

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

M/A-COM Products Released, 30 May 07

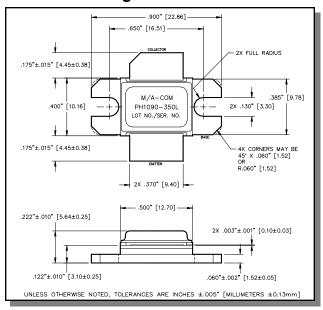
Features

- 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}	80	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I _C	17	Α
Power Dissipation @ +25°C	P _{TOT}	875	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 _C = 250mA		BV_CES	80	-	V
Collector-Emitter Leakage Current	V _{CE} = 45V		I _{CES}	-	25	mA
Thermal Resistance	Vcc = 45V, Pout = 350W	F = 1090 MHz	R _{TH(JC)}	-	0.2	°C/W
Input Power	Vcc = 45V, Pout = 350W	F = 1090 MHz	P _{IN}	35	55	W
Power Gain	Vcc = 45V, Pout = 350W	F = 1090 MHz	G_P	8.0	10.0	dB
Collector Efficiency	Vcc = 45V, Pout = 350W	F = 1090 MHz	ης	55	-	%
Input Return Loss	Vcc = 45V, Pout = 350W	F = 1090 MHz	RL	-	-9	dB
Load Mismatch Tolerance	Vcc = 45V, Pout = 350W	F = 1090 MHz	VSWR-T	-	2:1	-
Load Mismatch Stability	Vcc = 45V, Pout = 350W	F = 1090 MHz	VSWR-S	-	1.5:1	-

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PH1090-350L



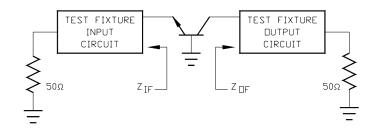
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Typical RF Performance

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

RF Test Fixture Impedance

F (MHz)	Z _{IF} (Ω)	Z _{OF} (Ω)		
1090	2.5 - j1.5	1.0 - j0.9		



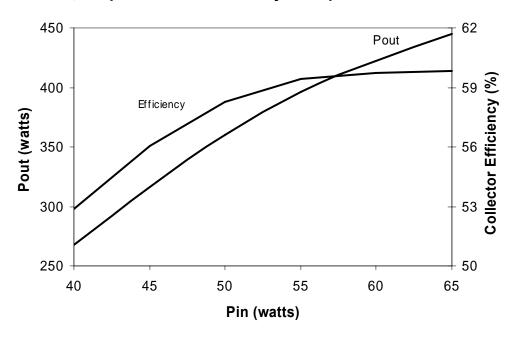
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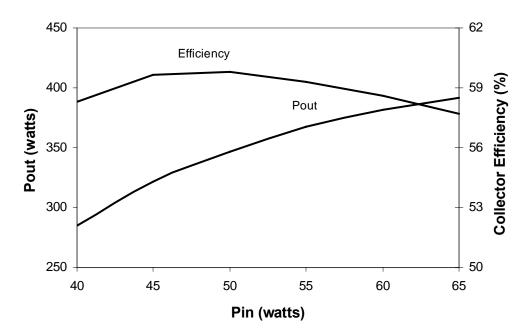


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RF Power Transfer Curve 1030 MHz, Output Power & Efficiency vs. Input Power



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



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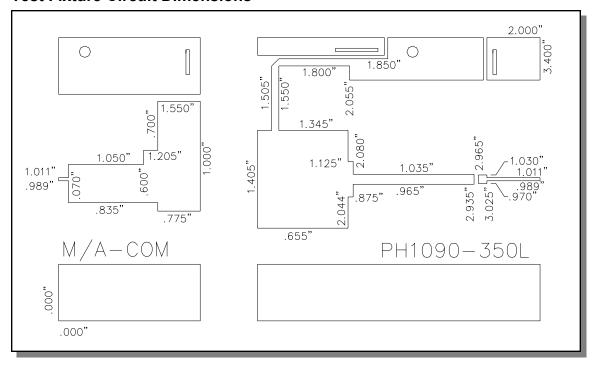
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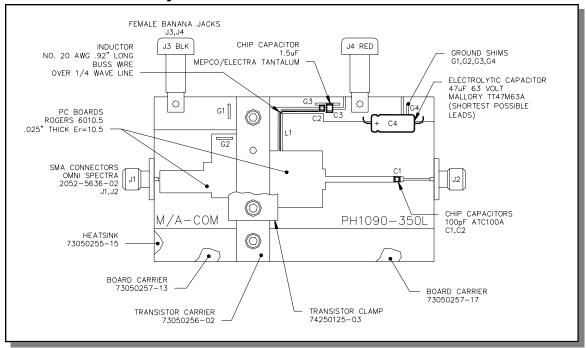


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Test Fixture Circuit Dimensions



Test Fixture Assembly



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