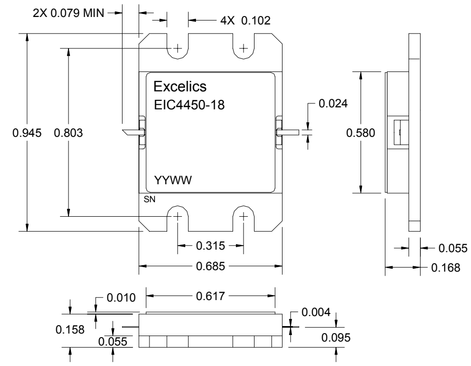
EIC4450-18

UPDATED: 10/18/2007

4.40-5.00GHz 18-Watt Internally Matched Power FET



FEATURES

- **4.40– 5.00GHz Bandwidth**
- **Input/Output Impedance Matched to 50 Ohms**
- **+42.5 dBm Output Power at 1dB Compression**
- **9.5 dB Power Gain at 1dB Compression**
- **33% Power Added Efficiency**
- **-46 dBc IM3 at Po = 31.5 dBm SCL**
- **Hermetic Metal Flange Package**
- **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 = 4.40-5.00GHz V_{DS} = 10 V, I_{DSQ} ≈ 4500mA	41.5	42.5		dBm
G_{1dB}	Gain at 1dB Compression f = 4.40-5.00GHz V_{DS} = 10 V, I_{DSQ} ≈ 4500mA	8.5	9.5		dB
ΔG	Gain Flatness f = 4.40-5.00GHz V_{DS} = 10 V, I_{DSQ} ≈ 4500mA			±0.8	dB
PAE	Power Added Efficiency at 1dB Compression V_{DS} = 10 V, I_{DSQ} ≈ 4500mA f = 4.40-5.00GHz		33		%
Id_{1dB}	Drain Current at 1dB Compression f = 4.40-5.00GHz		4800	5500	mA
IM3	Output 3rd Order Intermodulation Distortion Δf = 10 MHz 2-Tone Test; Pout = 31.5 dBm S.C.L[2] V_{DS} = 10 V, I_{DSQ} ≈ 65% IDSS f = 5.00GHz	-43	-46		dBc
I_{DSS}	Saturated Drain Current V_{DS} = 3 V, V_{GS} = 0 V		9000	13000	mA
V_P	Pinch-off Voltage V_{DS} = 3 V, I_{DS} = 84 mA		-2.5	-4.0	V
R_{TH}	Thermal Resistance[3]		1.6	1.8	°C/W

Note: 1. Tested with 50 Ohm gate resistor.
2. S.C.L. = Single Carrier Level.
3. Overall Rth depends on case mounting.

ABSOLUTE MAXIMUM RATING

SYMBOLS	PARAMETERS	ABSOLUTE	CONTINUOUS
Vds	Drain-Source Voltage	15V	10V
Vgs	Gate-Source Voltage	-5V	-4V
Igf	Forward Gate Current	105mA	31.6mA
Igr	Reverse Gate Current	-21.5mA	-5.2mA
Pin	Input Power	41.5dBm	@ 3dB Compression
Tch	Channel Temperature	175C	175C
Tstg	Storage Temperature	-65C to +175C	-65C to +175C
Pt	Total Power Dissipation	83W	83W

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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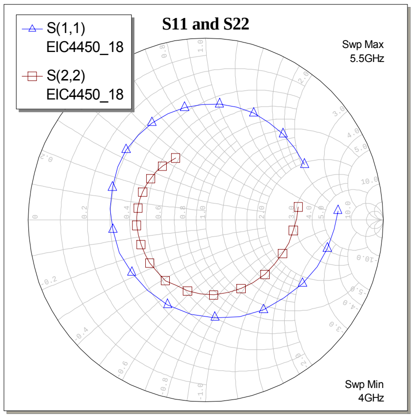
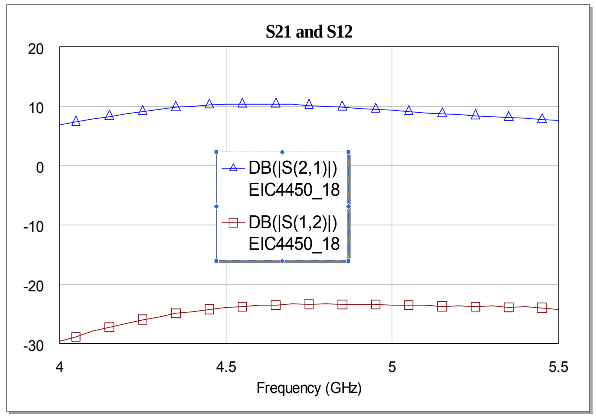
PERFORMANCE DATA

Typical S-Parameters (T= 25°C, 50Ω system, de-embedded to edge of package)
V_{DS} = 10 V, $I_{DSQ} \approx$ 4500mA





FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
4.0	0.746	3.87	2.188	174.37	0.0331	128.97	0.5264	7.77
4.1	0.702	-12.85	2.46	159.41	0.0402	110.29	0.4961	-6.7
4.2	0.648	-32.72	2.728	142.86	0.0469	91.51	0.471	-23.1
4.3	0.592	-56.68	2.984	124.95	0.0529	73.93	0.449	-41.93
4.4	0.54	-84.5	3.166	106.51	0.0589	51.54	0.426	-62.11
4.5	0.513	-114.65	3.274	87.23	0.064	31.7	0.415	-83.8
4.6	0.507	-145.16	3.3	68.35	0.066	11.24	0.404	-104.74
4.7	0.525	-174.09	3.269	49.83	0.068	-9.18	0.404	-124.18
4.8	0.555	161.21	3.155	32.31	0.0683	-26.7	0.395	-143.18
4.9	0.592	139.36	3.034	15.48	0.068	-44.52	0.389	-159.55
5.0	0.614	119.6	2.911	-0.65	0.067	-59.98	0.391	-175.53
5.1	0.629	100.93	2.784	-16.08	0.066	-76.99	0.388	170.32
5.2	0.642	83.03	2.685	-31.48	0.066	-93.09	0.387	156.69
5.3	0.646	65.36	2.574	-46.6	0.066	-108.81	0.384	143.89
5.4	0.643	47.31	2.498	-62.2	0.065	-123.52	0.384	129.44
5.5	0.635	28.7	2.394	-77.25	0.062	-138.54	0.381	116.51

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