RF Power Field Effect Transistor
LDMOS, 865 — 960 MHz, 30W, 26V

5/14/04

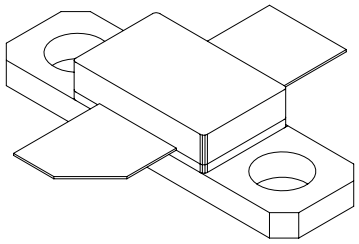
Preliminary

MAPLST0810-030CF

Features

- Designed for 865 to 960 MHz Broadband Commercial and Base Station Applications.
- Typical CW RF Performance at 960MHz, 26V_{DC}:
  - P_{OUT}: 30W (P_{1dB})
  - Gain: 18dB
  - Efficiency: 50%
- Ruggedness: 10:1 VSWR @ 30W CW, 26V, 925MHz
- High Gain, High Efficiency and High Linearity
- Excellent Thermal Stability

Package Style



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Maximum Ratings

Parameter	Symbol	Rating	Units
Drain—Source Voltage	V_{DSS}	65	V_{dc}
Gate—Source Voltage	V_{GS}	20	V_{dc}
Total Power Dissipation @ T_C = 25 °C	P_D	97	W
Storage Temperature	T_{STG}	-40 to +150	°C
Junction Temperature	T_J	+200	°C

Thermal Characteristics

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\Theta JC}$	1.8	ºC/W

NOTE—**CAUTION**—MOS devices are susceptible to damage from electrostatic charge. Precautions in handling and packaging MOS devices should be observed.

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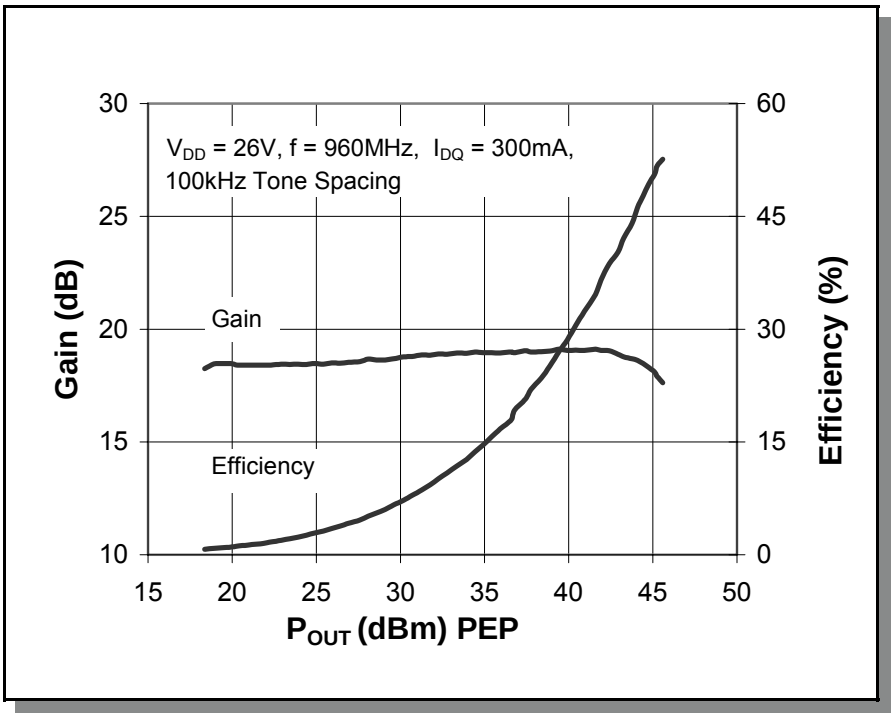
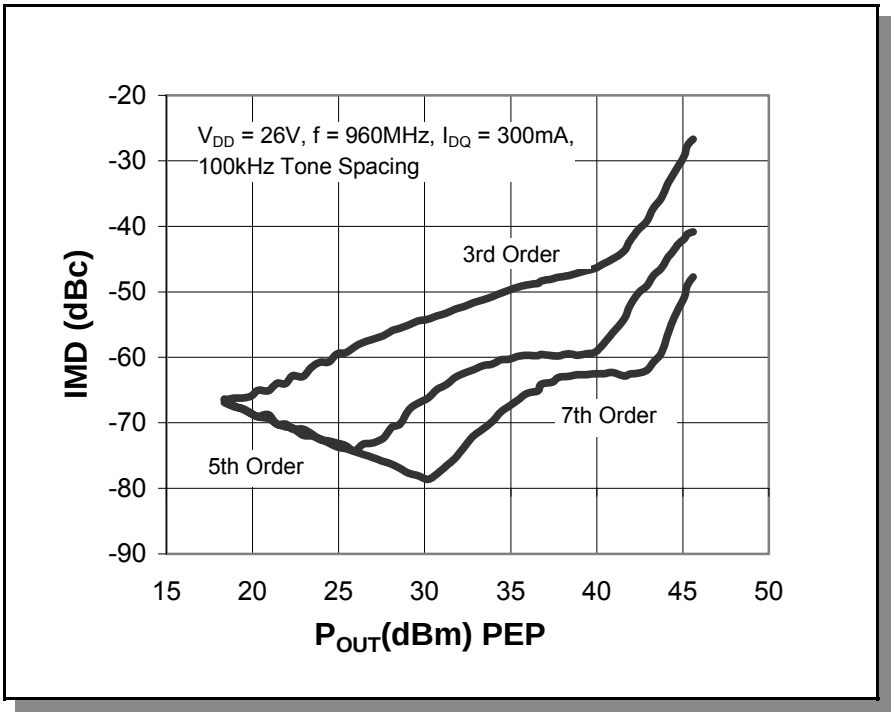
Characteristic	Symbol	Min	Typ	Max	Unit
DC CHARACTERISTICS @ 25ºC					
Drain-Source Breakdown Voltage (V_{GS} = 0 Vdc, I_D = 20 µAdc)	$V_{(BR)DSS}$	65	—	—	Vdc
Zero Gate Voltage Drain Leakage Current (V_{DS} = 26 Vdc, V_{GS} = 0)	I_{DSS}	—	—	1	µAdc
Gate—Source Leakage Current (V_{GS} = 5 Vdc, V_{DS} = 0)	I_{GSS}	—	—	3	µAdc
Gate Threshold Voltage (V_{DS} = 10 Vdc, I_D = 100 µA)	$V_{GS(th)}$	2	—	4	Vdc
Gate Quiescent Voltage (V_{DS} = 26 Vdc, I_D = 300 mA)	$V_{DS(Q)}$	—	4.0	—	Vdc
Drain-Source On-Voltage (V_{GS} = 10 Vdc, I_D = 1 A)	$V_{DS(on)}$	—	0.20	—	Vdc
Forward Transconductance (V_{GS} = 10 Vdc, I_D = 1 A)	Gm	—	2.0	—	S
DYNAMIC CHARACTERISTICS @ 25ºC					
Input Capacitance (V_{DS} = 26 Vdc, V_{GS} = 0, f = 1 MHz)	C_{iss}	—	50	—	pF
Output Capacitance (V_{DS} = 26 Vdc, V_{GS} = 0, f = 1 MHz)	C_{oss}	—	32	—	pF
Reverse Transfer Capacitance (V_{DS} = 26 Vdc, V_{GS} = 0, f = 1 MHz)	C_{rss}	—	1.4	—	pF
RF FUNCTIONAL TESTS @ 25ºC (In M/A-COM Test Fixture)					
Common Source Amplifier Gain (V_{DD} = 26 Vdc, I_{DQ} = 300 mA, f = 920 & 960 MHz, P_{OUT} = 30 W)	G_P	—	18	—	dB
Drain Efficiency (V_{DD} = 26 Vdc, I_{DQ} = 300 mA, f = 920 & 960 MHz, P_{OUT} = 30 W)	EFF (η)	—	50	—	%
Input Return Loss (V_{DD} = 26 Vdc, I_{DQ} = 300 mA, f = 920 & 960 MHz, P_{OUT} = 30 W)	IRL	—	12	—	dB
Output VSWR Tolerance (V_{DD} = 26 Vdc, I_{DQ} = 300 mA, f = 920 & 960 MHz, P_{OUT} = 30 W, VSWR = 10:1, All Phase Angles at Frequency of Tests)	Ψ	No Degradation In Output Power Before and After Test			

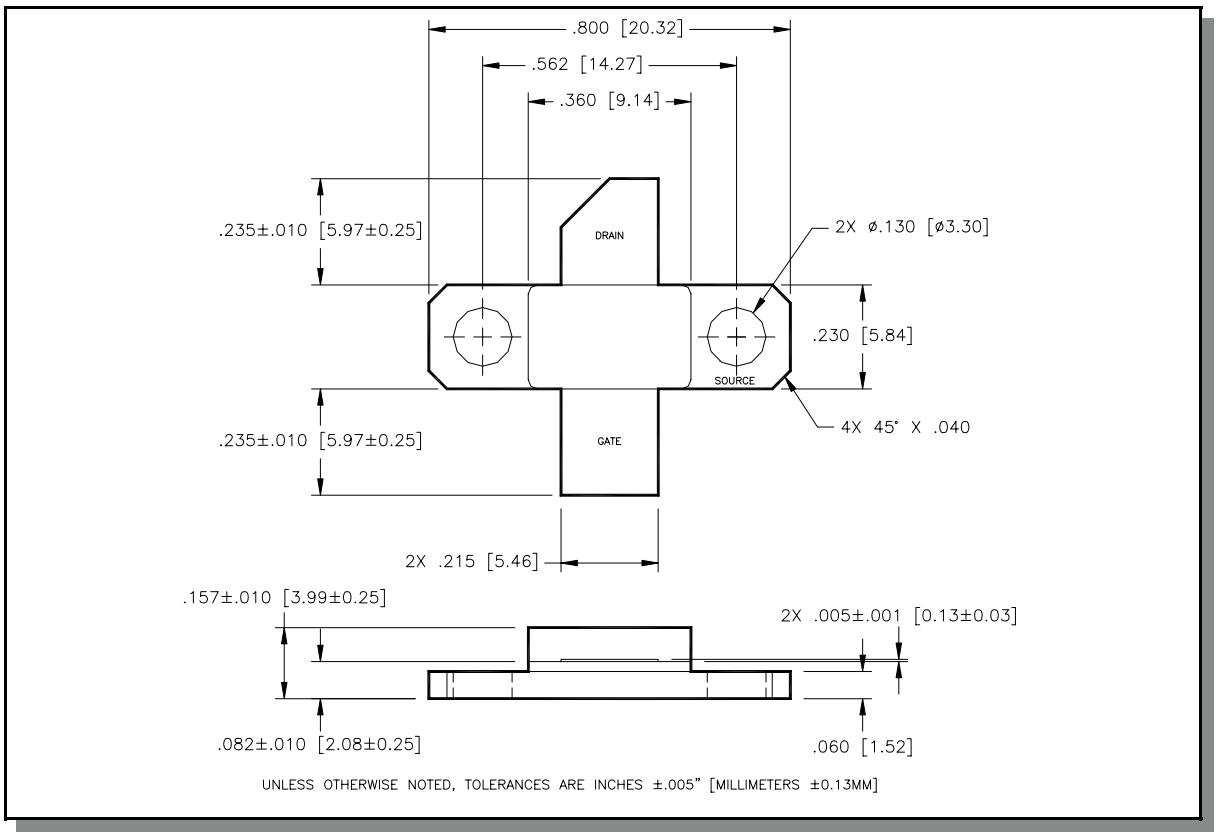


Graph 1. Power Gain and Drain Efficiency vs. Output Power



Graph 2. Intermodulation Distortion vs. Output Power

Package Dimensions



Visit www.macom.com for additional data sheets and product information.

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