



EIC7179-4

UPDATED 08/21/2007

7.10-7.90GHz 4-Watt Internally-Matched Power FET

FEATURES

- 7.10–7.90GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +36.5 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} ≈ 1100mA	35.5	36.5		dBm
G _{1dB}	Gain at 1dB Compression f = 7.10-7.90GHz V _{DS} = 10 V, I _{DSQ} ≈ 1100mA	7.5	8.5		dB
ΔG	Gain Flatness f = 7.10-7.90GHz V _{DS} = 10 V, I _{DSQ} ≈ 1100mA			±0.6	dB
PAE	Power Added Efficiency at 1dB Compression V _{DS} = 10 V, I _{DSQ} ≈ 1100mA f = 7.10-7.90GHz		35		%
I _{d1dB}	Drain Current at 1dB Compression f = 7.10-7.90GHz		1200	1400	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		2000	2500	mA
V _P	Pinch-off Voltage V _{DS} = 3 V, I _{DS} = 20 mA		-2.5	-4.0	V
R _{TH}	Thermal Resistance ³		5.5	6.0	°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	48mA	14.4mA
I _{gr}	Reverse Gate Current	-9.6mA	-2.4mA
P _{in}	Input Power	36dBm	@ 3dB Compression
T _{ch}	Channel Temperature	175C	175C
T _{stg}	Storage Temperature	-65C to +175C	-65C to +175C
P _t	Total Power Dissipation	25W	25W

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

page 1 of 4

Revised October 2007
www.DataSheet4U.com



EIC7179-4

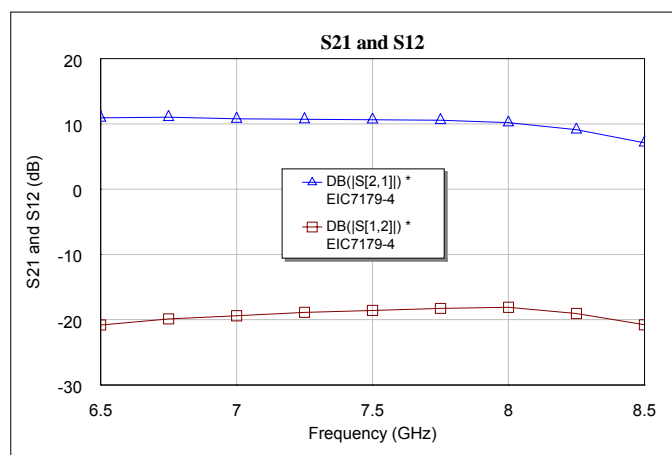
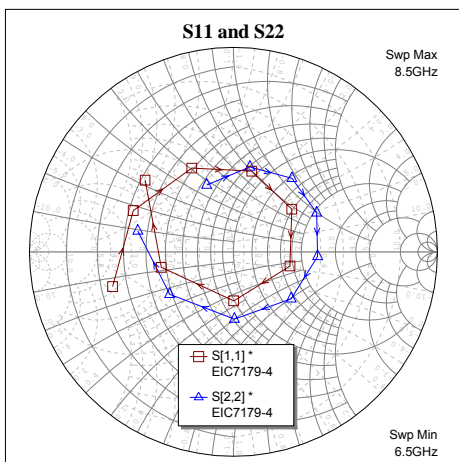
UPDATED 08/21/2007

7.10-7.90GHz 4-Watt Internally-Matched Power FET

PERFORMANCE DATA

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

$V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 1100\text{ mA}$



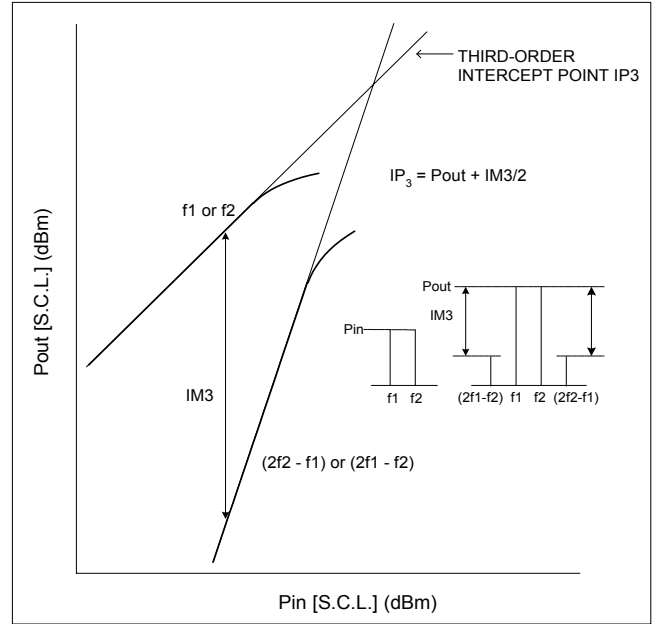
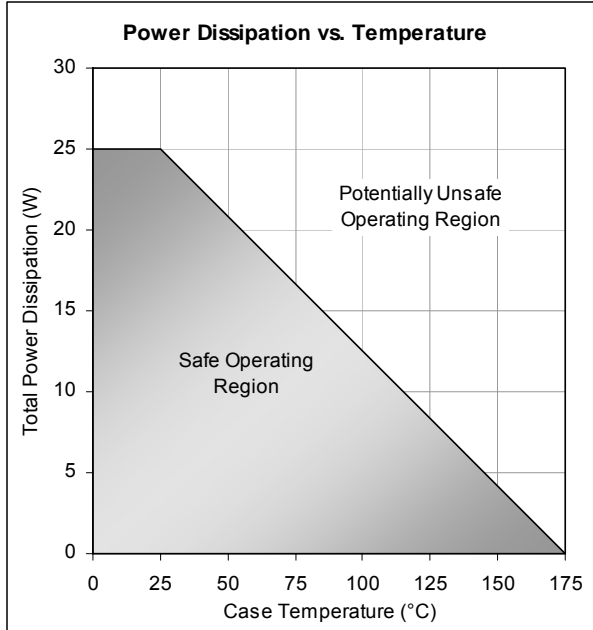
FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
6.25	0.717	-129.010	3.341	8.410	0.078	-50.550	0.258	158.370
6.50	0.616	-164.030	3.517	-25.170	0.091	-84.550	0.352	111.870
6.75	0.531	157.650	3.563	-58.820	0.101	-117.910	0.422	78.950
7.00	0.458	116.510	3.454	-90.850	0.107	-148.130	0.460	51.440
7.25	0.405	77.140	3.425	-121.930	0.114	-179.030	0.451	25.010
7.50	0.354	36.120	3.404	-154.300	0.118	149.090	0.413	-2.990
7.75	0.285	-14.050	3.372	171.750	0.122	117.150	0.365	-39.080
8.00	0.240	-89.650	3.238	134.430	0.125	81.280	0.329	-89.170
8.25	0.362	-167.970	2.854	95.090	0.111	42.800	0.375	-146.450
8.50	0.557	140.990	2.268	56.400	0.091	6.000	0.480	167.620
8.75	0.698	106.670	1.652	22.050	0.068	-26.910	0.568	137.060

Specifications are subject to change without notice.

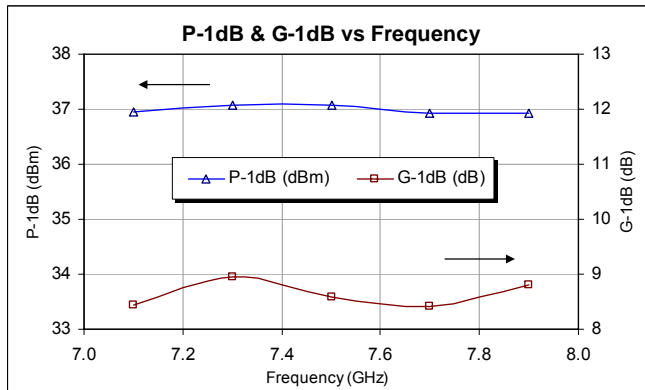
Excelics Semiconductor, Inc. 310 De Guigne Drive, Sunnyvale, CA 94085
 Phone: 408-737-1711 Fax: 408-737-1868 Web: www.excelics.com

page 2 of 4
 Revised October 2007
www.DataSheet4U.com

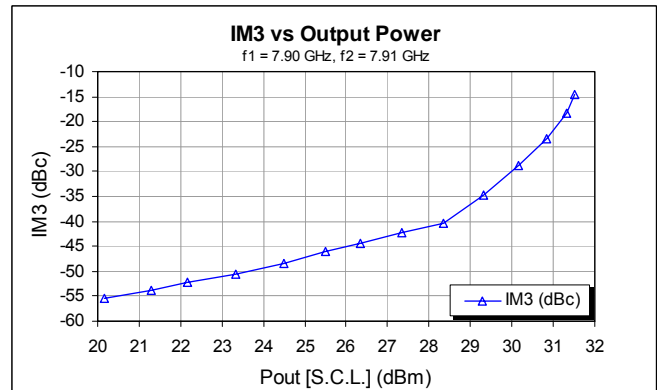
Power De-rating Curve and IM3 Definition



Typical Power Data ($V_{DS} = 10\text{ V}$, $I_{DSQ} = 1100\text{ mA}$)



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





EIC7179-4

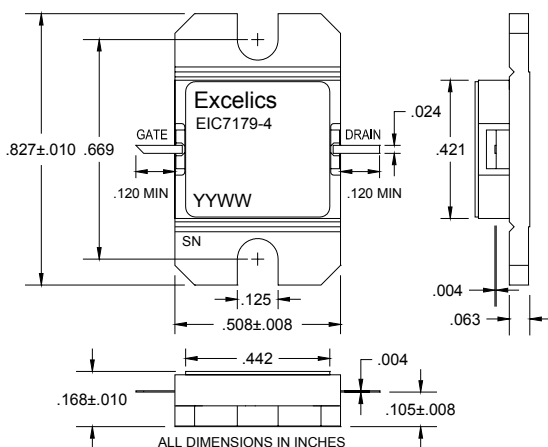
UPDATED 08/21/2007

7.10-7.90GHz 4-Watt Internally-Matched Power FET

PACKAGES OUTLINE

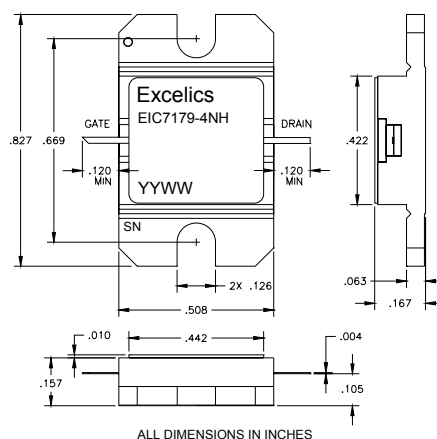
Dimensions in inches, Tolerance $\pm .005$ unless otherwise specified

EIC7179-4 (Hermetic)



Caution! ESD sensitive device.

EIC7179-4NH (Non-Hermetic)



Caution! ESD sensitive device.

ORDERING INFORMATION

Part Number	Packages	Grade ¹	f _{Test} (GHz)	P _{1dB} (min)	IM ₃ (min) ²
EIC7179-4	Hermetic	Industrial	7.10-7.90GHz	35.5	-43
EIC7179-4NH	Non-Hermetic	Industrial	7.10-7.90GHz	35.5	-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
www.DataSheet4U.com