



EIC8596-12

UPDATED 07/25/2007

8.50-9.60 GHz 12-Watt Internally Matched Power FET

FEATURES

- 8.50– 9.60GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +41.5 dBm Output Power at 1dB Compression
- 7.0 dB Power Gain at 1dB Compression
- 34% Power Added Efficiency
- -46 dBc IM3 at PO = 30.5 dBm SCL
- 100% Tested for DC, RF, and R_{TH}

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

SYMBOL	PARAMETERS/TEST CONDITIONS ¹	MIN	TYP	MAX	UNITS
P_{1dB}	Output Power at 1dB Compression $f = 8.50\text{-}9.60\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 3200\text{mA}$	40.5	41.5		dBm
G_{1dB}	Gain at 1dB Compression $f = 8.50\text{-}9.60\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 3200\text{mA}$	6.0	7.0		dB
ΔG	Gain Flatness $f = 8.50\text{-}9.60\text{GHz}$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 3200\text{mA}$			± 0.6	dB
PAE	Power Added Efficiency at 1dB Compression $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 3200\text{mA}$ $f = 8.50\text{-}9.60\text{GHz}$		34		%
I_{d1dB}	Drain Current at 1dB Compression $f = 8.50\text{-}9.60\text{GHz}$		3300	3700	mA
IM3	Output 3rd Order Intermodulation Distortion $\Delta f = 10\text{ MHz}$ 2-Tone Test; $P_{out} = 30.5\text{ dBm S.C.L}^2$ $V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 65\% IDSS$ $f = 9.60\text{GHz}$	-43	-46		dBc
I_{DSS}	Saturated Drain Current $V_{DS} = 3\text{ V}$, $V_{GS} = 0\text{ V}$		6200	7800	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		2.5	3.0	$^\circ\text{C/W}$

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

ABSOLUTE MAXIMUM RATING^{1,2}

SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	15	10V
V_{gs}	Gate-Source Voltage	-5	-3V
I_{gsf}	Forward Gate Current	129.6mA	43.2mA
I_{gsr}	Reverse Gate Current	-21.6mA	-7.2mA
P_{in}	Input Power	40.5dBm	@ 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	50W	50W

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.

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Revised July 2007



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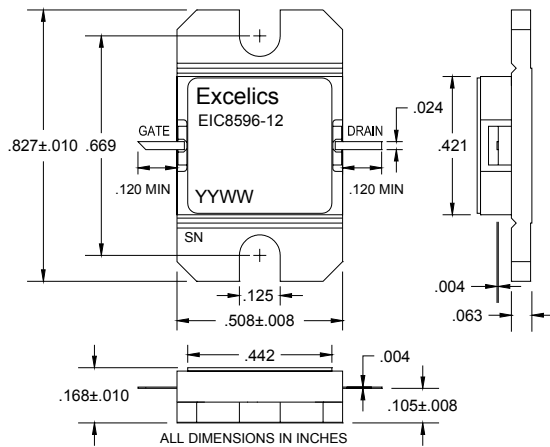
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PACKAGES OUTLINE

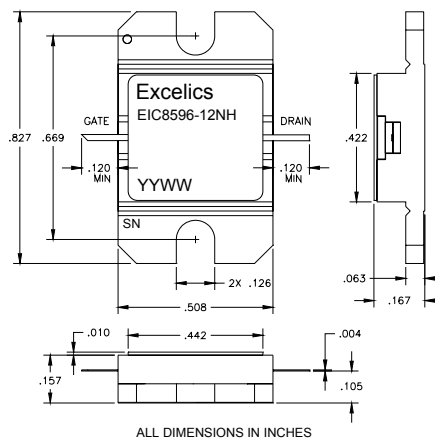
Dimensions in inches, Tolerance $\pm .005$ unless otherwise specified

EIC8596-12 (Hermetic)



Caution! ESD sensitive device.

EIC8596-12NH (Non-Hermetic)



Caution! ESD sensitive device.

ORDERING INFORMATION

Part Number	Packages	Grade ¹	f _{Test} (GHz)	P _{1dB} (min)	IM ₃ (min) ²
EIC8596-12	Hermetic	Industrial	8.50-9.60GHz	40.5	-43
EIC8596-12NH	Non-Hermetic	Industrial	8.50-9.60GHz	40.5	-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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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

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