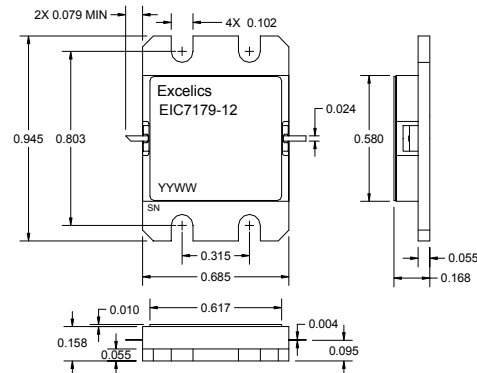


7.10-7.90 GHz 12-Watt Internally Matched Power FET

FEATURES

- 7.10– 7.90GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +41.5 dBm Output Power at 1dB Compression
- 9.0 dB Power Gain at 1dB Compression
- 38% Power Added Efficiency
- -47 dBc IM3 at PO = 28.5 dBm SCL
- Hermetic Metal Flange Package
- 100% Tested for DC, RF, and R_{TH}



ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



Caution! ESD sensitive device.

SYMBOL	PARAMETERS/TEST CONDITIONS ¹	MIN	TYP	MAX	UNITS
P_{1dB}	Output Power at 1dB Compression $f = 7.10\text{-}7.90\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 3250\text{mA}$	40.5	41.5		dBm
G_{1dB}	Gain at 1dB Compression $f = 7.10\text{-}7.90\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 3250\text{mA}$	8.0	9.0		dB
ΔG	Gain Flatness $f = 7.10\text{-}7.90\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 3250\text{mA}$			± 0.6	dB
PAE	Power Added Efficiency at 1dB Compression $f = 7.10\text{-}7.90\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 3200\text{mA}$		38		%
I_{d1dB}	Drain Current at 1dB Compression $f = 7.10\text{-}7.90\text{GHz}$		3500	4150	mA
IM3	Output 3rd Order Intermodulation Distortion $\Delta f = 10\text{ MHz}$ 2-Tone Test; $P_{out} = 28.5\text{ dBm S.C.L}^2$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 65\% IDSS$ $f = 7.90\text{GHz}$	-45	-47		dBc
I_{DSS}	Saturated Drain Current $V_{DS} = 3\text{ V}$, $V_{GS} = 0\text{ V}$		6500	7900	mA
V_P	Pinch-off Voltage $V_{DS} = 3\text{ V}$, $I_{DS} = 62\text{ mA}$		-2.5	-4.0	V
R_{TH}	Thermal Resistance ³		2.3	2.8	$^\circ\text{C/W}$

Note: 1) Tested with 50 Ohm gate resistor.

2) S.C.L. = Single Carrier Level.

3) Overall R_{th} depends on case mounting.

MAXIMUM RATING AT $25^\circ\text{C}^{1,2}$

SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	15	10V
V_{gs}	Gate-Source Voltage	-5	-4V
I_{gsf}	Forward Gate Current	129.6mA	43.2mA
I_{gsr}	Reverse Gate Current	-21.6mA	-7.2mA
P_{in}	Input Power	37dBm	@ 3dB Compression
T_{ch}	Channel Temperature	175 $^\circ\text{C}$	175 $^\circ\text{C}$
T_{stg}	Storage Temperature	-65 to +175 $^\circ\text{C}$	-65 to +175 $^\circ\text{C}$
P_t	Total Power Dissipation	54W	54W

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.

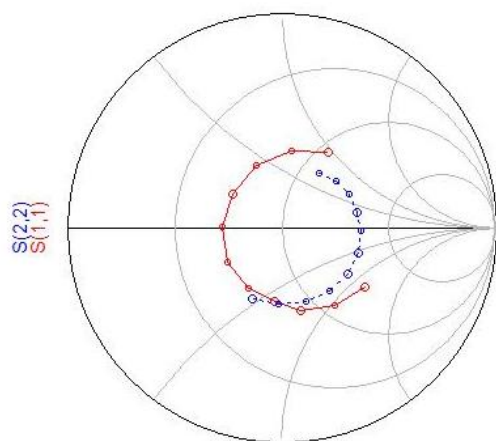
Excelics Semiconductor, Inc. 310 De Guigne Drive, Sunnyvale, CA 94085

Phone: 408-737-1711 Fax: 408-737-1868 Web: www.excelics.com

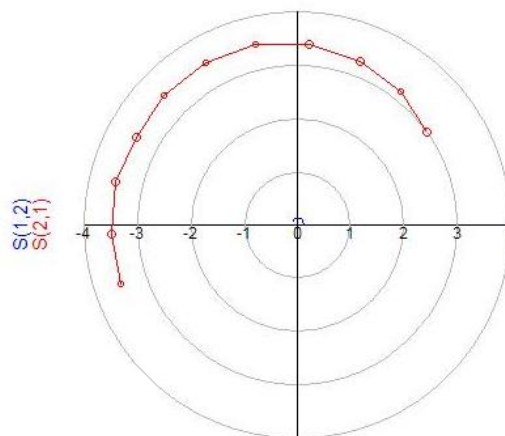
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Revised February 2008

7.10-7.90 GHz 12-Watt Internally Matched Power FET



freq (7.000GHz to 8.000GHz)



freq (7.000GHz to 8.000GHz)

freq	S(1,1)	S(1,2)	S(2,1)	S(2,2)
7.000GHz	0.476 / -34.870	0.109 / 139.240	3.481 / -161.260	0.311 / 55.490
7.100GHz	0.439 / -55.570	0.112 / 123.240	3.491 / -177.160	0.333 / 41.070
7.200GHz	0.394 / -77.150	0.115 / 107.340	3.497 / 166.700	0.352 / 26.670
7.300GHz	0.343 / -95.280	0.115 / 92.510	3.433 / 151.520	0.359 / 12.360
7.400GHz	0.324 / -119.400	0.120 / 77.570	3.473 / 136.110	0.372 / -1.810
7.500GHz	0.298 / -147.710	0.123 / 61.530	3.479 / 119.660	0.377 / -17.440
7.600GHz	0.278 / 178.850	0.125 / 45.200	3.451 / 102.940	0.376 / -34.380
7.700GHz	0.282 / 144.690	0.125 / 28.720	3.385 / 86.040	0.369 / -52.570
7.800GHz	0.316 / 111.790	0.123 / 12.270	3.280 / 69.070	0.361 / -72.160
7.900GHz	0.364 / 83.060	0.121 / -4.110	3.141 / 52.090	0.357 / -92.960
8.000GHz	0.418 / 58.560	0.117 / -20.060	2.981 / 35.610	0.357 / -113.260

S-PARAMETERS

 Measured at $V_{ds}=10V$, $I_{DS}=3250mA$