



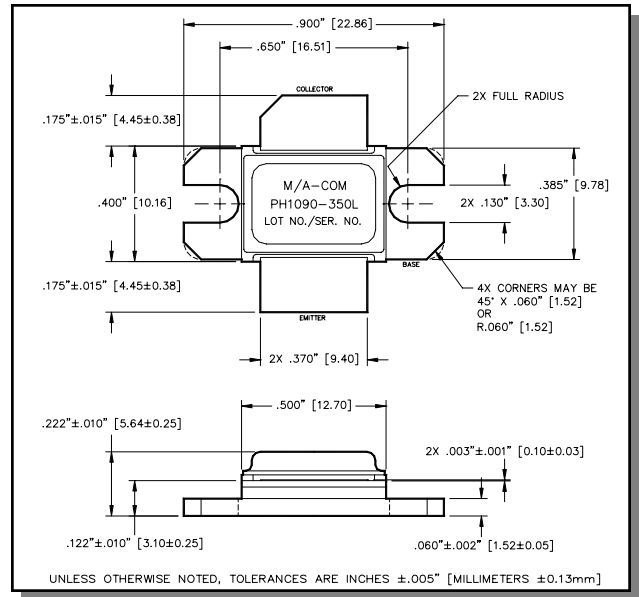
**THE DATASHEET OF  
PH1090-550S**



## 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)	$I_C$	17	A
Power Dissipation @ +25°C	$P_{TOT}$	875	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	$I_C = 250\text{mA}$		$BV_{CES}$	80	-	V
Collector-Emitter Leakage Current	$V_{CE} = 45\text{V}$		$I_{CES}$	-	25	mA
Thermal Resistance	$V_{CC} = 45\text{V}$ , $P_{out} = 350\text{W}$	$F = 1090\text{ MHz}$	$R_{TH(JC)}$	-	0.2	°C/W
Input Power	$V_{CC} = 45\text{V}$ , $P_{out} = 350\text{W}$	$F = 1090\text{ MHz}$	$P_{IN}$	35	55	W
Power Gain	$V_{CC} = 45\text{V}$ , $P_{out} = 350\text{W}$	$F = 1090\text{ MHz}$	$G_P$	8.0	10.0	dB
Collector Efficiency	$V_{CC} = 45\text{V}$ , $P_{out} = 350\text{W}$	$F = 1090\text{ MHz}$	$\eta_C$	55	-	%
Input Return Loss	$V_{CC} = 45\text{V}$ , $P_{out} = 350\text{W}$	$F = 1090\text{ MHz}$	RL	-	-9	dB
Load Mismatch Tolerance	$V_{CC} = 45\text{V}$ , $P_{out} = 350\text{W}$	$F = 1090\text{ MHz}$	VSWR-T	-	2:1	-
Load Mismatch Stability	$V_{CC} = 45\text{V}$ , $P_{out} = 350\text{W}$	$F = 1090\text{ MHz}$	VSWR-S	-	1.5:1	-

Avionics Pulsed Power Transistor  
350W, 1090 MHz, 250µs Pulse, 10% Duty

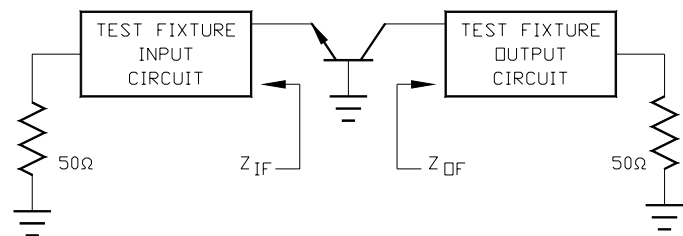
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## Typical RF Performance

Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (2:1)
1090	51.6	350	8.32	12.8	61.0	-15.0	S	P

## RF Test Fixture Impedance

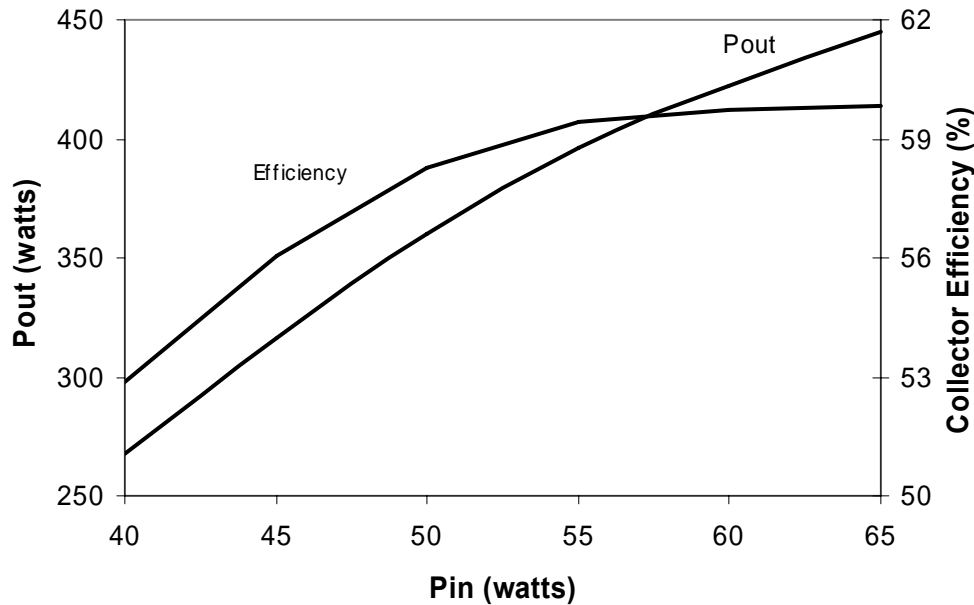
F (MHz)	Z <sub>IF</sub> (Ω)	Z <sub>OF</sub> (Ω)
1090	2.5 - j1.5	1.0 - j0.9



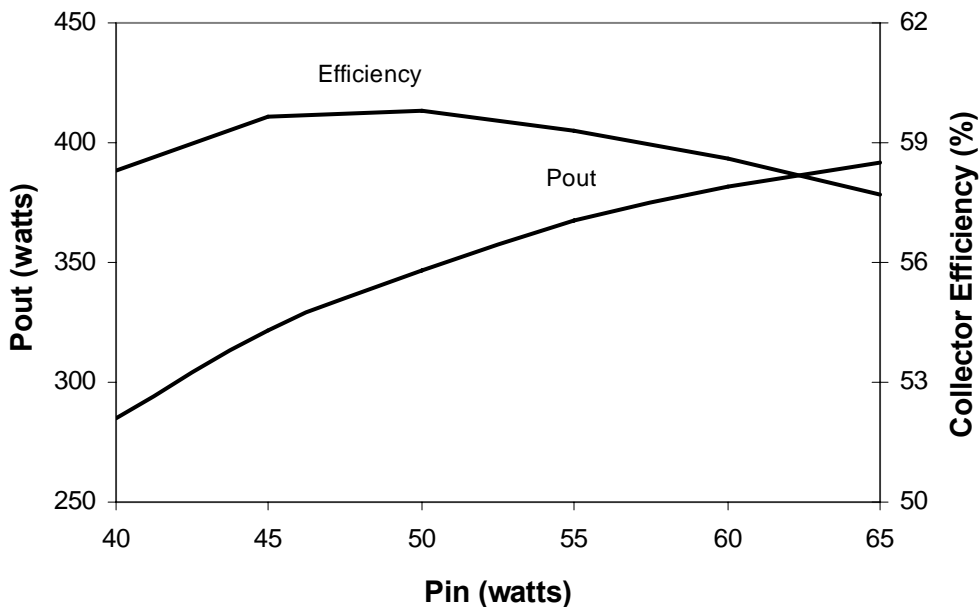
Avionics Pulsed Power Transistor  
 350W, 1090 MHz, 250µs Pulse, 10% Duty

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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



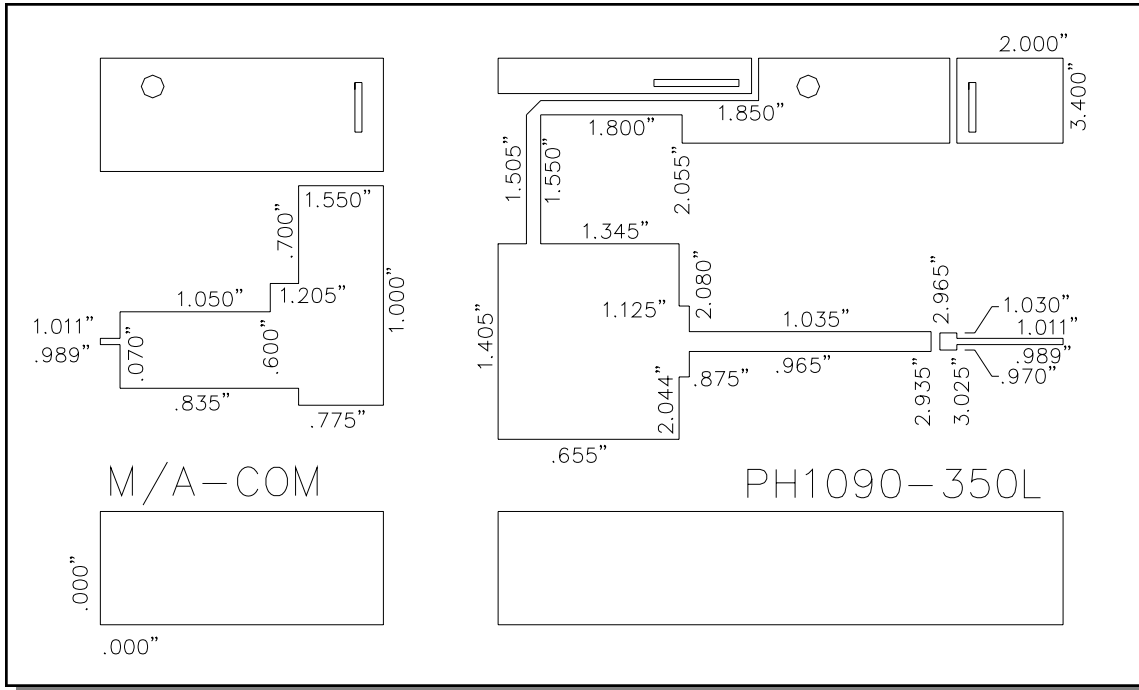
# PH1090-350L



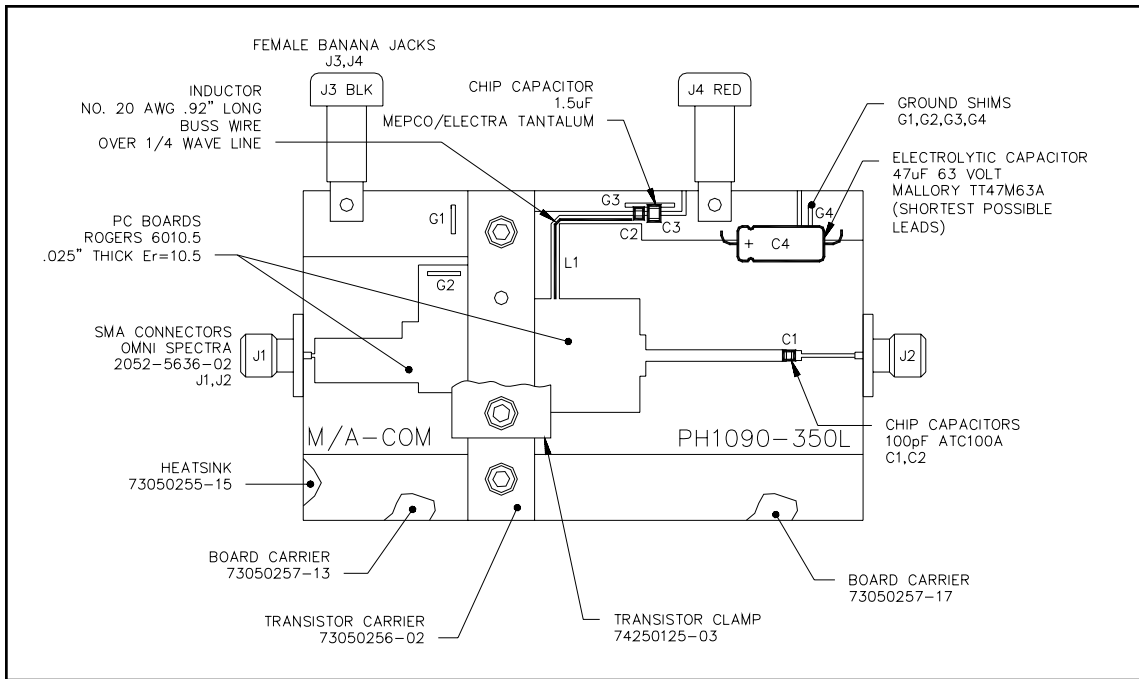
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## Test Fixture Circuit Dimensions



## Test Fixture Assembly



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