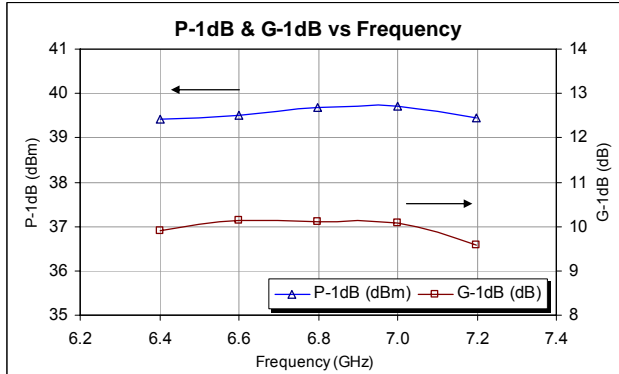
Excelics Semiconductor, Inc. 310 De Guigne Drive, Sunnyvale, CA 94085
 Phone: 408-737-1711 Fax: 408-737-1868 Web: www.excelics.com

page 2 of 4
 Revised October 2003
www.DataSheet4U.com

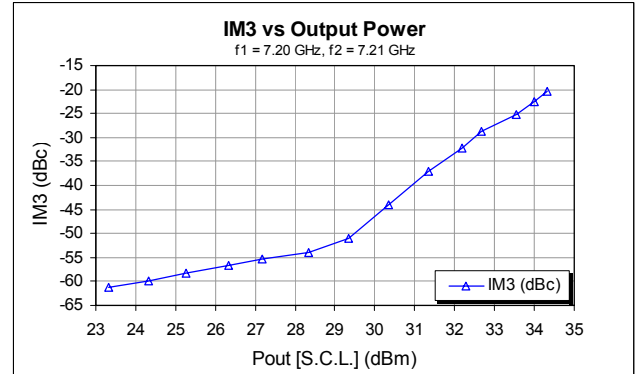
Power De-rating Curve and IM3 Definition



Typical Power Data ($V_{DS} = 10\text{ V}$, $I_{DSQ} = 2200\text{ mA}$)



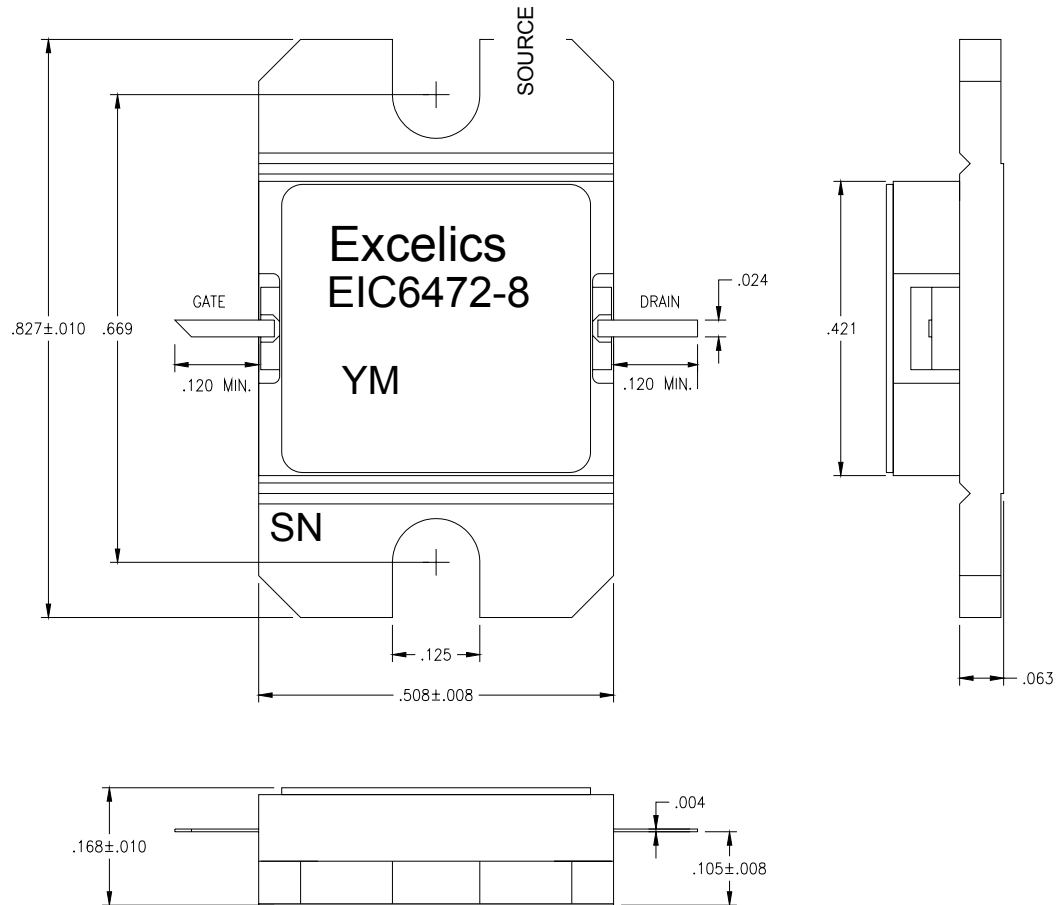
Typical IM3 Data ($V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 65\% IDSS$)



Specifications are subject to change without notice.

PACKAGE OUTLINE

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



ORDERING INFORMATION

Part Number	Grade ¹	f_{Test} (GHz)	$P_{1\text{dB}}$ (min)	IM_3 (min) ²
EIC6472-8	Industrial	6.4-7.2 GHz	38.5	-43

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