PH1090-175L

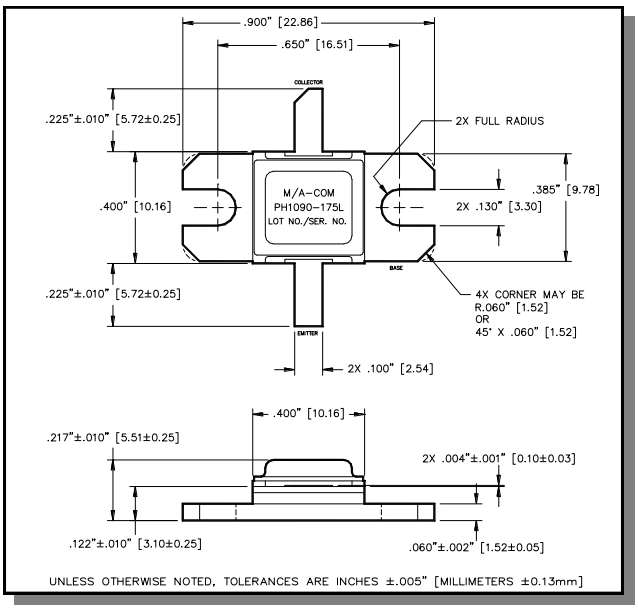
Avionics Pulsed Power Transistor
175W, 1090 MHz, 250µs Pulse, 10% Duty

Rev. V1

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	10.5	A
Power Dissipation @ +25°C	P_{TOT}	375	W
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

Electrical Specifications: T_C = 25 ± 5°C (Room Ambient)

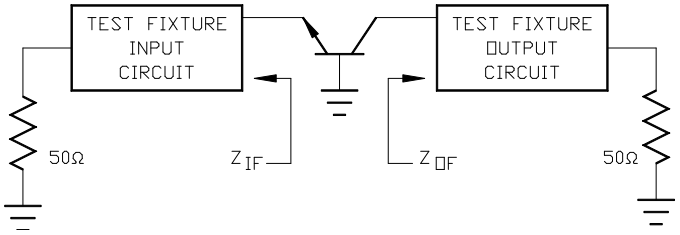
Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I_C = 125mA		BV_{CES}	80	-	V
Collector-Emitter Leakage Current	V_{CE} = 45V		I_{CES}	-	12.5	mA
Thermal Resistance	Vcc = 45V, Pin = 26W	F = 1090 MHz	$R_{TH(JC)}$	-	0.4	°C/W
Output Power	Vcc = 45V, Pin = 26W	F = 1090 MHz	P_{OUT}	175	-	W
Power Gain	Vcc = 45V, Pin = 26W	F = 1090 MHz	G_P	8.3	-	dB
Collector Efficiency	Vcc = 45V, Pin = 26W	F = 1090 MHz	η_C	55	-	%
Input Return Loss	Vcc = 45V, Pin = 26W	F = 1090 MHz	RL	-	-9	dB
Load Mismatch Tolerance	Vcc = 45V, Pin = 26W	F = 1090 MHz	VSWR-T	-	3:1	-
Load Mismatch Stability	Vcc = 45V, Pin = 26W	F = 1090 MHz	VSWR-S	-	1.5:1	-

Typical RF Performance

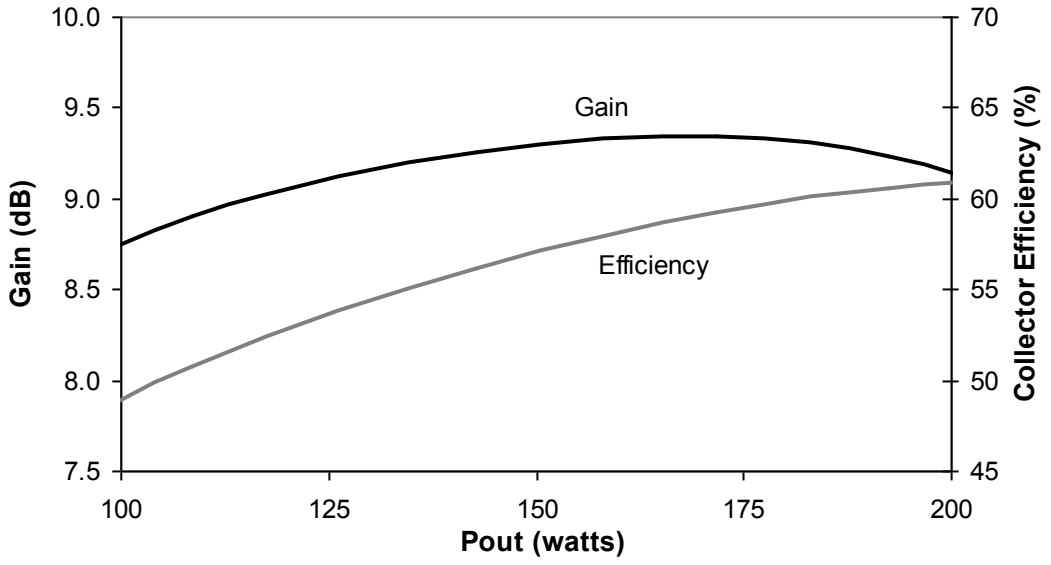
Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)
1090	26.0	188	8.58	7.16	58.3	-16.0	S	P

RF Test Fixture Impedance

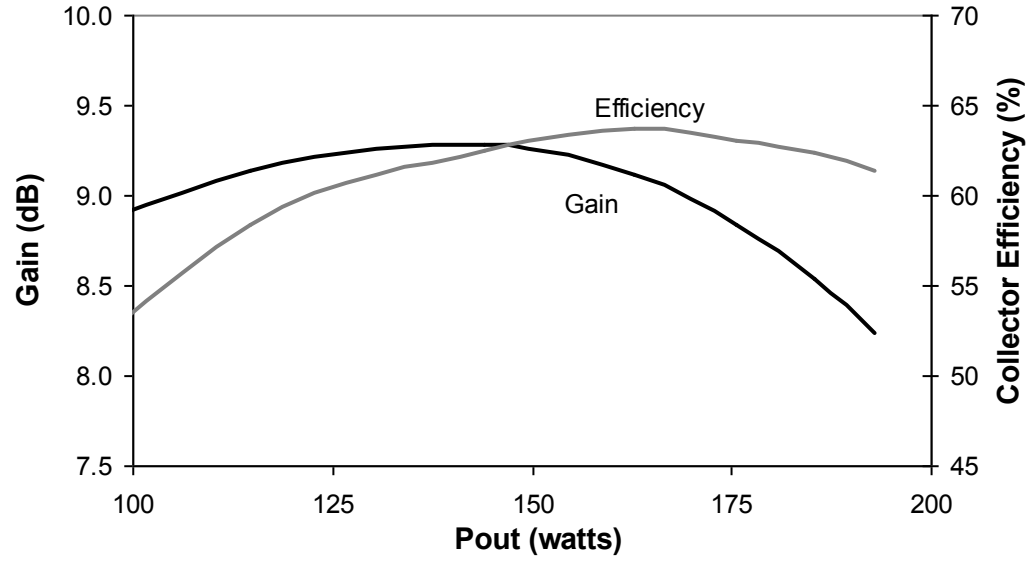
F (MHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
1030	3.4 - j5.6	2.3 - j2.2
1090	3.2 - j5.1	2.3 - j1.7



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



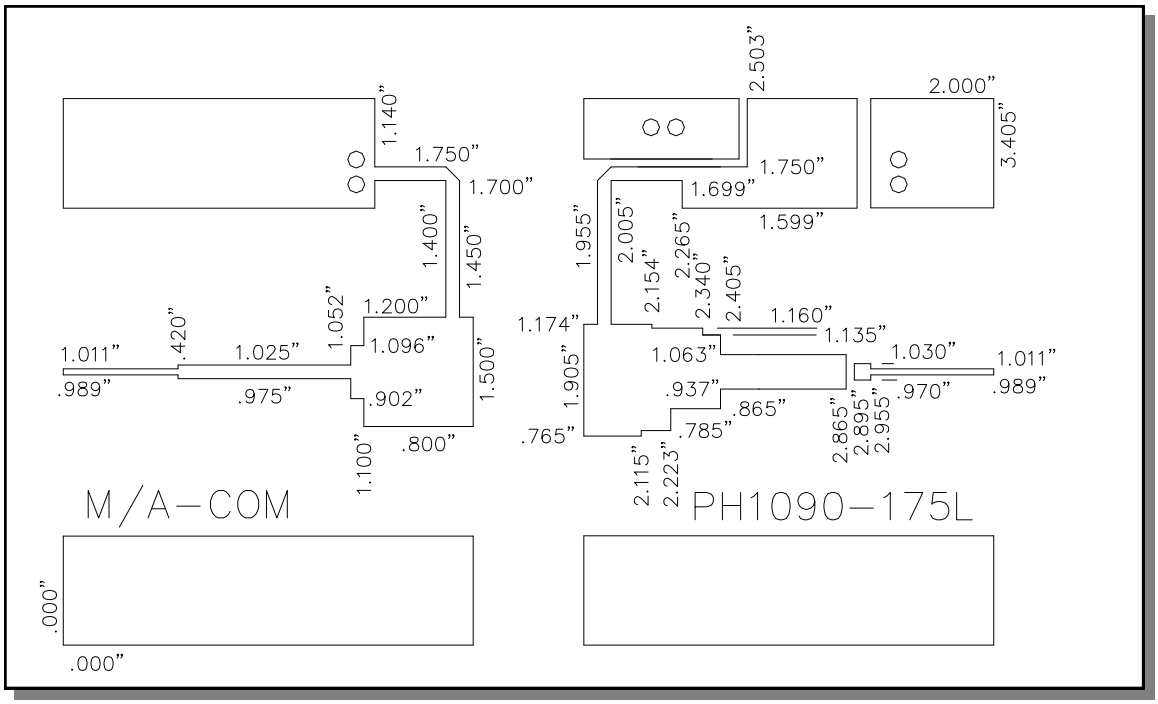
RF Power Transfer Curve
1090 MHz, Gain & Efficiency vs. Output Power



Avionics Pulsed Power Transistor
175W, 1090 MHz, 250µs Pulse, 10% Duty

Rev. V1

Test Fixture Circuit Dimensions



Test Fixture Assembly