

# PH1090-550S



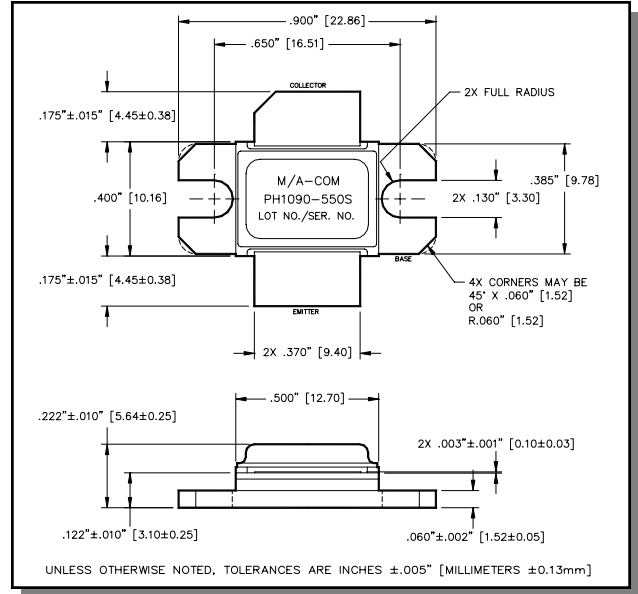
Avionics Pulsed Power Transistor  
550W, 1090 MHz, 10µs Pulse, 1% Duty

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)	$I_C$	28	A
Power Dissipation @ +25°C	$P_{TOT}$	3.5	kW
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	$I_C = 250\text{mA}$		$BV_{CES}$	80	-	V
Collector-Emitter Leakage Current	$V_{CE} = 50\text{V}$		$I_{CES}$	-	25	mA
Thermal Resistance	$V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$	$F = 1090\text{ MHz}$	$R_{TH(JC)}$	-	0.05	°C/W
Input Power	$V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$	$F = 1090\text{ MHz}$	$P_{IN}$	-	100	W
Power Gain	$V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$	$F = 1090\text{ MHz}$	$G_P$	7.4	-	dB
Collector Efficiency	$V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$	$F = 1090\text{ MHz}$	$\eta_C$	50	-	%
Input Return Loss	$V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$	$F = 1090\text{ MHz}$	RL	-	-9	dB
Load Mismatch Tolerance	$V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$	$F = 1090\text{ MHz}$	VSWR-T	-	10:1	-
Load Mismatch Stability	$V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$	$F = 1090\text{ MHz}$	VSWR-S	-	1.5:1	-

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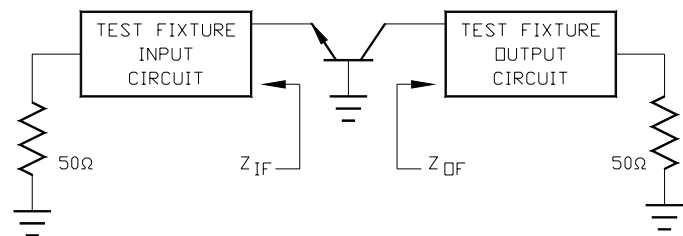
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## Typical RF Performance

Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (10:1)
1090	86	550	8.06	19.6	56.1	-27.7	S	P

## RF Test Fixture Impedance

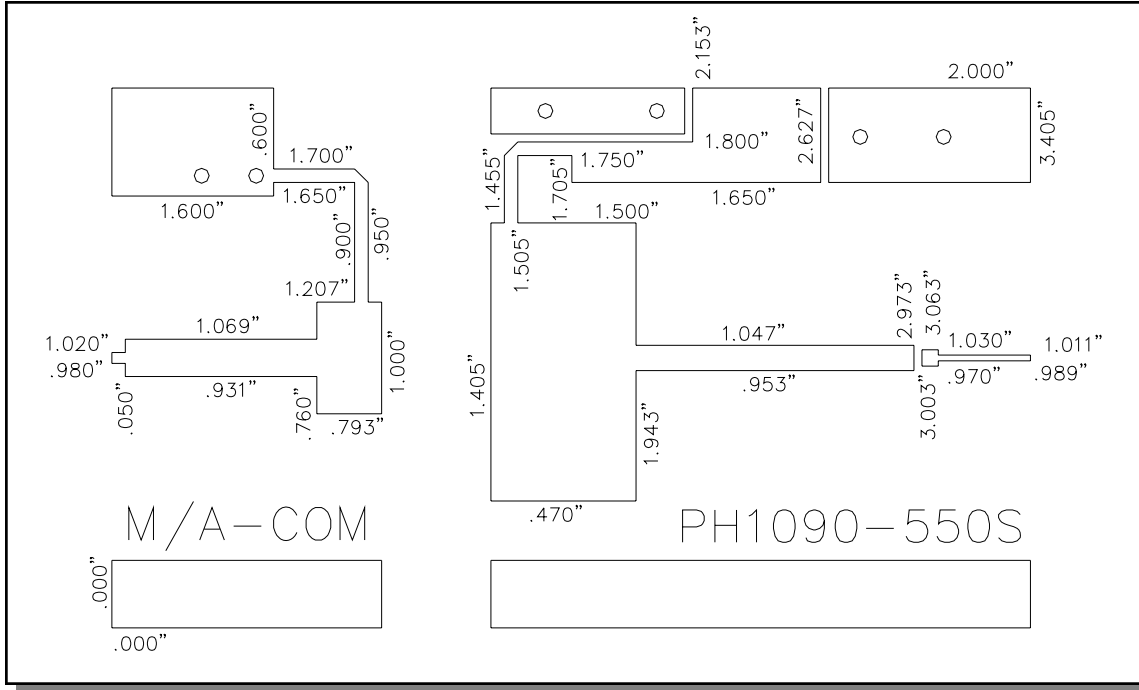
F (MHz)	Z <sub>IF</sub> ( $\Omega$ )	Z <sub>OF</sub> ( $\Omega$ )
1030	4.0 - j3.5	1.0 - j0.9
1090	3.6 - j2.7	1.1 - j1.9



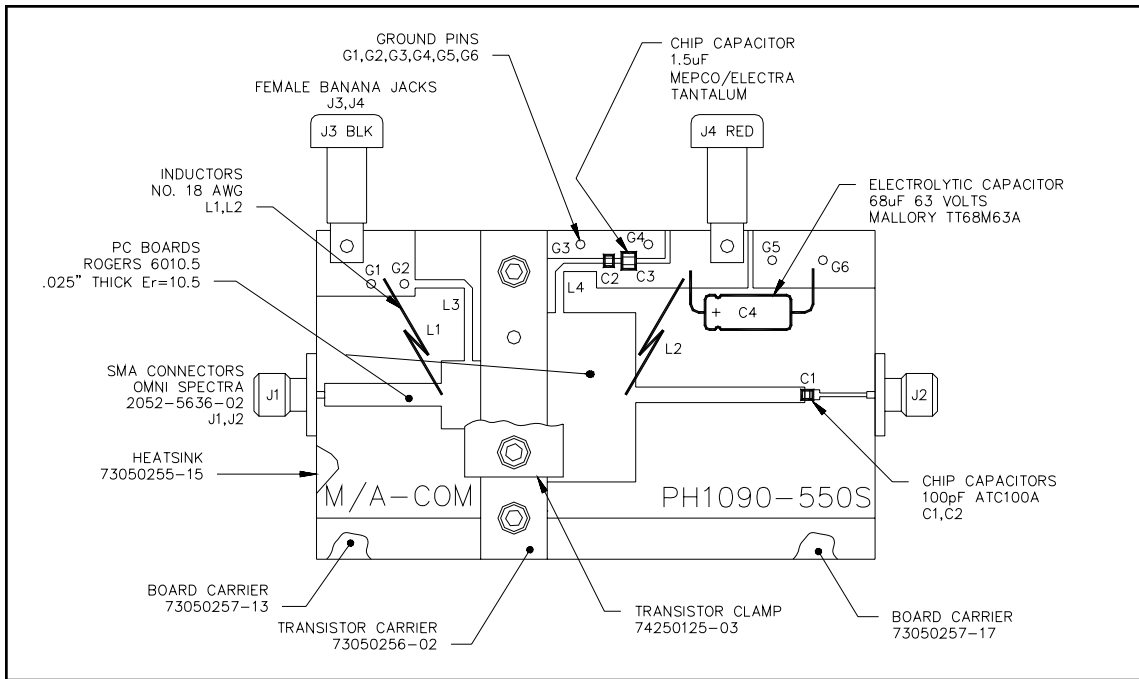
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## Test Fixture Circuit Dimensions



## Test Fixture Assembly



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