

## Avionics Pulsed Power Transistor 75W, 1030-1090 MHz, 250µs Pulse, 10% Duty

M/A-COM Products Released, 30 May 07

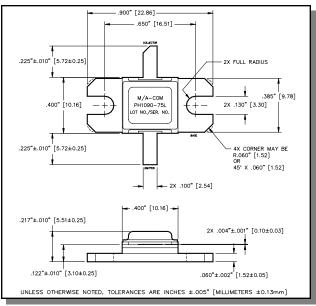
#### **Features**

- · 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

#### Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	$V_{CES}$	70	V
Emitter-Base Voltage	$V_{EBO}$	3.0	V
Collector Current (Peak)	Ic	6	Α
Power Dissipation @ +25°C	P <sub>TOT</sub>	117	W
Storage Temperature	$T_{STG}$	-65 to +200	°C
Junction Temperature	$T_J$	200	°C

#### **Outline Drawing**



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

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 35mA		$BV_CES$	70	-	V
Collector-Emitter Leakage Current	V <sub>CE</sub> = 40V		I <sub>CES</sub>	-	3.5	mA
Thermal Resistance	Vcc = 45V, Pout = 75W	F = 1030, 1090 MHz	R <sub>TH(JC)</sub>	-	1.5	°C/W
Input Power	Vcc = 45V, Pout = 75W	F = 1030, 1090 MHz	P <sub>in</sub>	=	9.4	W
Power Gain	Vcc = 45V, Pout = 75W	F = 1030, 1090 MHz	$G_P$	9.0	-	dB
Collector Efficiency	Vcc = 45V, Pout = 75W	F = 1030, 1090 MHz	ης	45	i	%
Input Return Loss	Vcc = 45V, Pout = 75W	F = 1030, 1090 MHz	RL	-	-8	dB
Load Mismatch Tolerance	Vcc = 45V, Pout = 75W	F = 1030, 1090 MHz	VSWR-T	-	3:1	-
Load Mismatch Stability	Vcc = 45V, Pout = 75W	F = 1030, 1090 MHz	VSWR-S	-	1.5:1	-

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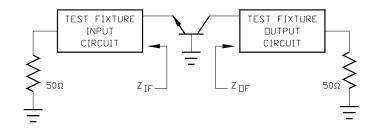
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#### **Typical RF Performance**

Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)
1030	6.39	75	10.70	2.84	58.7	-21.2	S	Р
1090	6.22	75	10.81	2.79	59.7	-13.7	S	Р

#### **RF Test Fixture Impedance**

F (MHz)	Z <sub>IF</sub> (Ω)	Z <sub>OF</sub> (Ω)
1030	1.8 - j5.9	8.9 + j0.3
1090	1.4 - j5.3	9.3 - j0.5



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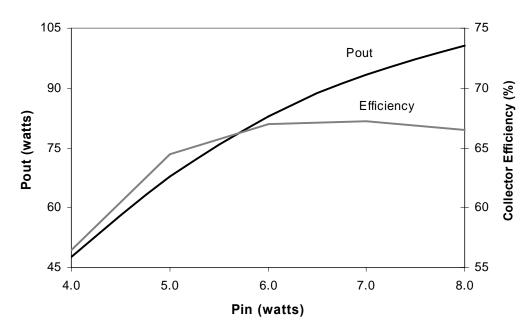
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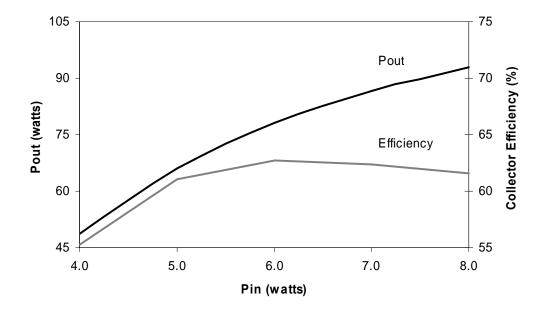
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#### RF Power Transfer Curve 1030 MHz, Output Power & Efficiency vs. Input Power



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



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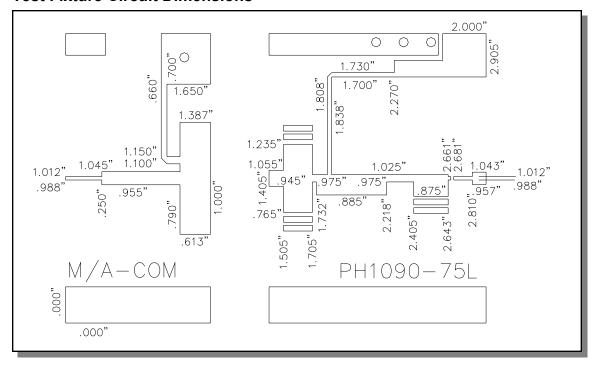
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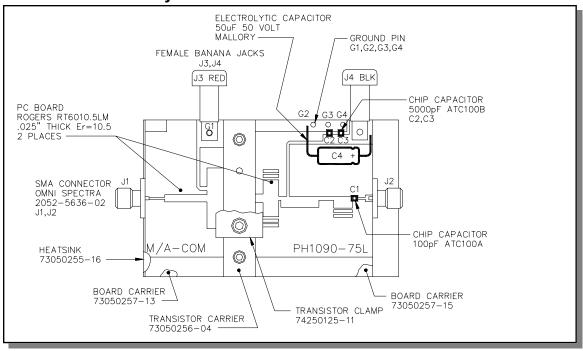


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#### **Test Fixture Circuit Dimensions**



#### **Test Fixture Assembly**



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