EIC0910-2

UPDATED 08/21/2007

9.50-10.50GHz 2-Watt Internally-Matched Power FET

FEATURES

- **9.50 –10.50GHz Bandwidth**
- **Input/Output Impedance Matched to 50 Ohms**
- **+33.5 dBm Output Power at 1dB Compression**
- **8.0 dB Power Gain at 1dB Compression**
- **30% Power Added Efficiency**
- **-46 dBc IM3 at Po = 22.5 dBm SCL**
- **100% Tested for DC, RF, and R_{TH}**

ELECTRICAL CHARACTERISTICS (T_a = 25°C)

Caution! ESD sensitive device.

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} ≈ 550mA	32.5	33.5		dBm
G_{1dB}	Gain at 1dB Compression f = 9.50-10.50GHz V_{DS} = 10 V, I_{DSQ} ≈ 550mA	7.0	8.0		dB
ΔG	Gain Flatness f = 9.50-10.50GHz V_{DS} = 10 V, I_{DSQ} ≈ 550mA			±0.6	dB
PAE	Power Added Efficiency at 1dB Compression V_{DS} = 10 V, I_{DSQ} ≈ 550mA f = 9.50-10.50GHz		30		%
Id_{1dB}	Drain Current at 1dB Compression f = 9.50-10.50GHz		600	700	mA
IM3	Output 3rd Order Intermodulation Distortion Δf = 10 MHz 2-Tone Test; Pout = 22.5 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		1000	1250	mA
V_P	Pinch-off Voltage V_{DS} = 3 V, I_{DS} = 10 mA		-2.5	-4.0	V
R_{TH}	Thermal Resistance[3]		11	12	°C/W

Note: 1. Tested with 100 Ohm gate resistor.
2. S.C.L. = Single Carrier Level.
3. Overall Rth depends on case mounting.

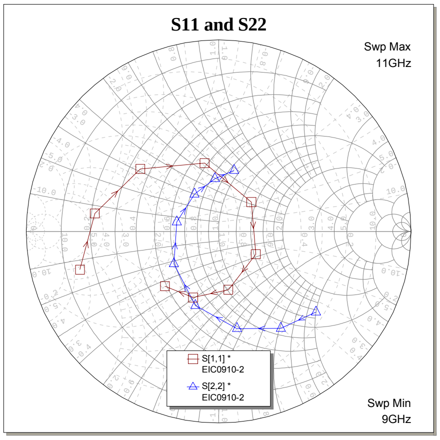
ABSOLUTE MAXIMUM RATING FOR EFE

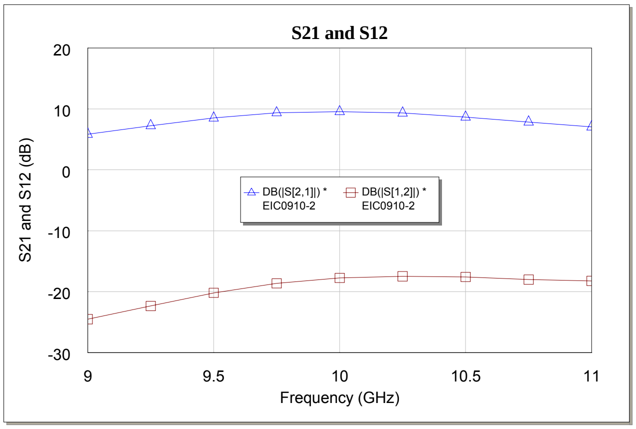
SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	15V	10V
Vgs	Gate-Source Voltage	-5V	-4V
Igf	Forward Gate Current	24mA	7.2mA
Igr	Reverse Gate Current	-4.8mA	-1.2mA
Pin	Input Power	33.0dBm	@ 3dB Compression
Tch	Channel Temperature	175C	175C
Tstg	Storage Temperature	-65C to +175C	-65C to +175C
Pt	Total Power Dissipation	12.5W	12.5W

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.

PERFORMANCE DATA

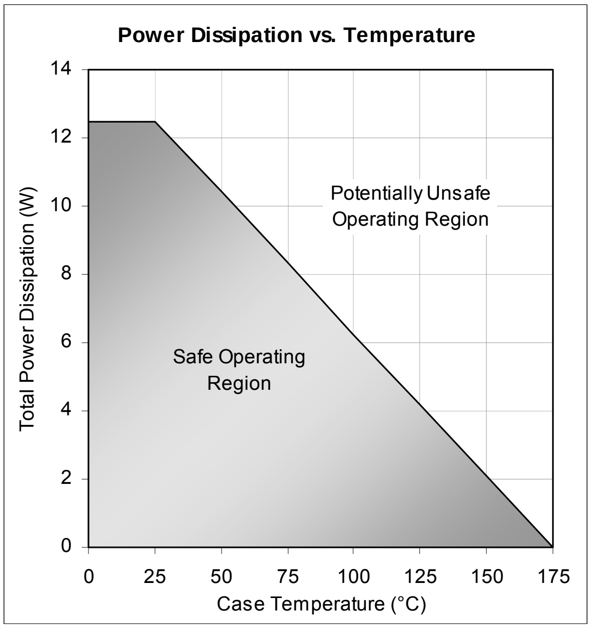
Typical S-Parameters (T= 25°C, 50Ω system, de-embedded to edge of package)
V_{DS} = 10 V, I_{DSQ} = 550mA

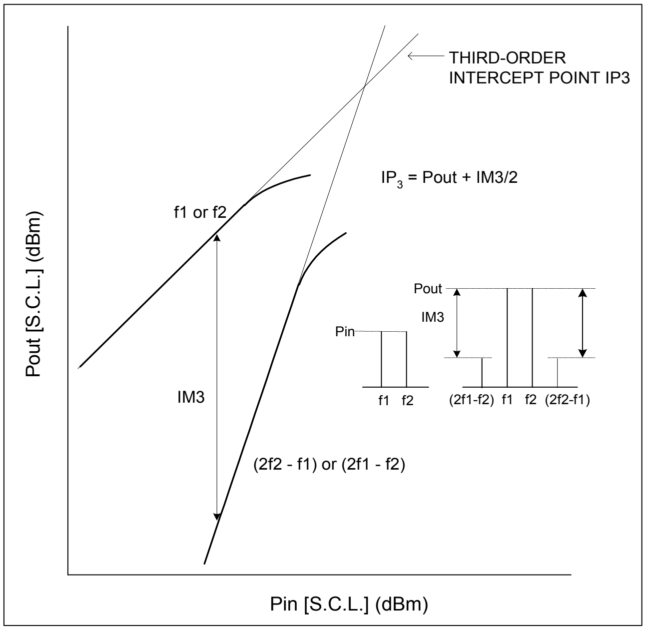




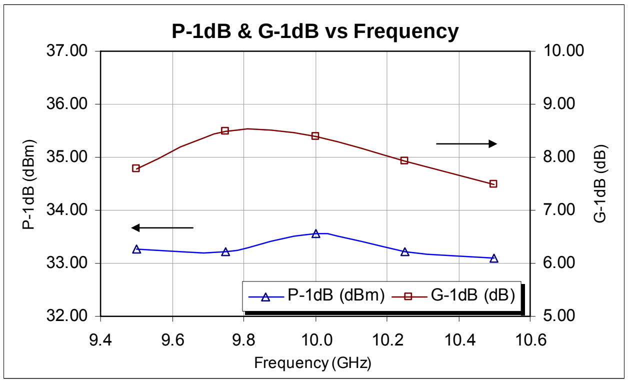
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
8.75	0.801	-144.750	1.666	55.890	0.045	10.590	0.698	-25.380
9.00	0.748	-164.560	1.962	36.560	0.059	-9.970	0.658	-39.760
9.25	0.650	171.690	2.305	14.740	0.076	-32.680	0.600	-57.400
9.50	0.522	141.280	2.669	-10.520	0.098	-58.510	0.516	-79.320
9.75	0.364	101.620	2.943	-38.640	0.117	-86.820	0.405	-107.410
10.00	0.229	42.070	3.009	-67.750	0.130	-115.840	0.288	-144.010
10.25	0.227	-31.690	2.929	-95.780	0.134	-143.460	0.223	167.180
10.50	0.309	-80.620	2.712	-122.110	0.132	-168.960	0.232	122.730
10.75	0.369	-111.080	2.470	-146.280	0.126	168.060	0.276	93.950
11.00	0.399	-134.340	2.254	-168.390	0.123	146.710	0.329	75.830
11.25	0.402	-154.030	2.085	170.040	0.117	126.180	0.377	62.360

Power De-rating Curve and IM3 Definition

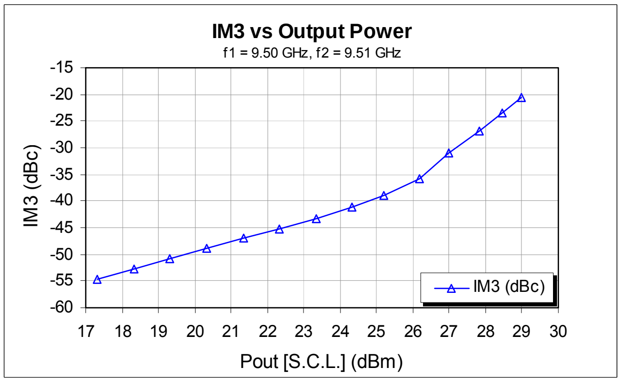




Typical Power Data (V_{DS} = 10 V, I_{DSQ} = 550 mA)



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



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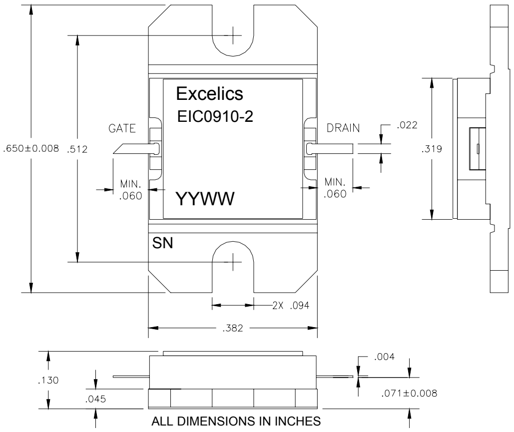
PACKAGES OUTLINE

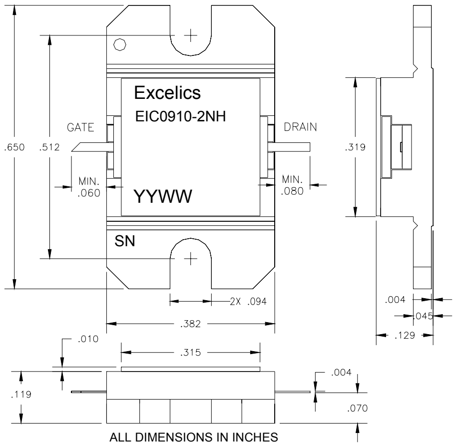
Dimensions in inches, Tolerance ± .005 unless otherwise specified

EIC0910-2 (Hermetic)



Caution! ESD sensitive device.

EIC0910-2NH (Non-Hermetic)



Caution! ESD sensitive device.

ORDERING INFORMATION

Part Number	Packages	Grade[1]	f_{Test} (GHz)	P_{1dB} (min)	IM_3 (min)[2]
EIC0910-2	Hermetic	Industrial	9.50-10.50GHz	32.5	-43
EIC0910-2NH	Non-Hermetic	Industrial	9.50-10.50GHz	32.5	-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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