



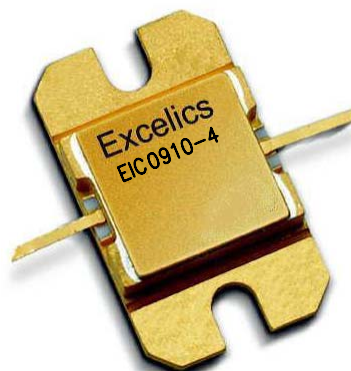
EIC0910-4

UPDATED 08/21/2007

9.50-10.50GHz 4-Watt Internally-Matched Power FET

FEATURES

- 9.50–10.50GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +36.5 dBm Output Power at 1dB Compression
- 7.5 dB Power Gain at 1dB Compression
- 30% 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 = 9.50-10.50GHz V _{DS} = 10 V, I _{DSQ} ≈ 1100mA	35.5	36.5		dBm
G _{1dB}	Gain at 1dB Compression f = 9.50-10.50GHz V _{DS} = 10 V, I _{DSQ} ≈ 1100mA	6.5	7.5		dB
ΔG	Gain Flatness f = 9.50-10.50GHz 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 = 9.50-10.50GHz		30		%
I _{d1dB}	Drain Current at 1dB Compression f = 9.50-10.50GHz		1200	1300	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 = 10.50GHz	-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.

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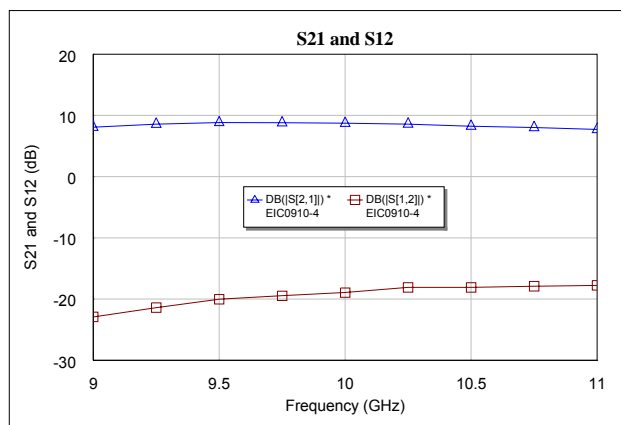
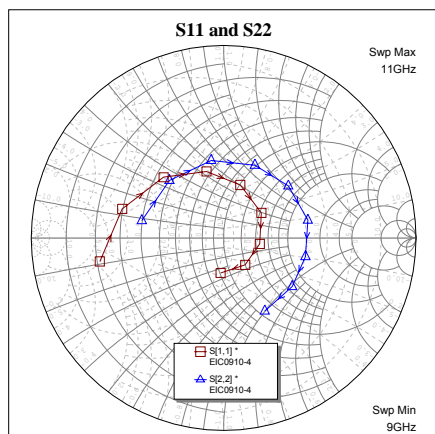
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PERFORMANCE DATA

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

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



FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
8.75	0.737	-144.630	2.269	-6.970	0.057	-49.810	0.470	-160.060
9.00	0.655	-169.280	2.531	-33.010	0.071	-78.500	0.435	168.080
9.25	0.549	164.010	2.683	-59.860	0.085	-105.960	0.411	133.320
9.50	0.444	134.710	2.765	-86.790	0.100	-134.450	0.408	99.190
9.75	0.357	104.470	2.755	-112.980	0.106	-161.110	0.411	66.750
10.00	0.289	72.550	2.727	-137.970	0.113	174.650	0.431	38.790
10.25	0.235	33.570	2.687	-163.320	0.124	150.320	0.447	11.850
10.50	0.191	-9.260	2.581	172.160	0.124	124.660	0.437	-12.860
10.75	0.179	-51.300	2.519	148.030	0.127	101.940	0.436	-35.330
11.00	0.182	-94.880	2.427	123.370	0.129	78.470	0.436	-60.600
11.25	0.183	-136.850	2.332	98.400	0.131	53.300	0.431	-86.500

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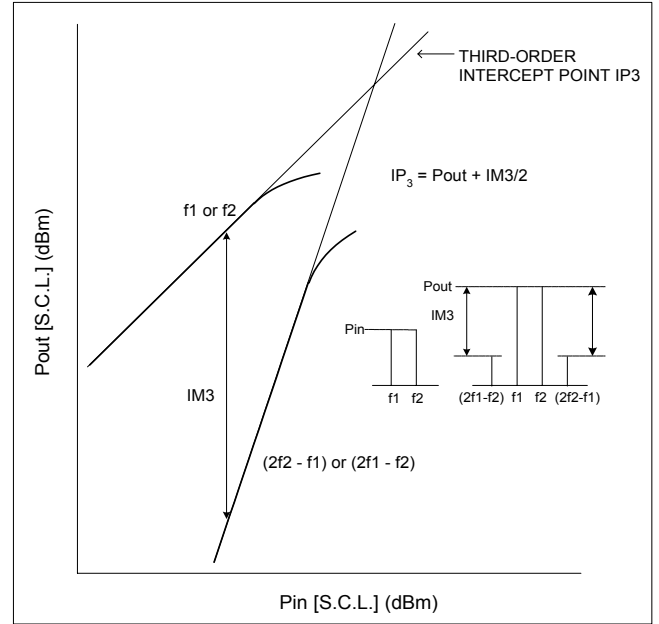
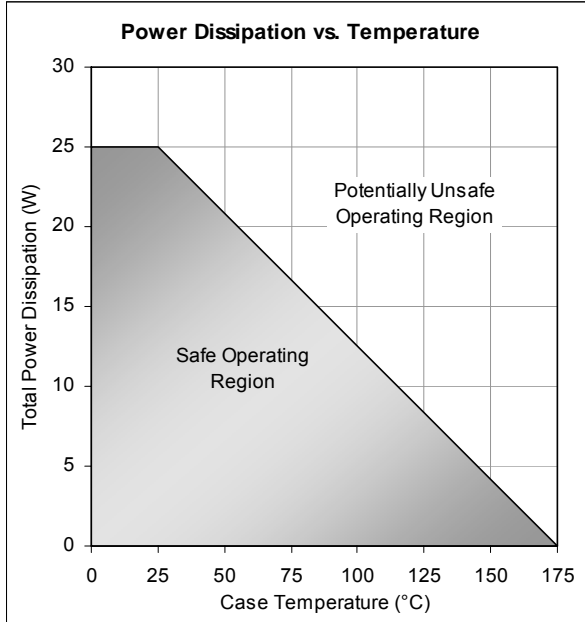


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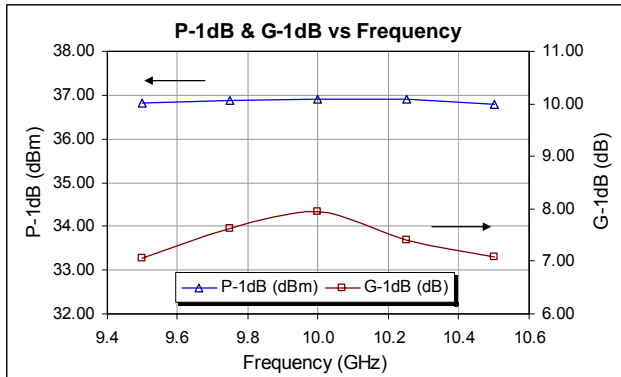
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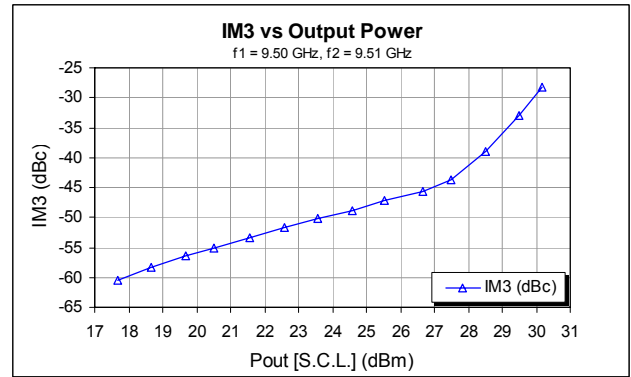
Power De-rating Curve and IM3 Definition



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



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



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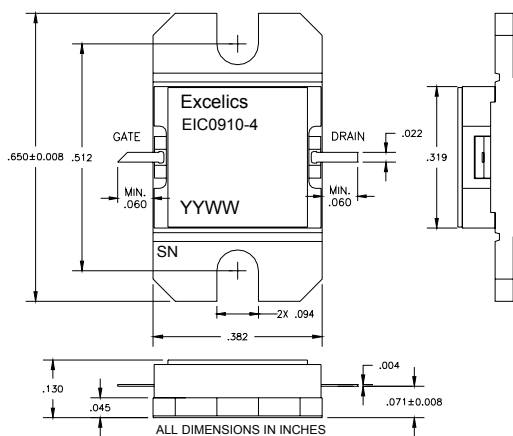
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PACKAGES OUTLINE

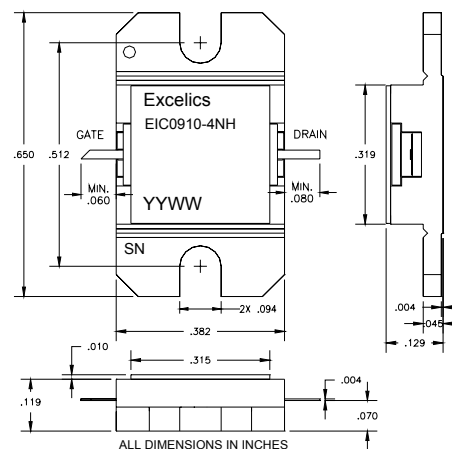
Dimensions in inches, Tolerance $\pm .005$ unless otherwise specified

EIC0910-4 (Hermetic)



Caution! ESD sensitive device.

EIC0910-4NH (Non-Hermetic)



Caution! ESD sensitive device.

ORDERING INFORMATION

Part Number	Packages	Grade ¹	f _{Test} (GHz)	P _{1dB} (min)	IM ₃ (min) ²
EIC0910-4	Hermetic	Industrial	9.50-10.50GHz	35.5	-43
EIC0910-4NH	Non-Hermetic	Industrial	9.50-10.50GHz	35.5	-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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