



# RF Power Field Effect Transistor LDMOS, 1800 — 2000 MHz, 90W, 26V

5/14/04

Preliminary

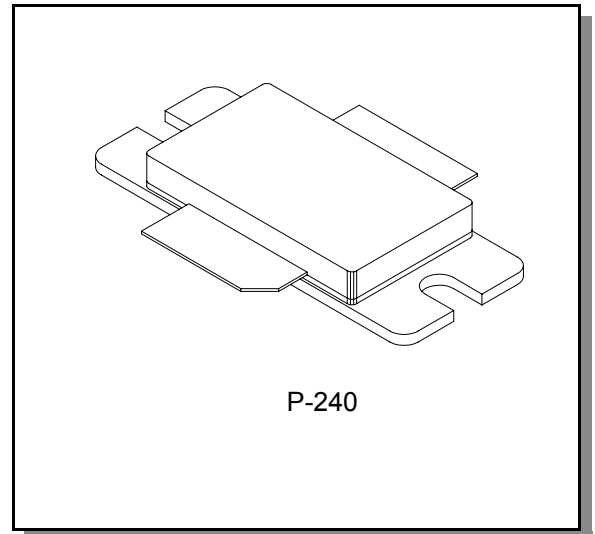
MAPLST1820-090CF

## Features

Designed for base station applications in the 1805-1880MHz or 1930-1990MHz Frequency Band. Suitable for GSM, EDGE, TDMA, CDMA, and multi-carrier amplifier applications

- Typical EDGE performance @ 1880MHz, 26V, Idq=900mA:
  - Output Power: 45W
  - Power Gain: 13dB (typ.)
  - Efficiency: 35% (typ.)

## Package Style



## Maximum Ratings

Parameter	Symbol	Rating	Units
Drain—Source Voltage	$V_{DSS}$	65	$V_{dc}$
Gate—Source Voltage	$V_{GS}$	+20, -20	$V_{dc}$
Total Power Dissipation @ $T_c = 25^\circ C$	$P_D$	206	W
Storage Temperature	$T_{STG}$	-40 to +150	$^\circ C$
Junction Temperature	$T_J$	+200	$^\circ C$

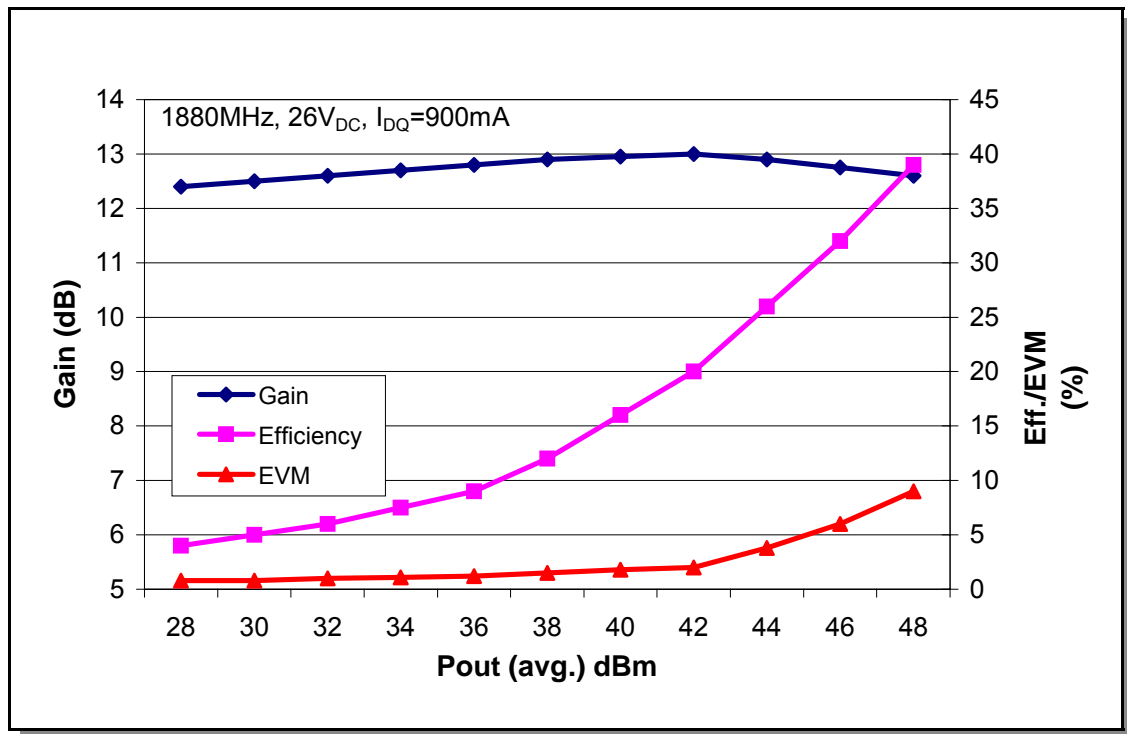
## Thermal Characteristics

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.85	$^\circ C/W$

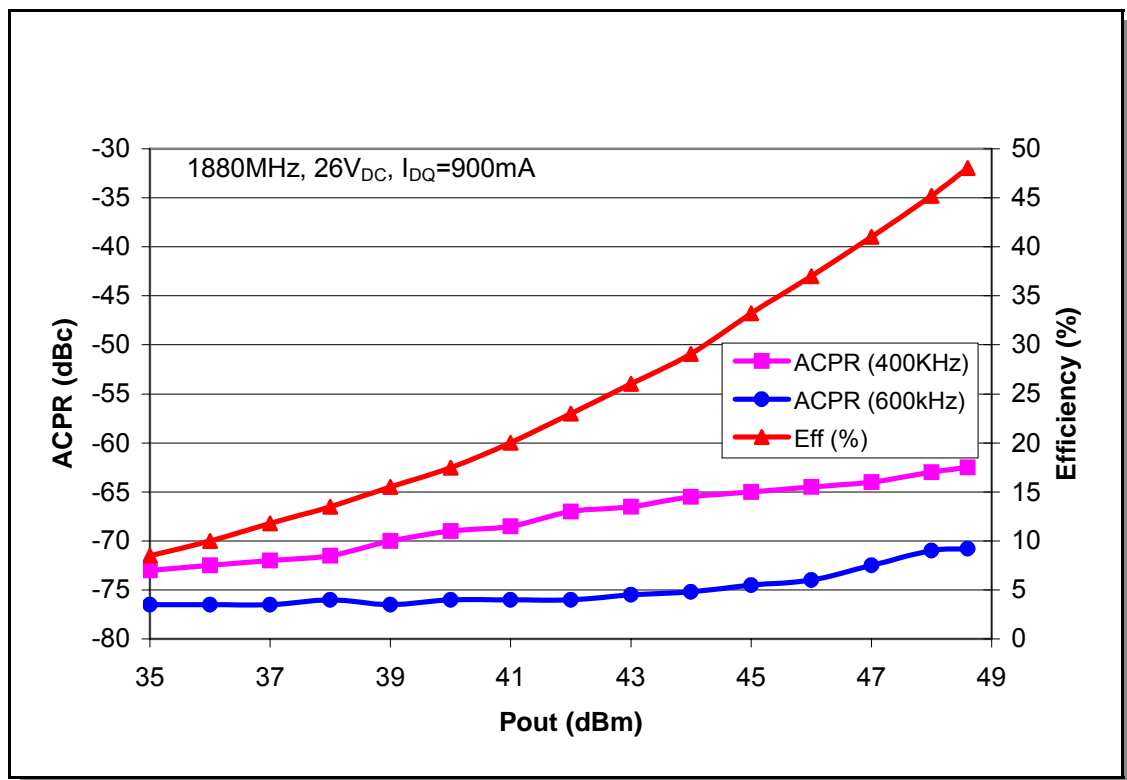
NOTE—CAUTION—MOS devices are susceptible to damage from electrostatic charge. Precautions in handling and packaging MOS devices should be observed.

Preliminary

Characteristic	Symbol	Min	Typ	Max	Unit
<b>DC CHARACTERISTICS @ 25°C</b>					
Drain-Source Breakdown Voltage ( $V_{GS} = 0$ Vdc, $I_D = 100$ $\mu$ Adc)	$V_{(BR)DSS}$	65	—	—	Vdc
Zero Gate Voltage Drain Leakage Current ( $V_{DS} = 26$ Vdc, $V_{GS} = 0$ )	$I_{DSS}$	—	—	10	$\mu$ Adc
Gate—Source Leakage Current ( $V_{GS} = 5$ Vdc, $V_{DS} = 0$ )	$I_{GSS}$	—	—	1	$\mu$ Adc
Gate Threshold Voltage ( $V_{DS} = 26$ Vdc, $I_d = 60$ mA)	$V_{GS(th)}$	2	—	5	Vdc
Gate Quiescent Voltage ( $V_{DS} = 26$ Vdc, $I_d = 900$ mA)	$V_{DS(on)}$	3	—	0.4	Vdc
Drain-Source On-Voltage ( $V_{GS} = 10$ Vdc, $I_d = 1$ A)	$V_{DS(on)}$	—	0.10	—	Vdc
Forward Transconductance ( $V_{GS} = 10$ Vdc, $I_d = 1$ A)	Gm	—	7.0	—	S
<b>DYNAMIC CHARACTERISTICS @ 25°C</b>					
Reverse Transfer Capacitance ( $V_{DS} = 26$ Vdc, $V_{GS} = 0$ , $f = 1$ MHz)	$C_{rss}$	—	4.5	—	pF
<b>RF FUNCTIONAL TESTS @ 25°C (In M/A-COM Test Fixture)</b>					
Common-Source Amplifier Gain ( $V_{DS} = 26$ Vdc, $I_{DQ} = 900$ mA, $f = 1880$ MHz, $P_{OUT} = 90$ W)	$G_p$	—	13	—	dB
Drain Efficiency ( $V_{DS} = 26$ Vdc, $I_{DQ} = 900$ mA, $f = 1880$ MHz, $P_{OUT} = 90$ W)	EFF ( $\eta$ )	—	35	—	%
Input Return Loss ( $V_{DS} = 26$ Vdc, $I_{DQ} = 900$ mA, $f = 1880$ MHz, $P_{OUT} = 90$ W)	IRL	—	-10	—	dB
Output VSWR Tolerance ( $V_{DS} = 26$ Vdc, $I_{DQ} = 900$ mA, $f = 1880$ MHz, $P_{OUT} = 90$ W, VSWR = 5:1, All Phase Angles at Frequency of Tests)	$\Psi$	No Degradation In Output Power Before and After Test			

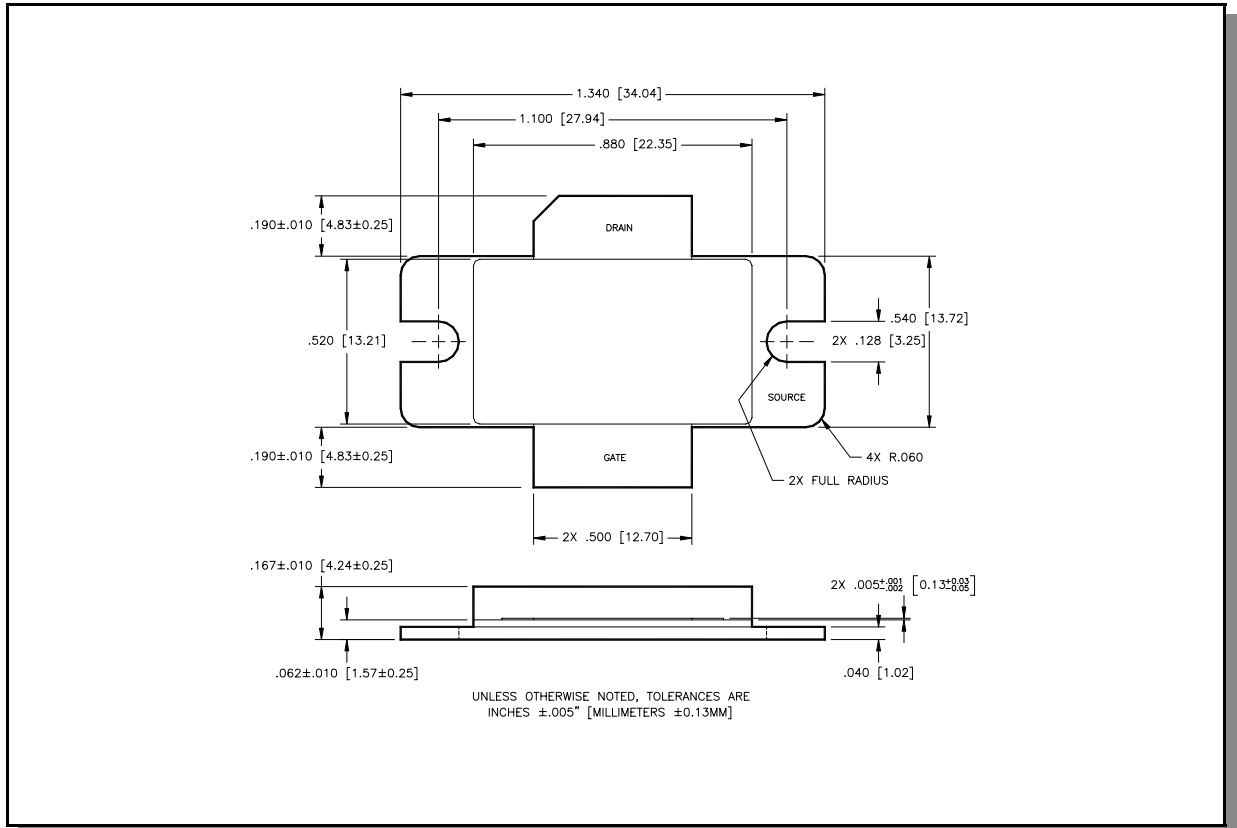


Graph 1. EDGE: Gain and Error Vector Magnitude vs. Output Power



Graph 2. EDGE: Efficiency and Adjacent Channel Power Ratio vs. Output Power

Package Dimensions



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