MAPL-000978-0075LF
MAPL-000978-0075LN

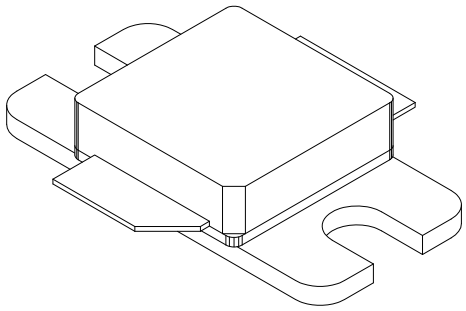
LDMOS Pulsed Power Transistor
75W, 978 MHz, 400µs Pulse, 1% Duty

M/A-COM Products
Released, 23 Jun 09

Features

- Gold LDMOS microwave power transistor
- Common source configuration
- Broadband Class AB operation
- RoHS Compliant
- Avionics applications specifically designed for Internal input and output impedance matching.
- Integrated ESD Protection
- RoHS Compliant

Product Image



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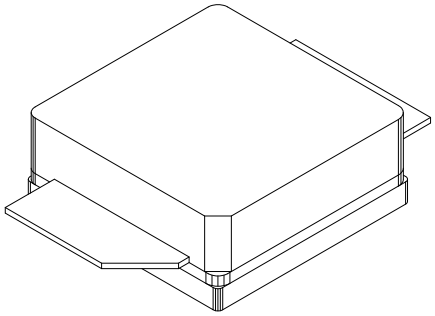

MAPL-000978-0075LN

Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GS}	-0.7 to 15	V
Total Power Dissipation (T_C = 25°C)	P_{TOT}	350	W
Storage Temperature	T_{STG}	-65 to +175	°C
Junction Temperature	T_J	200	°C

Thermal Characteristics

Parameter	Test Conditions	Symbol	Max	Units
Thermal Resistance, Junction to Case	V_{DD} = 28V, I_{DQ} = 250mA, Pout = 75W	$R_{TH(JC)}$	0.5	°C/W

Typical RF Performance

Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	Id-Pk (A)	Eff (%)	RL (dB)	VSWR-S (2:1)	VSWR-T (5:1)	P1dB	
									Pout (W)	Gain (dB)
978	1.1	75	18.2	5.3	50	-16	S	P	81	18.0

Typical RF performance measured in M/A-COM RF test fixture. Devices tested in common source Class-AB configuration as follows: Vdd=28V, Idq=250mA (pulsed), F=978MHz, Pulse=400us, Duty=1%.

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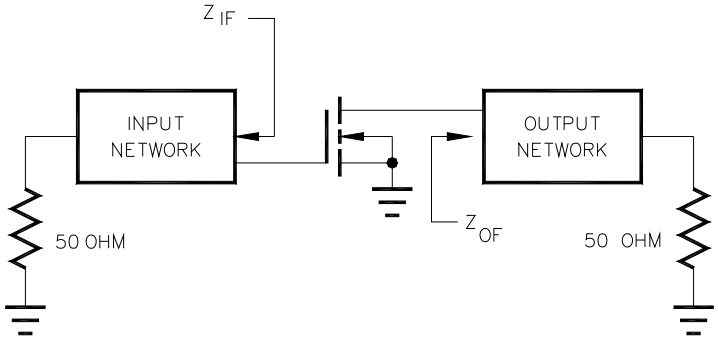
Electrical Specifications: T_C = 25 ± 5°C (Room Ambient)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units
DC CHARACTERISTICS						
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 30mA	BV_{DSS}	60	-	-	V
Drain Leakage Current	V_{DS} = 28V, V_{GS} = 0V	I_{DSS}	-	-	50	µA
Gate-Source Leakage Current	V_{GS} = 10V, V_{DS} = 0V	I_{GSS}	-	-	2	µA
Gate Threshold Voltage	V_{DS} = 10V, I_D = 30mA	$V_{GS\ (th)}$	2	2.5	4	V
Forward Transconductance	V_{GS} = 10V, I_D = 1A	G_M	1.5	-	-	S
DYNAMIC CHARACTERISTICS						
Input Capacitance	V_{DS} = 28V, V_{GS} = 0V, F = 1MHz (capacitance values without internal matching)	C_{iss}	-	200	-	pF
Output Capacitance	V_{DS} = 28V, V_{GS} = 0V, F = 1MHz	C_{oss}	-	83	-	pF
Reverse Transfer Capacitance	V_{DS} = 28V, V_{GS} = 0V, F = 1MHz	C_{rss}	-	3.0	-	pF
RF FUNCTIONAL TESTS						
Power Gain	V_{DD} = 28V, I_{DQ} = 250mA, Pout = 75W	G_P	16.5	18.2	-	dB
Drain Efficiency	V_{DD} = 28V, I_{DQ} = 250mA, Pout = 75W	η_D	45	50	-	%
Input Return Loss	V_{DD} = 28V, I_{DQ} = 250mA, Pout = 75W	RL	-	-16	-10	dB
1dB Compression Point	V_{DD} = 28V, I_{DQ} = 250mA	P1dB	-	81	-	W
Load Mismatch Stability	V_{DD} = 28V, I_{DQ} = 250mA, Pout = 75W	VSWR-S	-	-	2:1	-
Load Mismatch Tolerance	V_{DD} = 28V, I_{DQ} = 250mA, Pout = 75W	VSWR-T	-	-	5:1	-

Test Fixture Impedance

F (MHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
978	9.8 + j1.4	1.5 + j0.1



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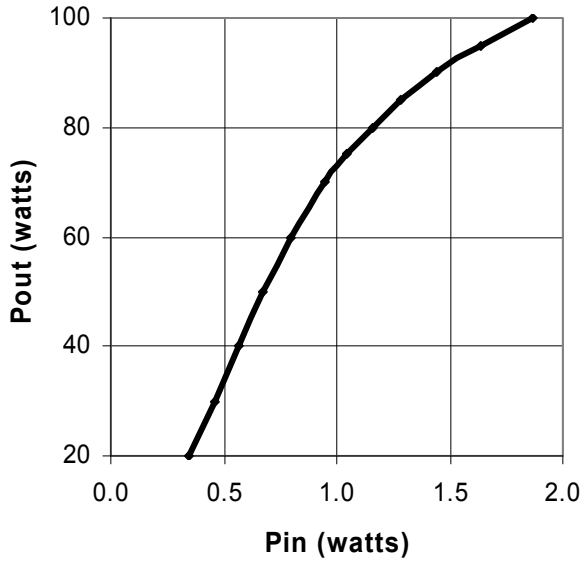
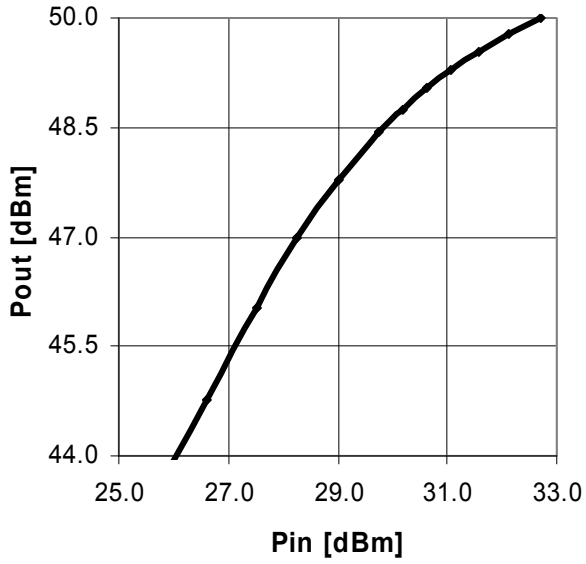
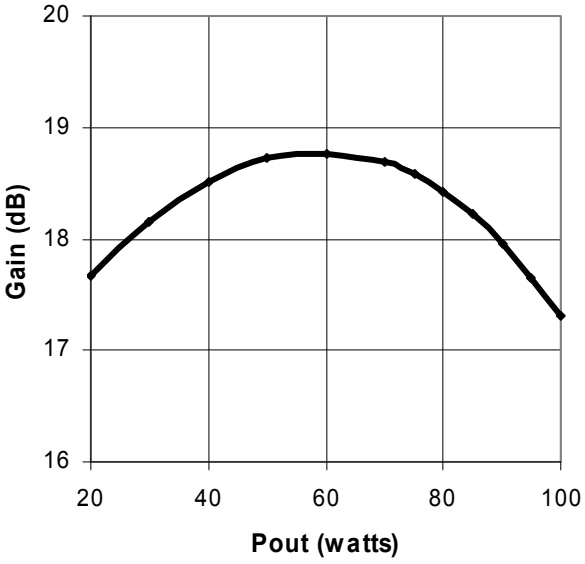
Output Power vs. Input Power



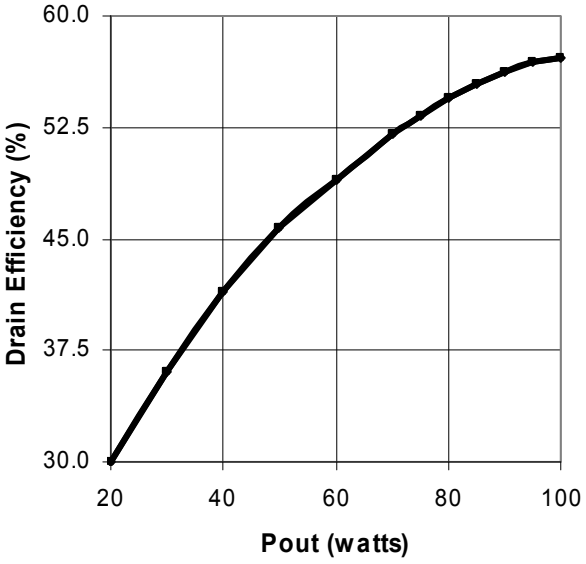
Output Power vs. Input Power [dBm]



RF Power Gain vs. Output Power



Drain Efficiency vs. Output Power



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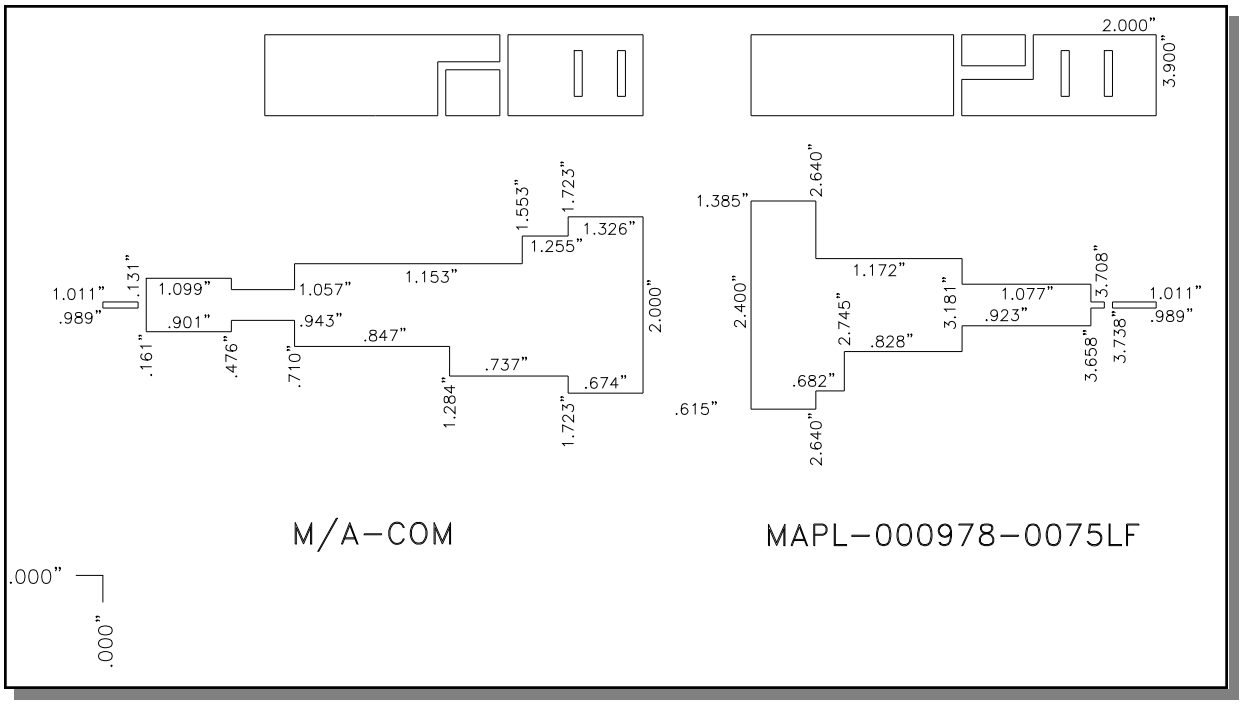
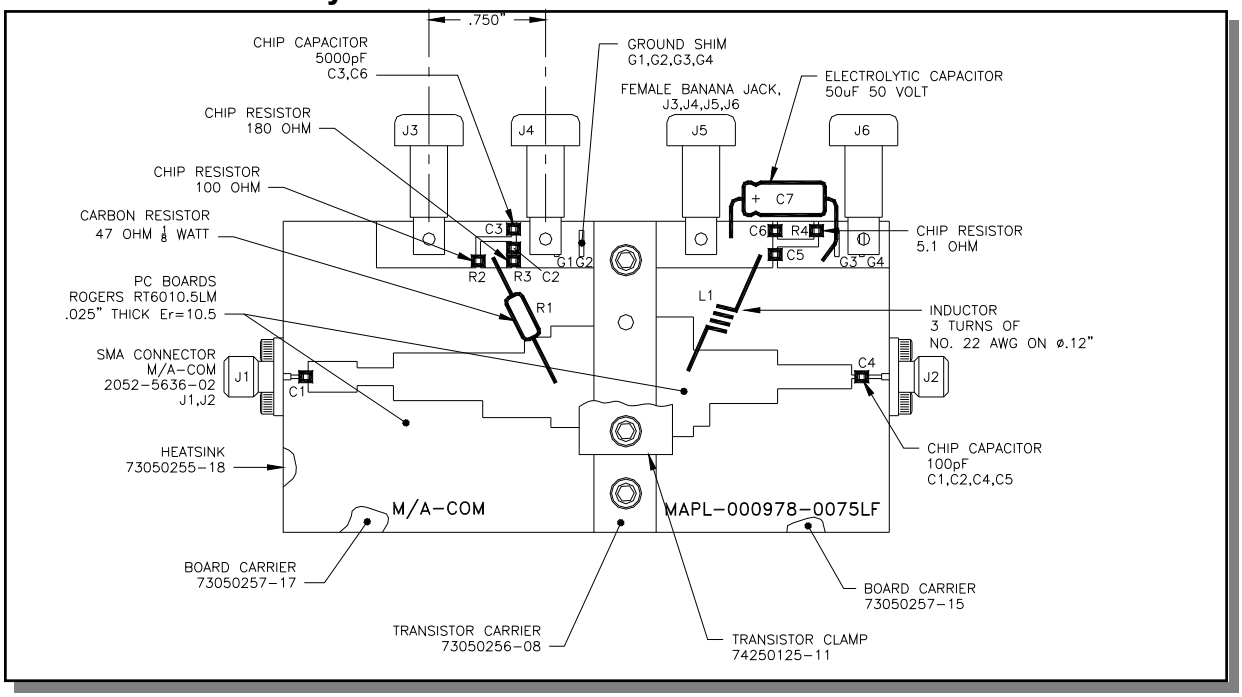
Test Fixture Circuit Dimensions



Test Fixture Assembly



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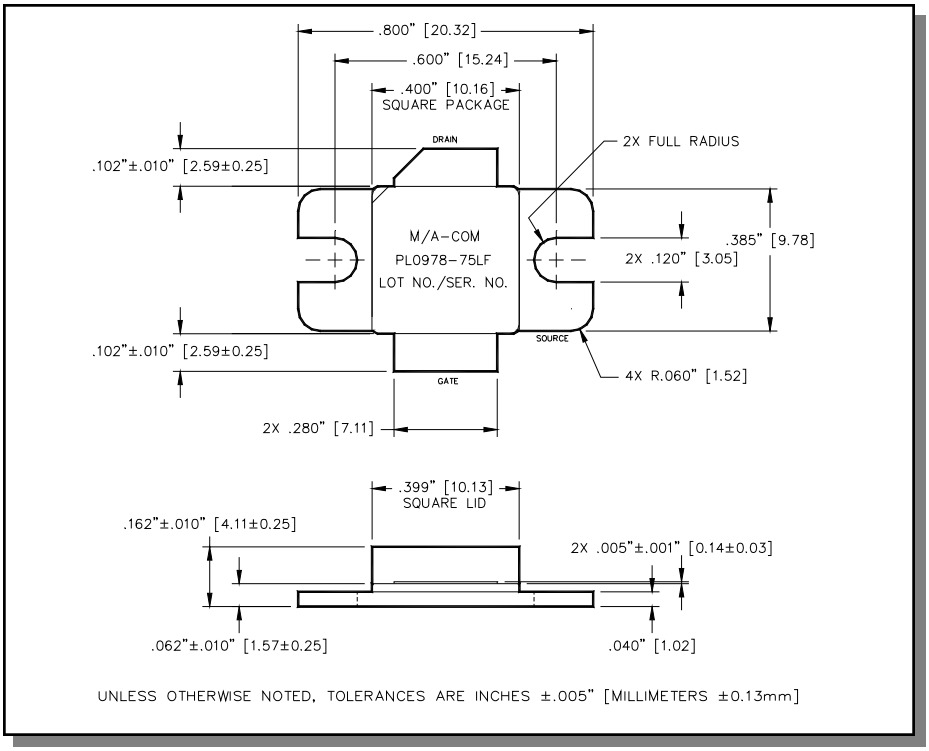
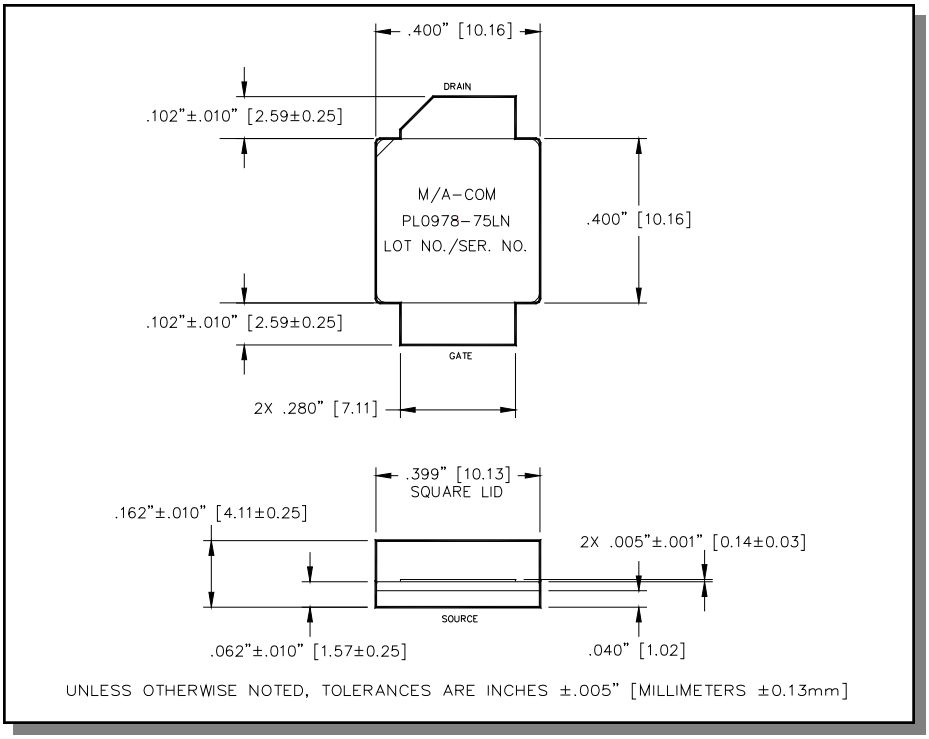
Outline Drawings





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