PH1090-700B

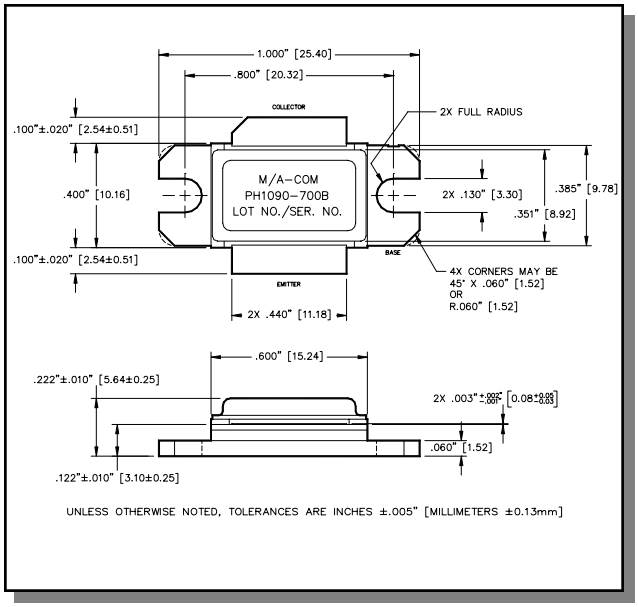
Avionics Pulsed Power Transistor
700W, 1030-1090 MHz, 32µs Pulse, 2% Duty

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	70	A
Power Dissipation @ +25°C	P_{TOT}	2.9	kW
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

Electrical Specifications: T_C = 25 ± 5°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} = 50V		I_{CES}	-	25	mA
Thermal Resistance	Vcc = 50V, Pout = 700W	F = 1030, 1090 MHz	$R_{TH(JC)}$	-	0.06	°C/W
Input Power	Vcc = 50V, Pout = 700W	F = 1030, 1090 MHz	P_{IN}	-	125	W
Power Gain	Vcc = 50V, Pout = 700W	F = 1030, 1090 MHz	G_P	7.5	-	dB
Collector Efficiency	Vcc = 50V, Pout = 700W	F = 1030, 1090 MHz	η_C	50	-	%
Input Return Loss	Vcc = 50V, Pout = 700W	F = 1030, 1090 MHz	RL	-	-10	dB
Load Mismatch Tolerance	Vcc = 50V, Pout = 700W	F = 1030, 1090 MHz	VSWR-T	-	5:1	-
Load Mismatch Stability	Vcc = 50V, Pout = 700W	F = 1030, 1090 MHz	VSWR-S	-	1.5:1	-

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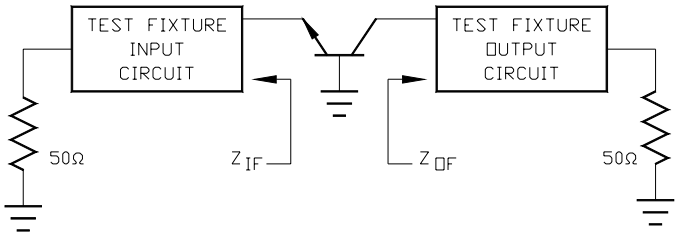
Typical RF Performance

Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (5:1)
1030	96	700	8.66	25.4	55.3	-17.5	S	P
1090	101	700	8.42	25.7	54.5	-16.7	S	P

RF Test Fixture Impedance

F (MHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
1030	1.1 - j1.4	1.2 - j0.8
1060	1.1 - j1.2	1.0 - j0.7
1090	1.0 - j1.0	0.8 - j0.7



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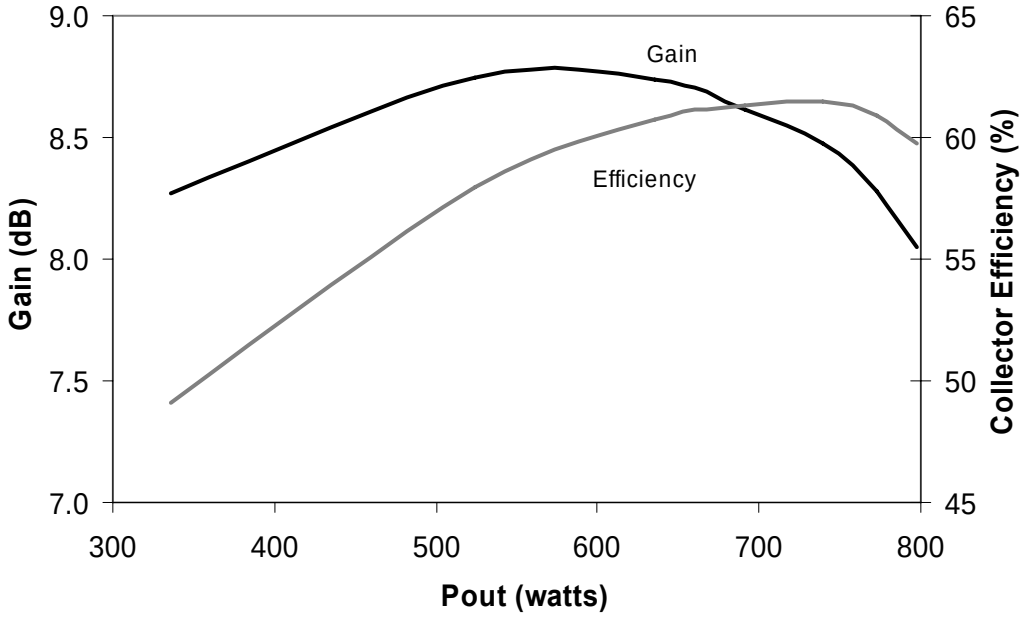
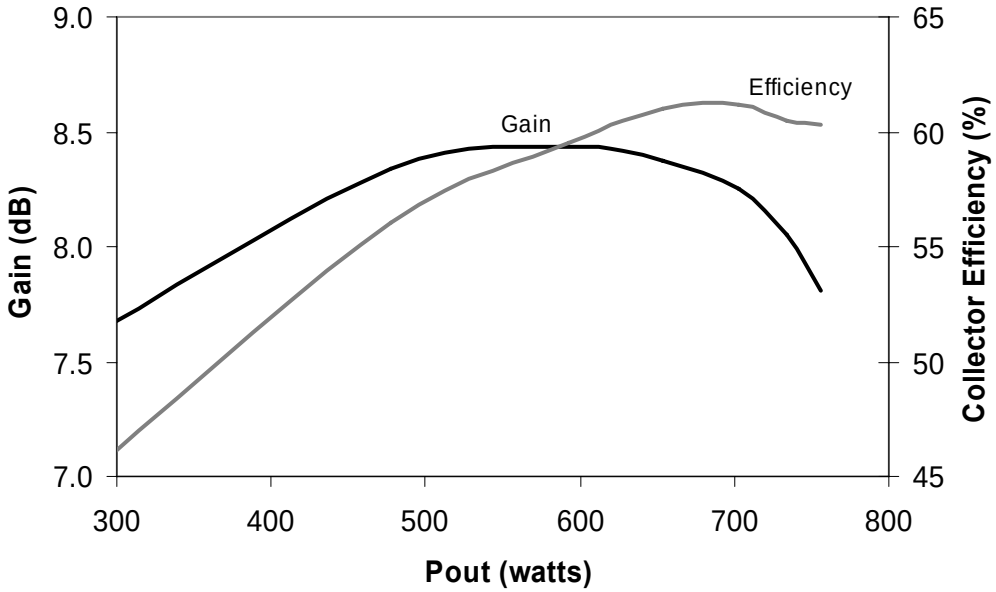
RF Power Transfer Curve
1030 MHz, Gain & Efficiency vs. Output Power



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



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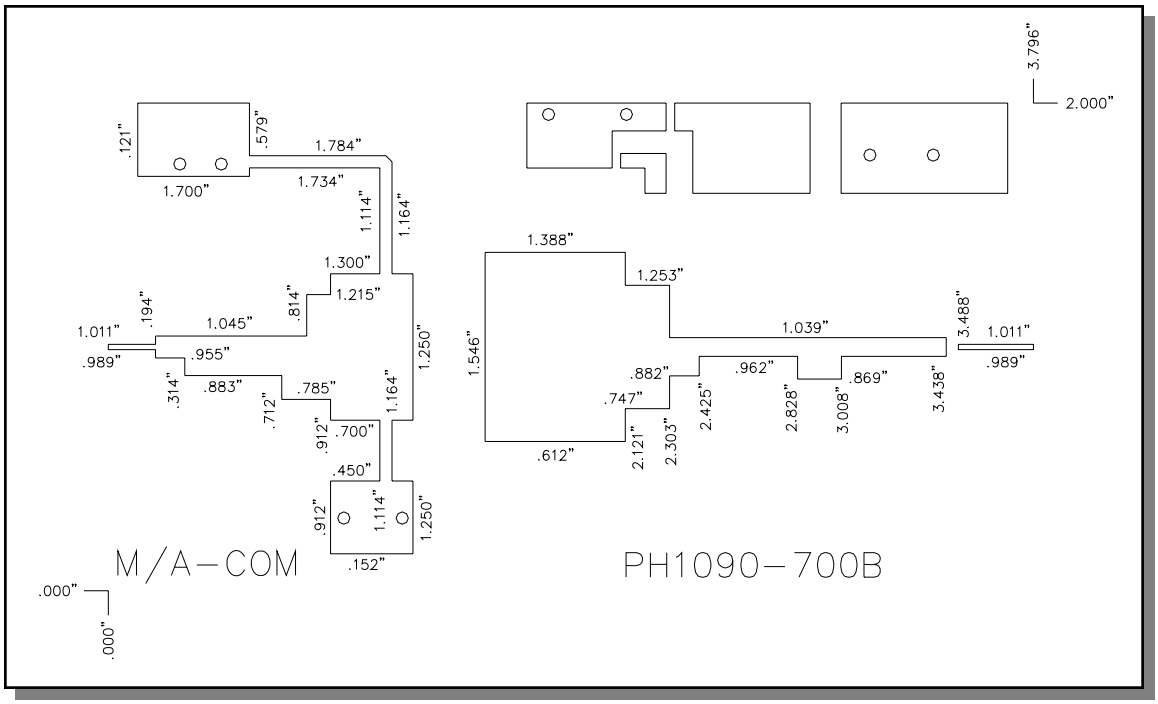
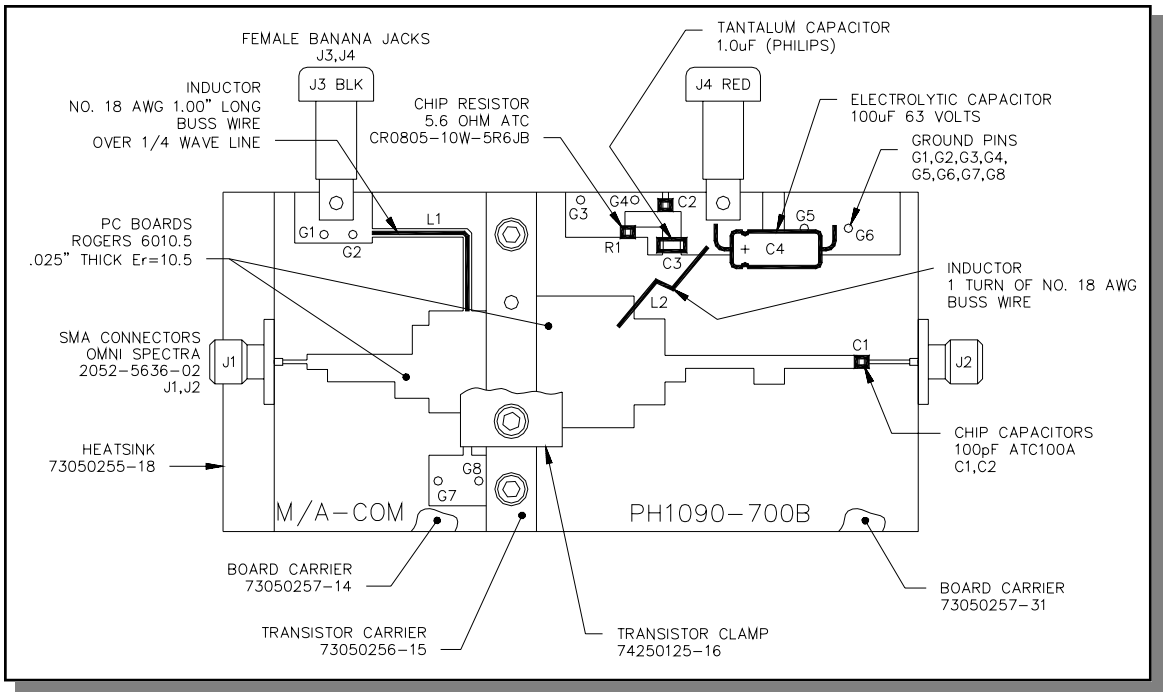
Test Fixture Circuit Dimensions



Test Fixture Assembly



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