

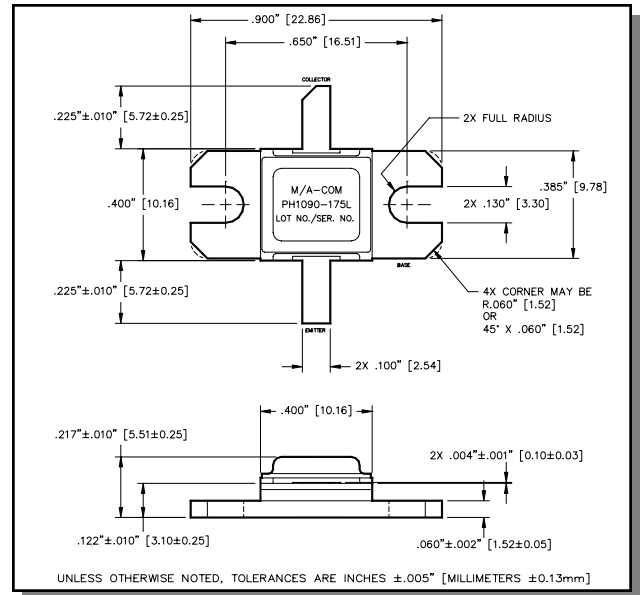
Avionics Pulsed Power Transistor  
175W, 1090 MHz, 250µs Pulse, 10% Duty

M/A-COM Products  
Released, 30 May 07

## Features

- NPN silicon microwave power transistors
- Common base configuration
- Broadband Class C operation
- High efficiency inter-digitized geometry
- Diffused emitter ballasting resistors
- Gold metallization system
- Internal input and output impedance matching
- Hermetic metal/ceramic package
- RoHS Compliant

## Outline Drawing



## Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	$V_{CES}$	80	V
Emitter-Base Voltage	$V_{EBO}$	3.0	V
Collector Current (Peak)	$I_C$	10.5	A
Power Dissipation @ +25°C	$P_{TOT}$	375	W
Storage Temperature	$T_{STG}$	-65 to +200	°C
Junction Temperature	$T_J$	200	°C

## Electrical Specifications: $T_C = 25 \pm 5^\circ\text{C}$ (Room Ambient )

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	$I_C = 125\text{mA}$		$BV_{CES}$	80	-	V
Collector-Emitter Leakage Current	$V_{CE} = 45\text{V}$		$I_{CES}$	-	12.5	mA
Thermal Resistance	$V_{CC} = 45\text{V}$ , $P_{in} = 26\text{W}$	$F = 1090\text{ MHz}$	$R_{TH(JC)}$	-	0.4	°C/W
Output Power	$V_{CC} = 45\text{V}$ , $P_{in} = 26\text{W}$	$F = 1090\text{ MHz}$	$P_{OUT}$	175	-	W
Power Gain	$V_{CC} = 45\text{V}$ , $P_{in} = 26\text{W}$	$F = 1090\text{ MHz}$	$G_P$	8.3	-	dB
Collector Efficiency	$V_{CC} = 45\text{V}$ , $P_{in} = 26\text{W}$	$F = 1090\text{ MHz}$	$\eta_C$	55	-	%
Input Return Loss	$V_{CC} = 45\text{V}$ , $P_{in} = 26\text{W}$	$F = 1090\text{ MHz}$	RL	-	-9	dB
Load Mismatch Tolerance	$V_{CC} = 45\text{V}$ , $P_{in} = 26\text{W}$	$F = 1090\text{ MHz}$	VSWR-T	-	3:1	-
Load Mismatch Stability	$V_{CC} = 45\text{V}$ , $P_{in} = 26\text{W}$	$F = 1090\text{ MHz}$	VSWR-S	-	1.5:1	-

1

**ADVANCED:** Data Sheets contain information regarding a product M/A-COM is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

M/A-COM Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

Avionics Pulsed Power Transistor  
175W, 1090 MHz, 250µs Pulse, 10% Duty

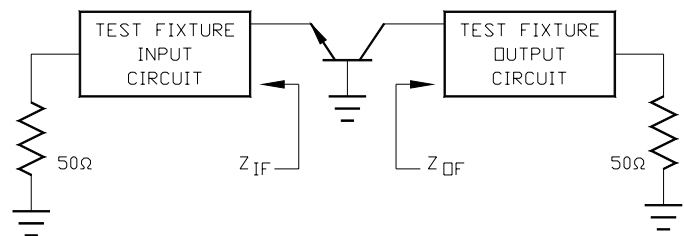
M/A-COM Products  
Released, 30 May 07

## Typical RF Performance

Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)
1090	26.0	188	8.58	7.16	58.3	-16.0	S	P

## RF Test Fixture Impedance

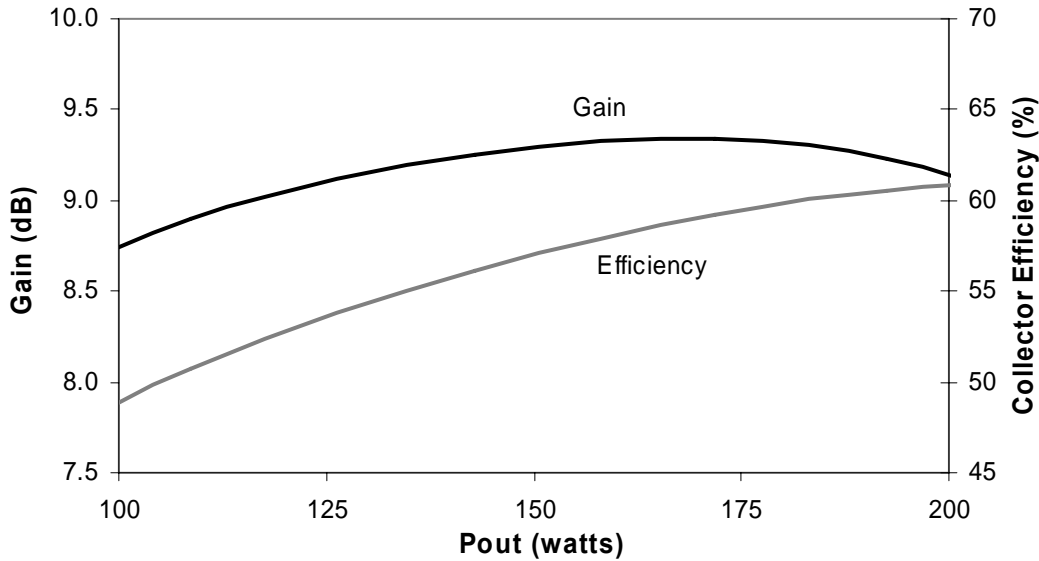
F (MHz)	Z <sub>IF</sub> (Ω)	Z <sub>OF</sub> (Ω)
1030	3.4 - j5.6	2.3 - j2.2
1090	3.2 - j5.1	2.3 - j1.7



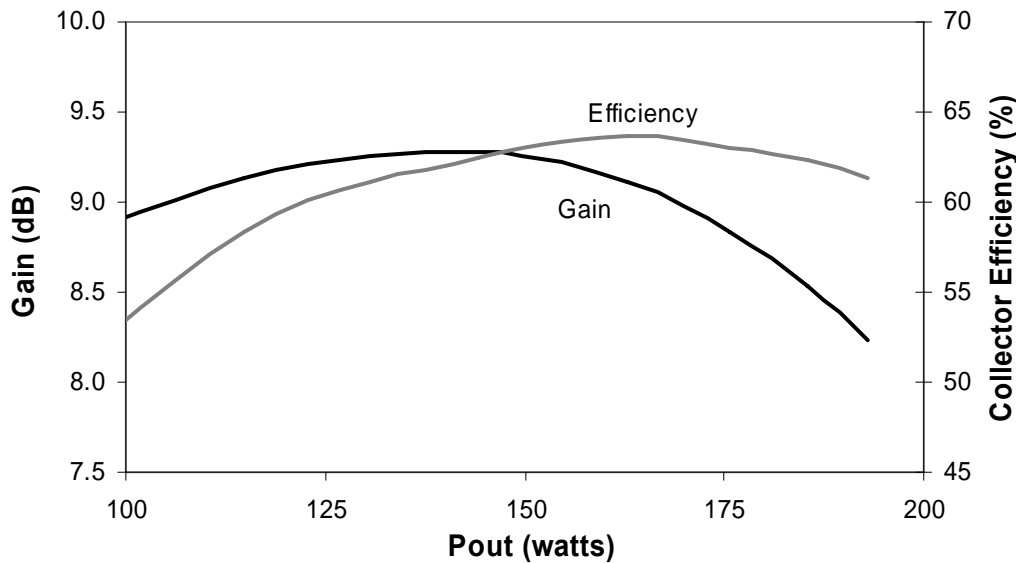
Avionics Pulsed Power Transistor  
 175W, 1090 MHz, 250µs Pulse, 10% Duty

M/A-COM Products  
 Released, 30 May 07

## RF Power Transfer Curve 1030 MHz, Gain & Efficiency vs. Output Power



## RF Power Transfer Curve 1090 MHz, Gain & Efficiency vs. Output Power



**ADVANCED:** Data Sheets contain information regarding a product M/A-COM is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.  
**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

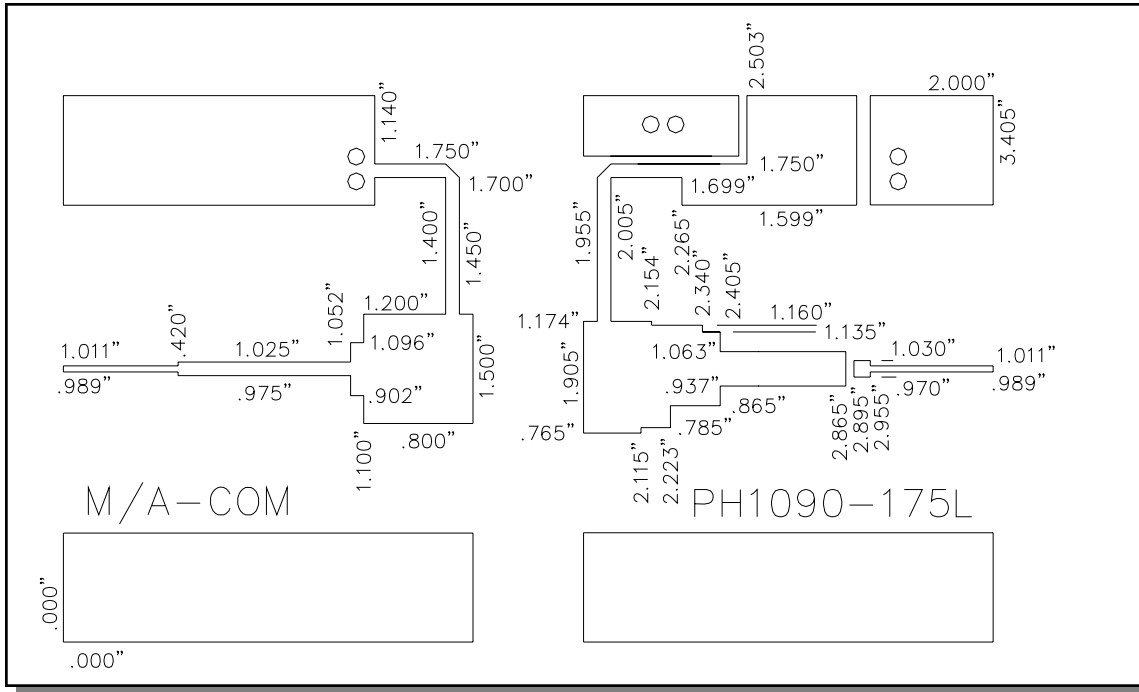
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

M/A-COM Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

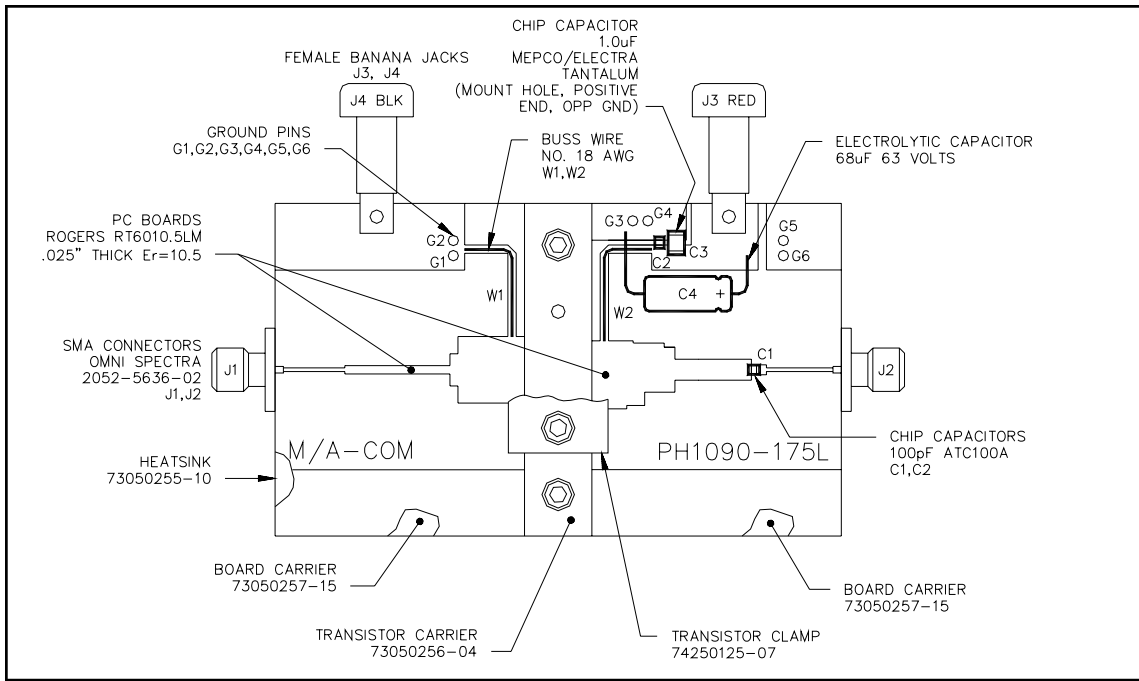
Avionics Pulsed Power Transistor  
175W, 1090 MHz, 250µs Pulse, 10% Duty

M/A-COM Products  
Released, 30 May 07

## Test Fixture Circuit Dimensions



## Test Fixture Assembly



**ADVANCED:** Data Sheets contain information regarding a product M/A-COM is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.  
**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

M/A-COM Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.