



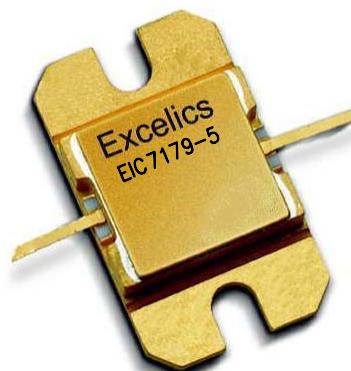
EIC7179-5

UPDATED 08/21/2007

7.10-7.90GHz 5-Watt Internally-Matched Power FET

FEATURES

- 7.10–7.90GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +37.5 dBm Output Power at 1dB Compression
- 8.5 dB Power Gain at 1dB Compression
- 35% Power Added Efficiency
- -46 dBc IM3 at PO = 25.5 dBm SCL
- 100% Tested for DC, RF, and R_{TH}



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 $f = 7.10\text{-}7.90\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 1600\text{mA}$	36.5	37.5		dBm
G_{1dB}	Gain at 1dB Compression $f = 7.10\text{-}7.90\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 1600\text{mA}$	7.5	8.5		dB
ΔG	Gain Flatness $f = 7.10\text{-}7.90\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 1600\text{mA}$			± 0.6	dB
PAE	Power Added Efficiency at 1dB Compression $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 1600\text{mA}$ $f = 7.10\text{-}7.90\text{GHz}$		35		%
I_{d1dB}	Drain Current at 1dB Compression $f = 7.10\text{-}7.90\text{GHz}$		1600	2000	mA
IM3	Output 3rd Order Intermodulation Distortion $\Delta f = 10\text{ MHz}$ 2-Tone Test; $P_{out} = 25.5\text{ dBm S.C.L.}^2$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 65\% IDSS$ $f = 7.90\text{GHz}$	-43	-46		dBc
I_{DSS}	Saturated Drain Current $V_{DS} = 3\text{ V}$, $V_{GS} = 0\text{ V}$		2900	3500	mA
V_P	Pinch-off Voltage $V_{DS} = 3\text{ V}$, $I_{DS} = 30\text{ mA}$		-2.5	-4.0	V
R_{TH}	Thermal Resistance ³		5.0	5.5	$^\circ\text{C/W}$

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 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.

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

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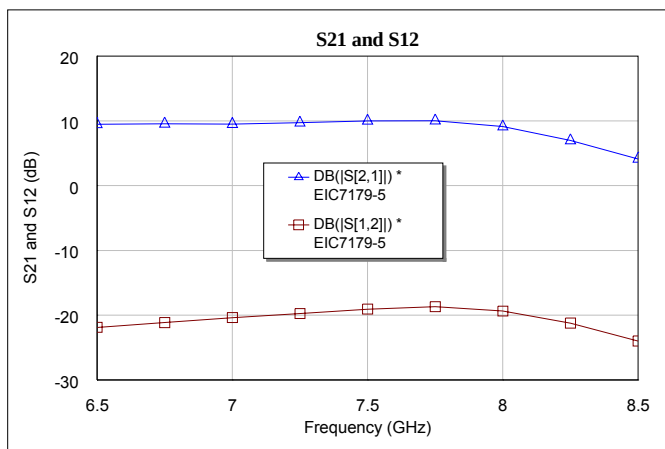
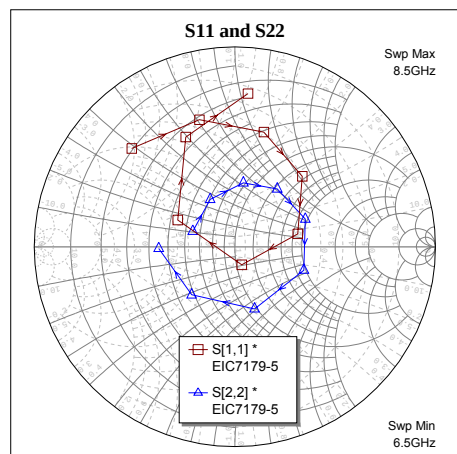
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PERFORMANCE DATA

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
6.25	0.752	168.140	2.901	-7.820	0.073	-64.840	0.232	-147.530
6.50	0.711	136.260	2.974	-39.130	0.081	-97.090	0.224	159.760
6.75	0.659	105.510	3.004	-70.350	0.088	-127.140	0.267	117.460
7.00	0.591	75.820	2.986	-100.630	0.096	-156.850	0.322	82.450
7.25	0.487	46.300	3.063	-131.620	0.103	172.760	0.358	53.770
7.50	0.320	11.650	3.161	-165.600	0.111	140.350	0.377	21.450
7.75	0.097	-69.360	3.168	156.190	0.116	103.520	0.364	-18.780
8.00	0.315	154.860	2.860	113.990	0.108	62.710	0.326	-72.420
8.25	0.600	114.000	2.233	73.400	0.087	23.160	0.323	-131.860
8.50	0.769	85.120	1.607	38.360	0.063	-9.110	0.379	-178.690
8.75	0.843	64.260	1.123	9.490	0.046	-36.130	0.455	151.440

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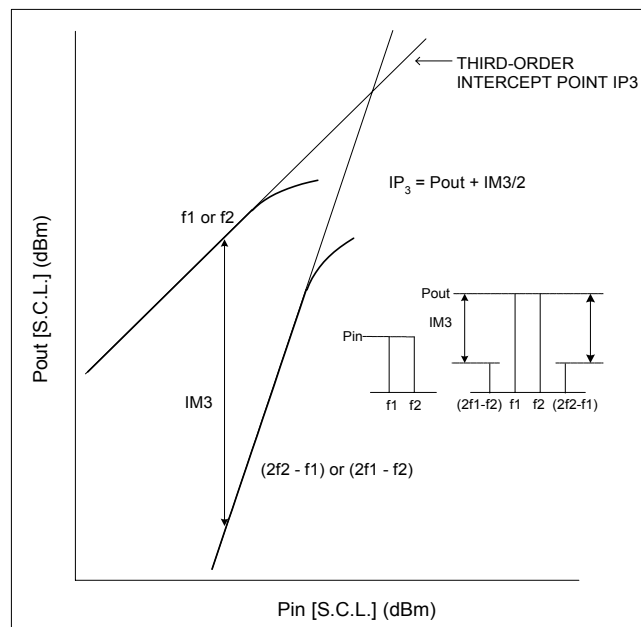
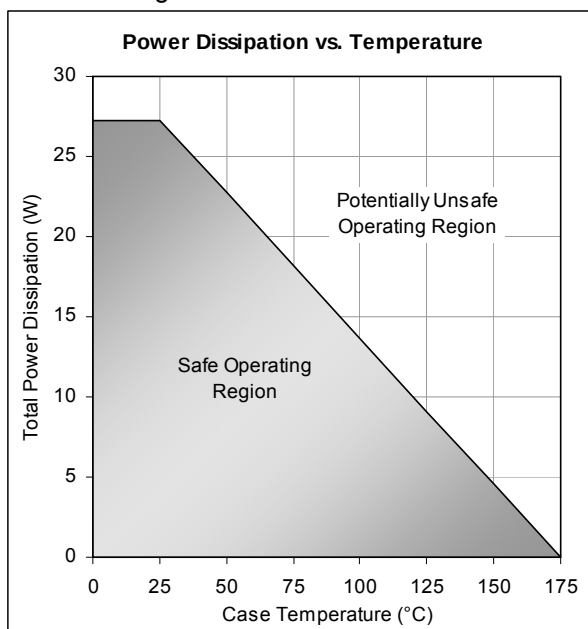


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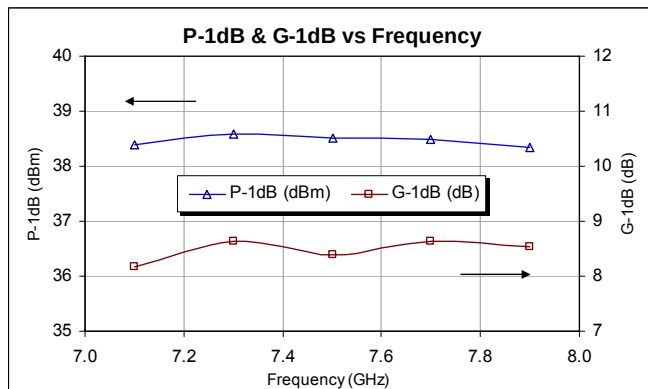
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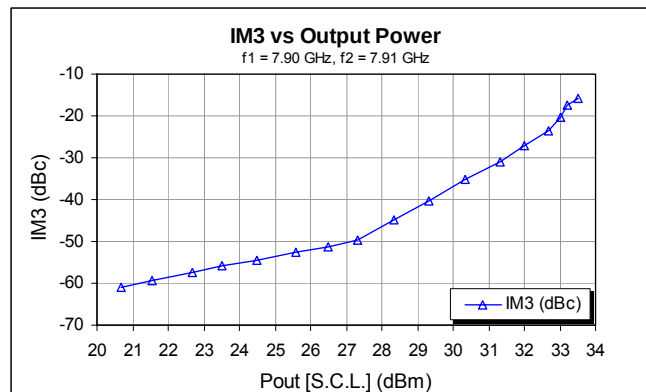
Power De-rating Curve and IM3 Definition



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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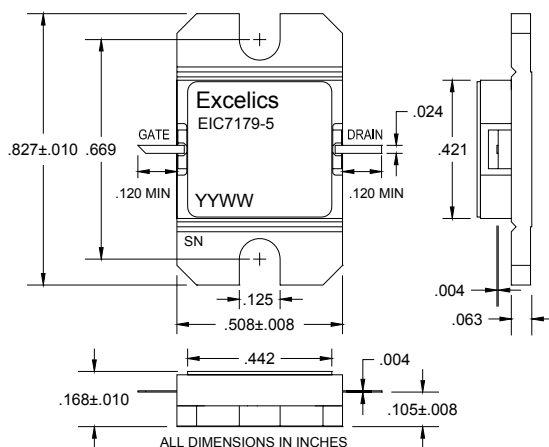
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PACKAGES OUTLINE

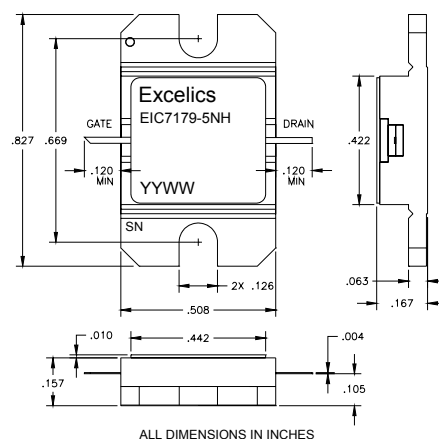
Dimensions in inches, Tolerance $\pm .005$ unless otherwise specified

EIC7179-5 (Hermetic)



Caution! ESD sensitive device.

EIC7179-5NH (Non-Hermetic)



Caution! ESD sensitive device.

ORDERING INFORMATION

Part Number	Packages	Grade ¹	f _{Test} (GHz)	P _{1dB} (min)	IM ₃ (min) ²
EIC7179-5	Hermetic	Industrial	7.10-7.90GHz	36.5	-43
EIC7179-5NH	Non-Hermetic	Industrial	7.10-7.90GHz	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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