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°C)

SYMBOL	PARAMETERS/TEST CONDITIONS[1]	MIN	TYP	MAX	UNITS
P_{1dB}	Output Power at 1dB Compression f = 8.50-9.60GHz V_{DS} = 10 V, I_{DSQ} ≈ 3200mA	40.5	41.5		dBm
G_{1dB}	Gain at 1dB Compression f = 8.50-9.60GHz V_{DS} = 10 V, I_{DSQ} ≈ 3200mA	6.0	7.0		dB
ΔG	Gain Flatness f = 8.50-9.60GHz V_{DS} = 10 V, I_{DSQ} ≈ 3200mA			±0.6	dB
PAE	Power Added Efficiency at 1dB Compression V_{DS} = 10 V, I_{DSQ} ≈ 3200mA f = 8.50-9.60GHz		34		%
Id_{1dB}	Drain Current at 1dB Compression f = 8.50-9.60GHz		3300	3700	mA
IM3	Output 3rd Order Intermodulation Distortion Δf = 10 MHz 2-Tone Test; Pout = 30.5 dBm S.C.L[2] V_{DS} = 10 V, I_{DSQ} ≈ 65% IDSS f = 9.60GHz	-43	-46		dBc
I_{DSS}	Saturated Drain Current V_{DS} = 3 V, V_{GS} = 0 V		6200	7800	mA
V_P	Pinch-off Voltage V_{DS} = 3 V, I_{DS} = 62 mA		-2.5	-4.0	V
R_{TH}	Thermal Resistance[3]		2.5	3.0	°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[1,2]

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	15	10V
Vgs	Gate-Source Voltage	-5	-3V
Igsf	Forward Gate Current	129.6mA	43.2mA
Igsr	Reserve Gate Current	-21.6mA	-7.2mA
Pin	Input Power	40.5dBm	@ 3dB Compression
Tch	Channel Temperature	175 °C	175 °C
Tstg	Storage Temperature	-65 to +175 °C	-65 to +175 °C
Pt	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.

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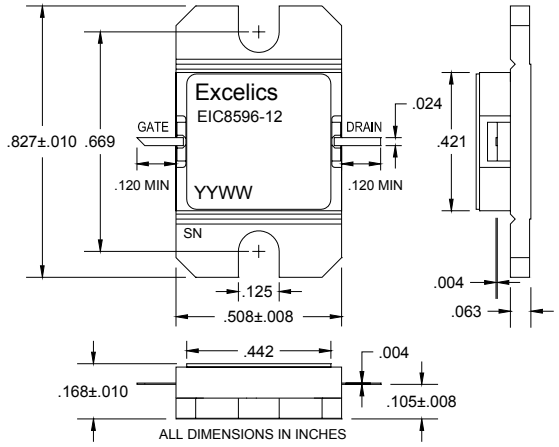
PACKAGES OUTLINE

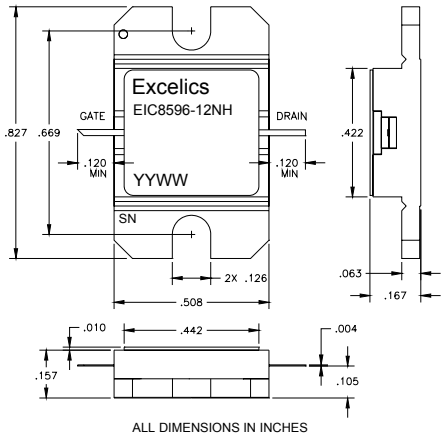
Dimensions in inches, Tolerance ± .005 unless otherwise specified

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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