

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°C)

SYMBOL	PARAMETERS/TEST CONDITIONS ¹	MIN	TYP	MAX	UNITS
P_{1dB}	Output Power at 1dB Compression f = 7.10-7.90GHz V _{DS} = 10 V, I _{DSQ} ≈ 1600mA	36.5	37.5		dBm
G_{1dB}	Gain at 1dB Compression f = 7.10-7.90GHz V _{DS} = 10 V, I _{DSQ} ≈ 1600mA	7.5	8.5		dB
ΔG	Gain Flatness f = 7.10-7.90GHz 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 = 7.10-7.90GHz		35		%
I_{d1dB}	Drain Current at 1dB Compression f = 7.10-7.90GHz		1600	2000	mA
IM3	Output 3rd Order Intermodulation Distortion Δf = 10 MHz 2-Tone Test; Pout = 25.5 dBm S.C.L. ² V _{DS} = 10 V, I _{DSQ} ≈ 65% IDSS f = 7.90GHz	-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.



EIC7179-5

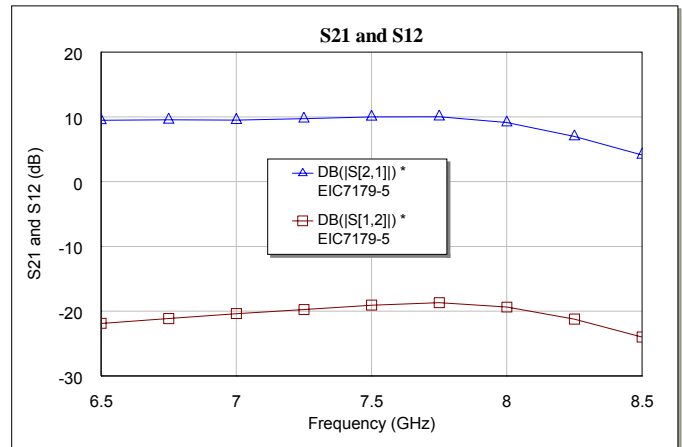
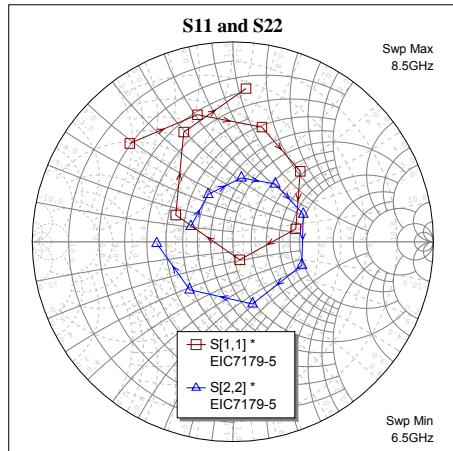
UPDATED 08/21/2007

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

PERFORMANCE DATA

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

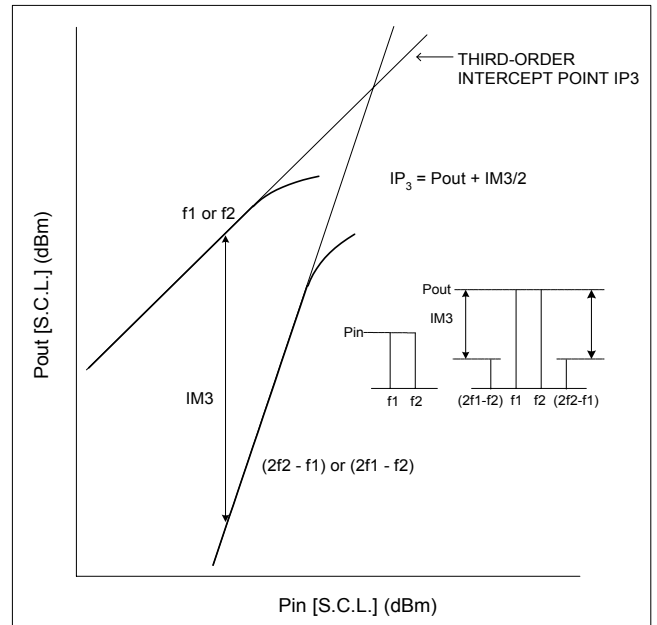
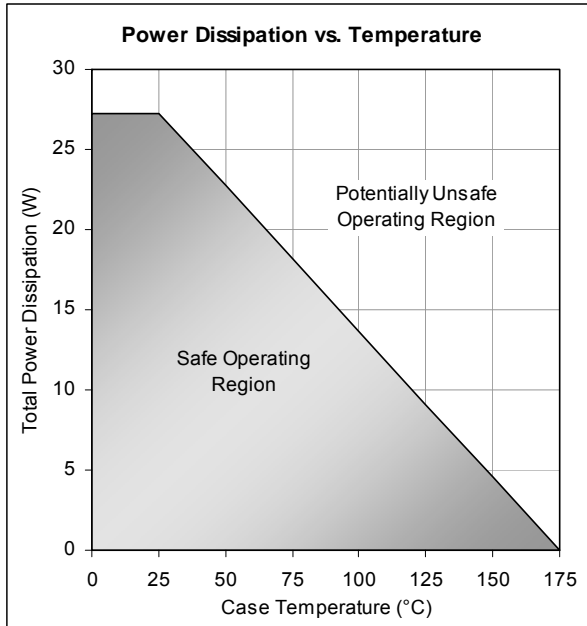
$V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 1600\text{mA}$



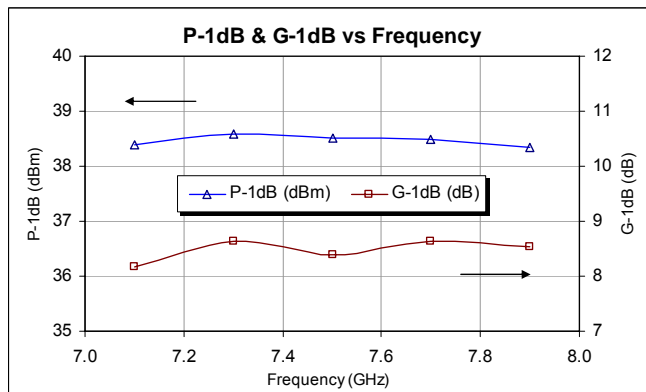
FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
6.25	0.752	168.140	2.901	-7.820	0.073	-64.840	0.232	-147.530
6.50	0.711	136.260	2.974	-39.130	0.081	-97.090	0.224	159.760
6.75	0.659	105.510	3.004	-70.350	0.088	-127.140	0.267	117.460
7.00	0.591	75.820	2.986	-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

Specifications are subject to change without notice.

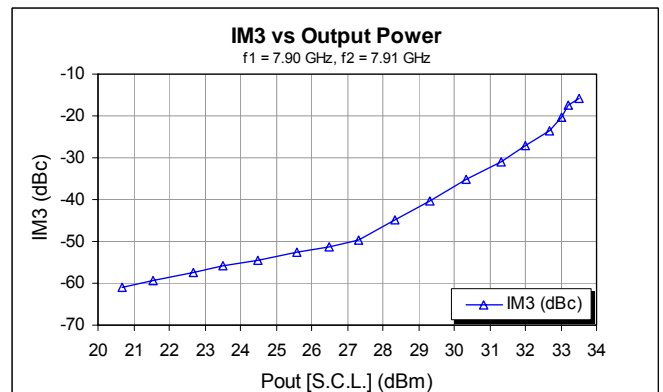
Power De-rating Curve and IM3 Definition



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



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





EIC7179-5

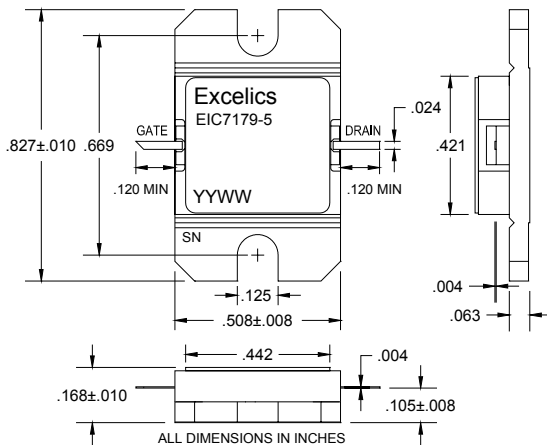
UPDATED 08/21/2007

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

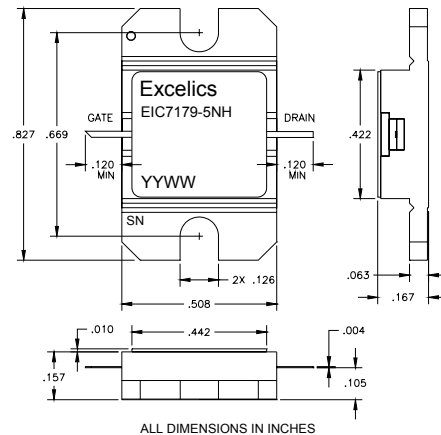
PACKAGES OUTLINE

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

EIC7179-5 (Hermetic)



EIC7179-5NH (Non-Hermetic)



Caution! ESD sensitive device.



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.

DISCLAIMER

EXCELICS SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. EXCELICS DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN.

LIFE SUPPORT POLICY

EXCELICS SEMICONDUCTOR PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF EXCELICS SEMICONDUCTOR, INC. AS HERE IN:

- Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
- 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

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 4 of 4
Revised October 2007