EID1415A1-8

UPDATED 11/12/2007

14.40-15.35GHz 8-Watt Internally-Matched Power FET

FEATURES

- **14.40-15.35GHz Bandwidth**
- **Input/Output Impedance Matched to 50 Ohms**
- **+39.5 dBm Output Power at 1dB Compression**
- **6.5 dB Power Gain at 1dB Compression**
- **27% Power Added Efficiency**
- **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 =14.40-15.35GHz V_{DS} = 10 V, I_{DSQ} ≈ 2200mA	38.5	39.5		dBm
G_{1dB}	Gain at 1dB Compression f =14.40-15.35GHz V_{DS} = 10 V, I_{DSQ} ≈ 2200mA	5.5	6.5		dB
ΔG	Gain Flatness f =14.40-15.35GHz V_{DS} = 10 V, I_{DSQ} ≈ 2200mA			±0.6	dB
PAE	Power Added Efficiency at 1dB Compression V_{DS} = 10 V, I_{DSQ} ≈ 2200mA f =14.40-15.35GHz		27		%
Id_{1dB}	Drain Current at 1dB Compression f =14.40-15.35GHz		2800	3600	mA
I_{DSS}	Saturated Drain Current V_{DS} = 3 V, V_{GS} = 0 V		4200	5760	mA
V_P	Pinch-off Voltage V_{DS} = 3 V, I_{DS} = 40 mA		-1.2	-2.5	V
R_{TH}	Thermal Resistance[3]		3.5	4.0	°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	96.0mA	28.8mA
Igr	Reverse Gate Current	-19.2mA	-4.8mA
Pin	Input Power	38.5dBm	@ 3dB Compression
Tch	Channel Temperature	175C	175C
Tstg	Storage Temperature	-65C to +175C	-65C to +175C
Pt	Total Power Dissipation	37.5W	37.5W

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.

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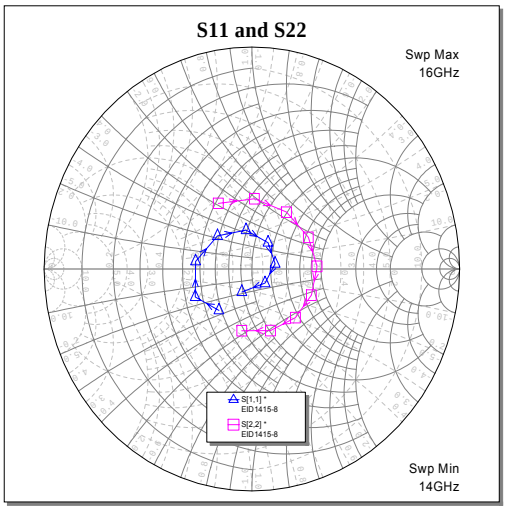
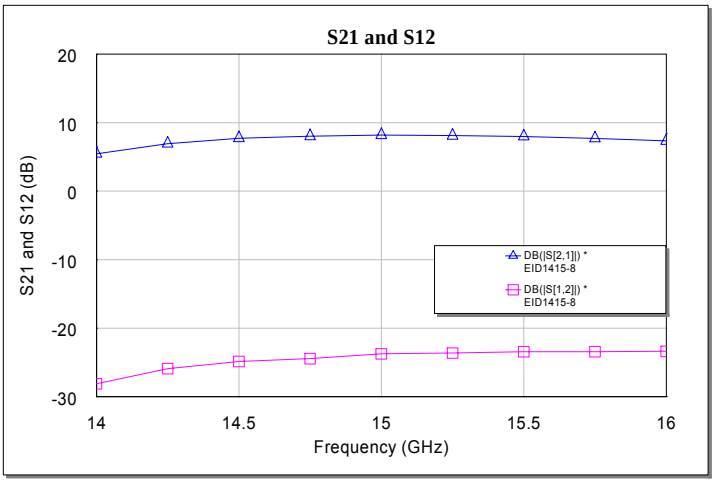
PERFORMANCE DATA

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

V_{DS} = 10 V, I_{DSQ} ≈ 2200mA





FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
14.00	0.2450	-130.30	1.8778	115.29	0.0393	99.39	0.3370	118.62
14.20	0.2992	-148.84	2.1685	100.98	0.0463	85.54	0.3201	94.18
14.40	0.2904	-173.75	2.3778	82.93	0.0540	66.32	0.3111	68.35
14.60	0.2558	159.14	2.4914	64.05	0.0582	47.41	0.3062	43.95
14.80	0.2117	130.18	2.5593	45.58	0.0635	26.31	0.3090	22.47
15.00	0.1773	98.99	2.5706	27.10	0.0649	8.39	0.3143	2.10
15.20	0.1484	65.63	2.5618	8.94	0.0656	-11.68	0.3119	-17.31
15.40	0.1225	30.44	2.5022	-9.51	0.0675	-31.59	0.3086	-36.12
15.60	0.1012	-7.86	2.4780	-27.74	0.0667	-50.84	0.2987	-55.37
15.80	0.0906	-59.05	2.4084	-46.06	0.0671	-69.19	0.2882	-76.98
16.00	0.1147	-115.00	2.3324	-64.47	0.0677	-88.41	0.2827	-99.97

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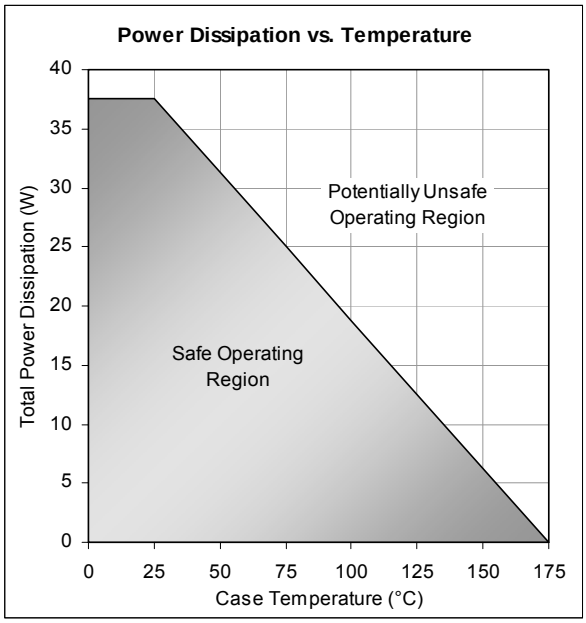
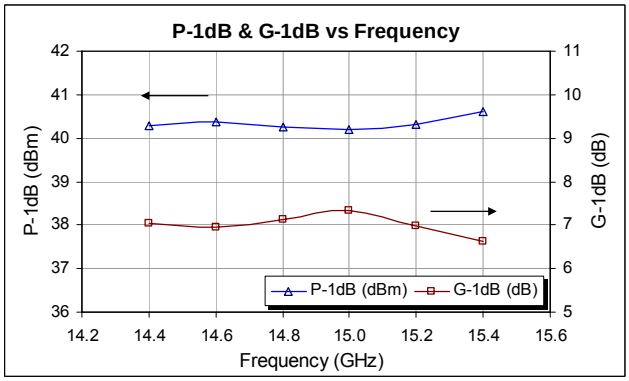
Power De-rating Curve



Typical Power Data (V_{DS} = 10 V, I_{DSQ} = 2200 mA)



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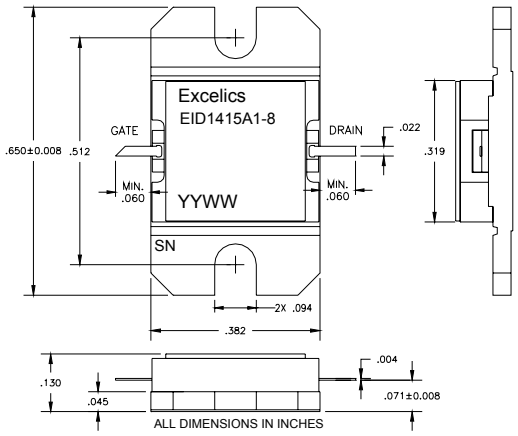
PACKAGES OUTLINE

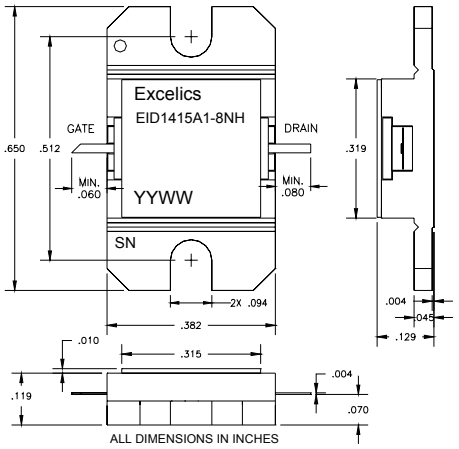
Dimensions in inches, Tolerance ± .005 unless otherwise specified

EID1415A1-8 (Hermetic)



Caution! ESD sensitive device.

EID1415A1-8NH (Non-Hermetic)



Caution! ESD sensitive device.

ORDERING INFORMATION

Part Number	Packages	Grade[1]	f_{Test} (GHz)	P_{1dB} (min)
EID1415A1-8	Hermetic	Industrial	14.40-15.35GHz	38.5
EID1415A1-8NH	Non-Hermetic	Industrial	14.40-15.35GHz	38.5

Notes: 1. Contact factory for military and hi-rel grades.
2. Exact test conditions are specified in “Electrical Characteristics” table.

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2. 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