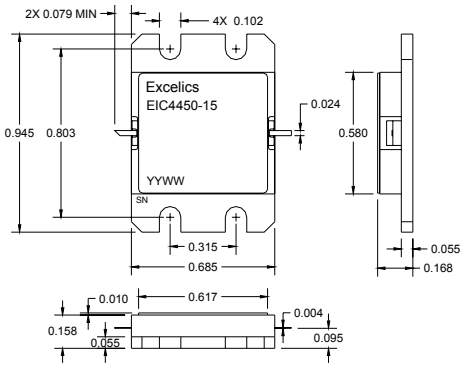
EIC4450-15

ISSUED: 03/30/2009

4.40-5.00GHz 15-Watt Internally Matched Power FET



FEATURES

- **4.40– 5.00GHz Bandwidth**
- **Input/Output Impedance Matched to 50 Ohms**
- **+42 dBm Output Power at 1dB Compression**
- **10.5 dB Power Gain at 1dB Compression**
- **31% Power Added Efficiency**
- **-46 dBc IM3 at Po = 31 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	42		dBm
G_{1dB}	Gain at 1dB Compression f = 4.40-5.00GHz V_{DS} = 10 V, I_{DSQ} ≈ 4500mA	9.5	10.5		dB
ΔG	Gain Flatness f = 4.40-5.00GHz V_{DS} = 10 V, I_{DSQ} ≈ 4500mA			±0.7	dB
PAE	Power Added Efficiency at 1dB Compression V_{DS} = 10 V, I_{DSQ} ≈ 4500mA f = 4.40-5.00GHz		31		%
Id_{1dB}	Drain Current at 1dB Compression f = 4.40-5.00GHz		4500	5100	mA
IM3	Output 3rd Order Intermodulation Distortion Δf = 10 MHz 2-Tone Test; Pout = 31 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]		1.8	2.1	°C/W

Note: 1. Tested with 30 Ohm gate resistor, forward and reverse gate current should nopt exceed 35mA and -5.1mA respectively.
2. S.C.L. = Single Carrier Level.
3. Overall Rth depends on case mounting.

ABSOLUTE MAXIMUM RATING

SYMBOLS	PARAMETERS	ABSOLUTE[1]	OPERATING[2]
Vds	Drain-Source Voltage	15V	10V
Vgs	Gate-Source Voltage	-5V	-4V
Pin	Input Power	Output power reach 3dB Gain Compression point	Output power reach 3dB Gain Compression point
Tch	Channel Temperature	175°C	175°C
Tstg	Storage Temperature	-65°C to +175°C	-65°C to +175°C
Pt	Total Power Dissipation (Tc=25°)	71W	71W

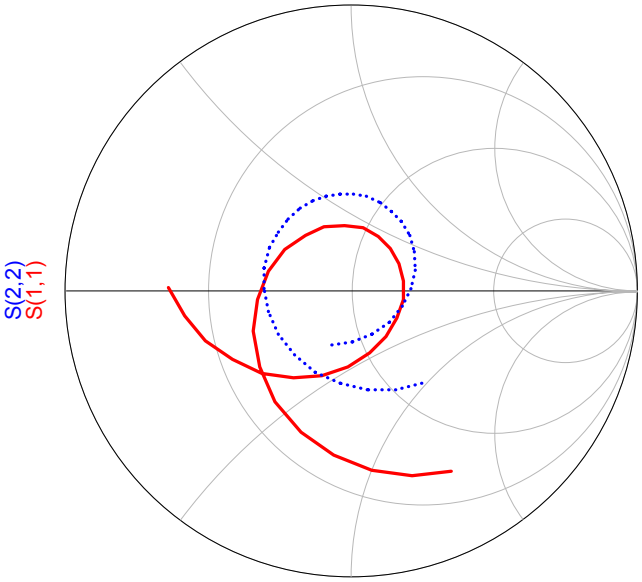
Note: 1. Exceeding any of the above ratings may result in permanent damage.
2. Exceeding any of the above ratings may reduce MTTF below design goals.

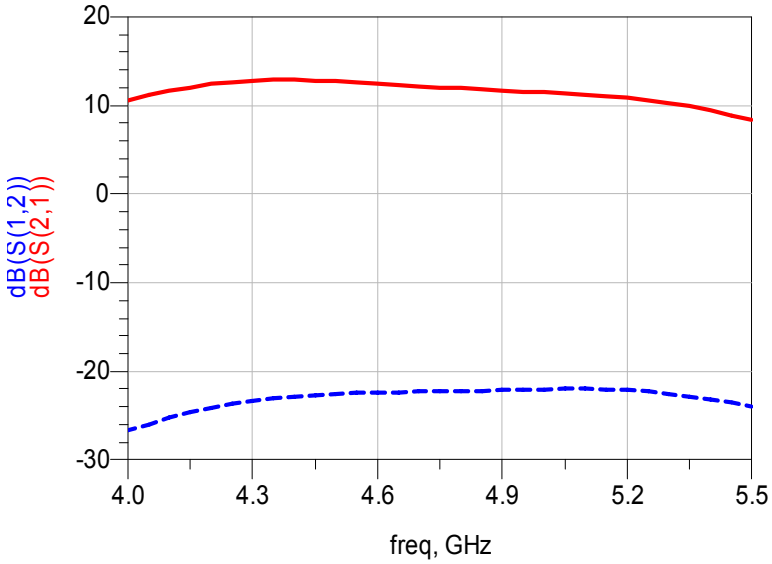
EIC4450-15

ISSUED: 03/30/2009

4.40-5.00GHz 15-Watt Internally Matched Power FET

PERFORMANCE DATA





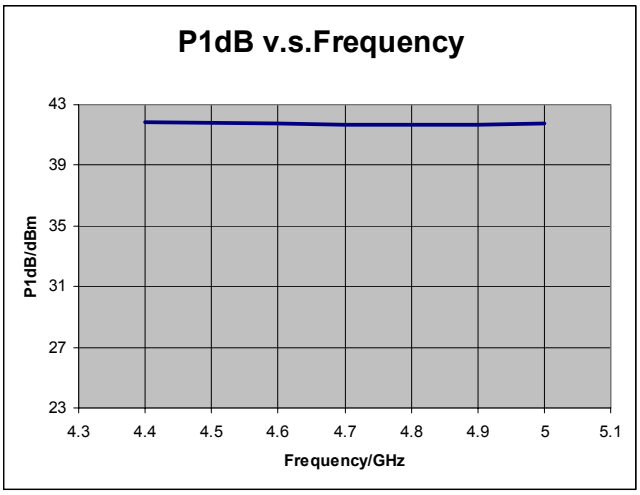
Frequency GHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
4	0.735	-59.2	3.207	91.5	0.046	32.0	0.376	-50.2
4.1	0.651	-81.1	3.636	70.1	0.056	10.1	0.318	-79.4
4.2	0.548	-106.7	3.977	47.4	0.063	-13.9	0.277	-114.1
4.3	0.443	-136.2	4.195	24.1	0.069	-37.0	0.270	-151.3
4.4	0.355	-169.2	4.255	1.0	0.074	-60.4	0.283	175.4
4.5	0.293	155.4	4.184	-21.1	0.077	-82.8	0.307	148.5
4.6	0.255	121.6	4.087	-41.9	0.078	-104.4	0.325	127.5
4.7	0.228	88.7	3.961	-61.8	0.079	-124.9	0.336	109.1
4.8	0.202	57.4	3.855	-81.4	0.080	-145.0	0.337	93.0
4.9	0.178	22.1	3.774	-100.9	0.081	-164.5	0.329	76.8
5	0.165	-22.1	3.682	-120.7	0.082	175.0	0.310	59.4

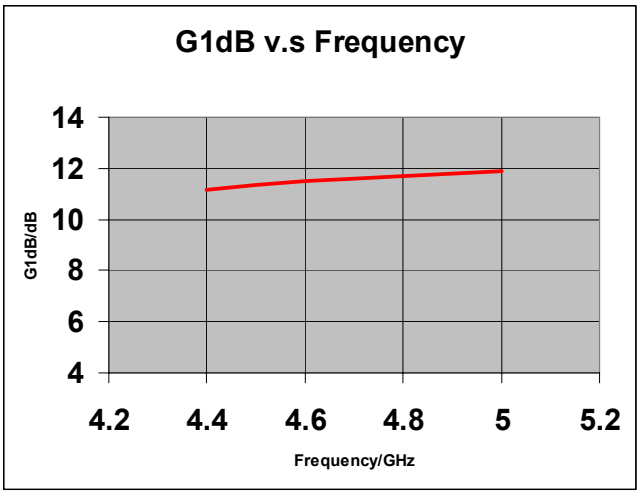
Typical S-Parameters (T= 25°C, 50Ω system, de-embedded to edge of package)
V_{DS} = 10 V, I_{DSQ} ≈ 4500mA

EIC4450-15

ISSUED: 03/30/2009

4.40-5.00GHz 15-Watt Internally Matched Power FET





V_{DS} = 10 V, I_{DSQ} ≈ 4500mA

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:

1. 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.
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