MAPL-000817-015CPC

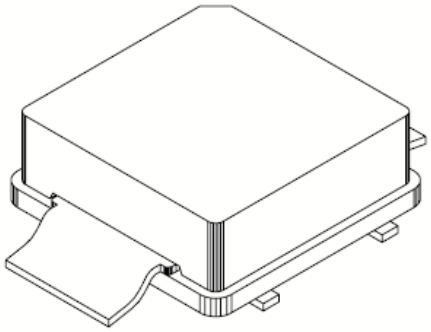
LDMOS RF Line Power FET Transistor
15 W , 800-1700 MHz, 26V

Discontinued
(For Reference Only)

Designed for broadband commercial applications up to 1.7GHz

- High gain, high efficiency and high linearity
- Aluminum-Copper Metallization for high reliability
- RoHS Compliant
- Typical P1dB performance at 960MHz, 26Vdc, CW
  - Typical power output: 16.5W
  - Gain: 17.0dB
  - Efficiency: 50%
  - 10:1 VSWR ruggedness at 15W, 26Vdc, 960MHz

Product Image



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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 °C	P_D	31	W
Storage Temperature	T_{STG}	-65 to +150	°C
Junction Temperature	T_J	200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	4	°C/W

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

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

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
Gate Quiescent Voltage (V_{ds} = 26 Vdc, I_d = 100 mA)	$V_{DS(Q)}$	3	—	5	Vdc
Drain-Source On-Voltage (V_{gs} = 10 Vdc, I_d = 1 A)	$V_{DS(on)}$	—	0.25	—	Vdc
RF FUNCTIONAL TESTS @ 25ºC (In M/A-COM Test Fixture) (1)					
Common Source Amplifier Gain (V_{DD} = 26 Vdc, I_{DQ} = 150 mA, f = 960 MHz, P_{OUT} = 15 W)	G_P	—	17	—	dB
Drain Efficiency (V_{DD} = 26 Vdc, I_{DQ} = 150 mA, f = 960 MHz, P_{OUT} = 15 W)	EFF (ŋ)	—	50	—	%
Input Return Loss (V_{DD} = 26 Vdc, I_{DQ} = 150 mA, f = 960 MHz, P_{OUT} = 15 W)	IRL	—	-10	—	dB
Output VSWR Tolerance (V_{DD} = 26 Vdc, I_{DQ} = 150 mA, f = 960 MHz, P_{OUT} = 15 W, VSWR = 10:1, All Phase Angles at Frequency of Tests)	Ψ	No Degradation In Output Power Before and After Test			
Common Source Amplifier Gain (V_{DD} = 26 Vdc, I_{DQ} = 150 mA, f = 1670 MHz, P_{OUT} = 15 W)	G_P	13.0	15	—	dB
Drain Efficiency (V_{DD} = 26 Vdc, I_{DQ} = 150 mA, f = 1670 MHz, P_{OUT} = 15 W)	EFF (ŋ)	45	50	—	%
Input Return Loss (V_{DD} = 26 Vdc, I_{DQ} = 150 mA, f = 1670 MHz, P_{OUT} = 15 W)	IRL	—	-10	-8	dB

(1) Device specifications obtained on a Production Test Fixture.

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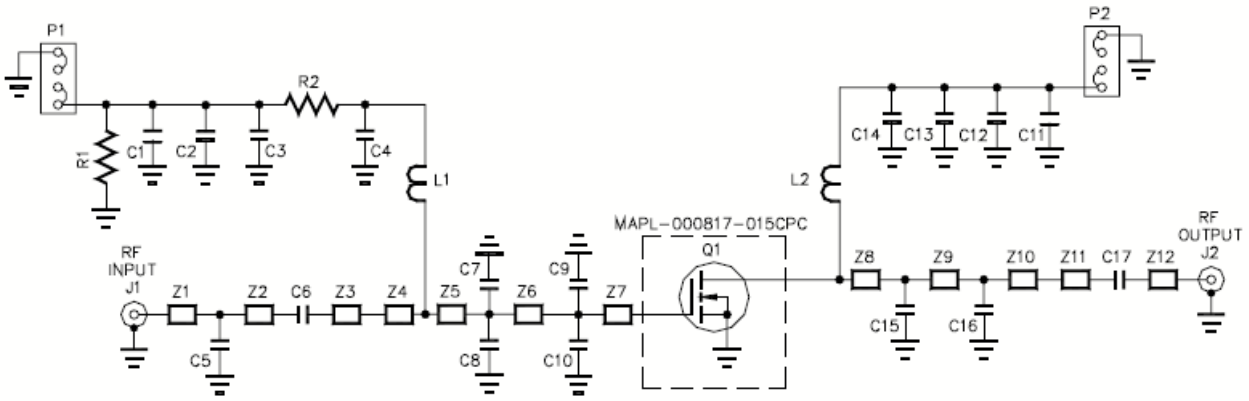


C1,C11	Tantalum Surface Mt. Cap., 100 µF, 35 V
C2,C12	Ceramic Chip Capacitor, 0.1 µF
C3,C13	Ceramic Chip Capacitor, 1000 pF
C4,C6,C14,C17	Chip Capacitor, 39 pF ATC100A
C5	Chip Capacitor, 1.8 pF ATC100A
C7,C8	Chip Capacitor, 1.0 pF ATC100A
C9,C10	Chip Capacitor, 2.7 pF ATC100A
C15	Chip Capacitor, 3.0 pF ATC100A
C16	Chip Capacitor, 3.3 pF ATC100A
J1,J2	SMA Connector, Omni Spectra 2052-5636-02
L1	Inductor, 72 nH, CoilCraft 0603
L2	Inductor, 18.5 nH, CoilCraft A05T
P1,P2	Connector, AMP 640457-4
Q1	Transistor, MAPL-000817-015CPC
R1	Chip Resistor (0805), 10k Ohm
R2	Chip Resistor (0805), 10 Ohm

Z1	Distributed Microstrip Element, 0.034" x 0.046"
Z2	Distributed Microstrip Element, 0.092" x 0.046"
Z3	Distributed Microstrip Element, 0.532" x 0.046"
Z4	Distributed Microstrip Element, 0.080" x 0.026"
Z5	Distributed Microstrip Element, 0.028" x 0.178"
Z6	Distributed Microstrip Element, 0.216" x 0.178"
Z7	Distributed Microstrip Element, 0.029" x 0.178"
Z8	Distributed Microstrip Element, 0.077" x 0.178"
Z9	Distributed Microstrip Element, 0.211" x 0.178"
Z10	Distributed Microstrip Element, 0.029" x 0.178"
Z11	Distributed Microstrip Element, 0.945" x 0.046"
Z12	Distributed Microstrip Element, 0.125" x 0.046"

PC Board Rogers (RO4350) Duroid, 0.020:" thick,
Er=3.5, 1 Oz Copper Both Sides

Figure 1. 1620-1670 MHz Test Fixture Schematic

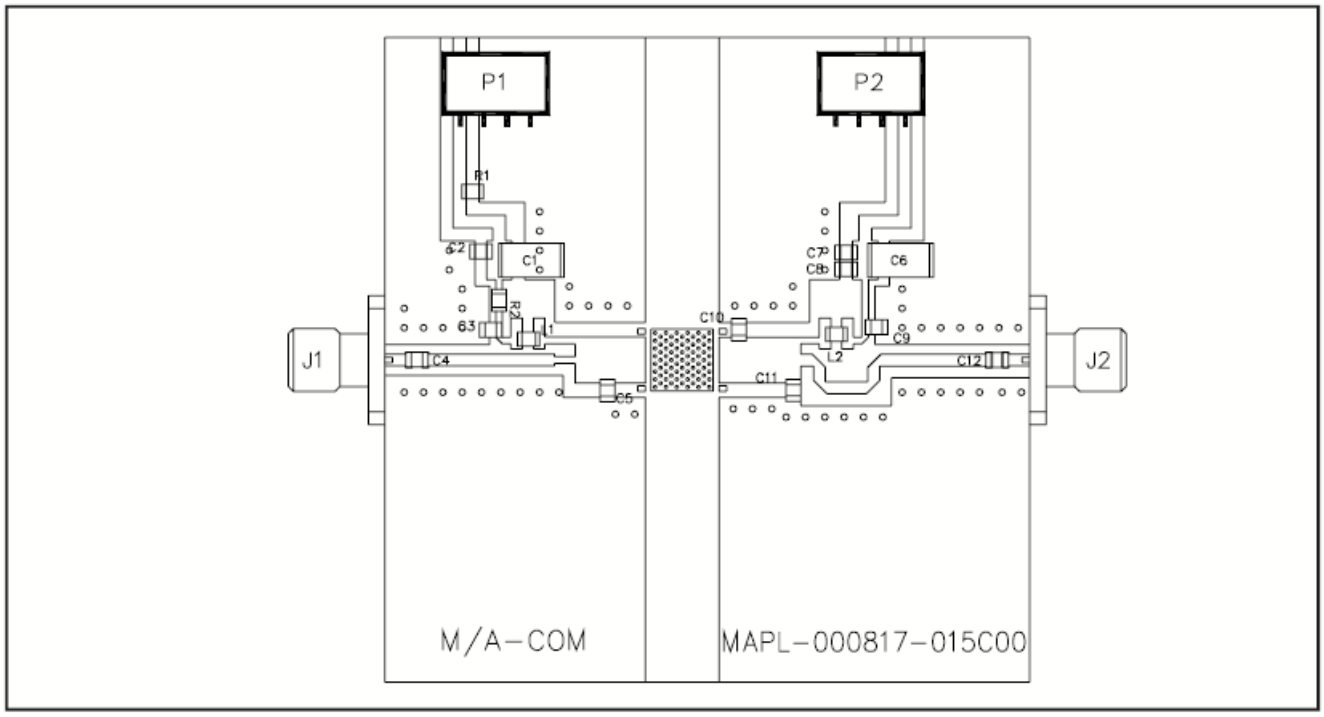
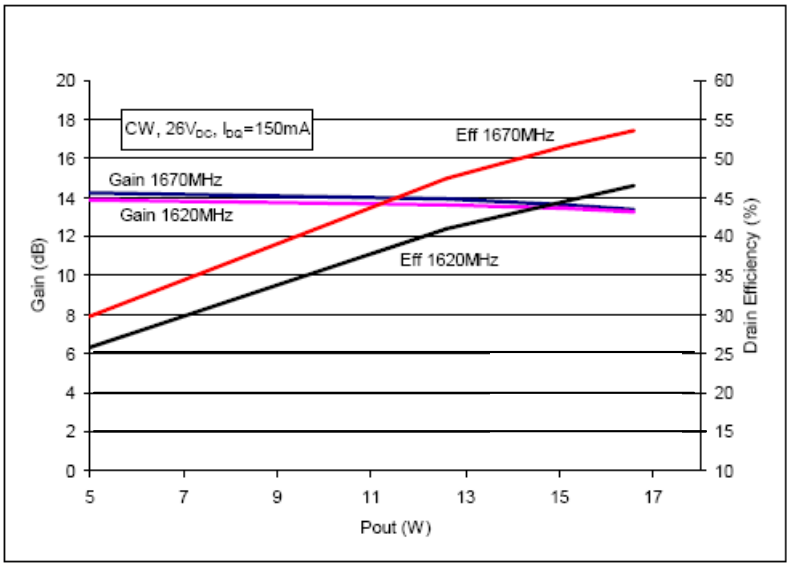
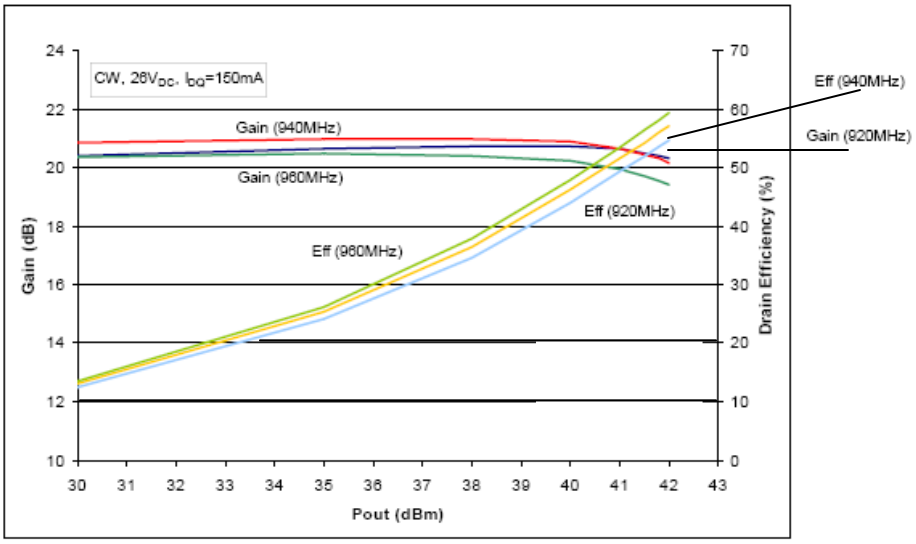


Figure 2. 1620—1670 MHz Test Fixture Component Layout



Graph 1. 1620, 1670MHz: CW Power Gain and Drain Efficiency vs. Output Power



Graph 2. 920, 940, 960MHz: CW Power Gain and Drain Efficiency vs. Output Power

PACKAGE DIMENSIONS