PH2931-135S

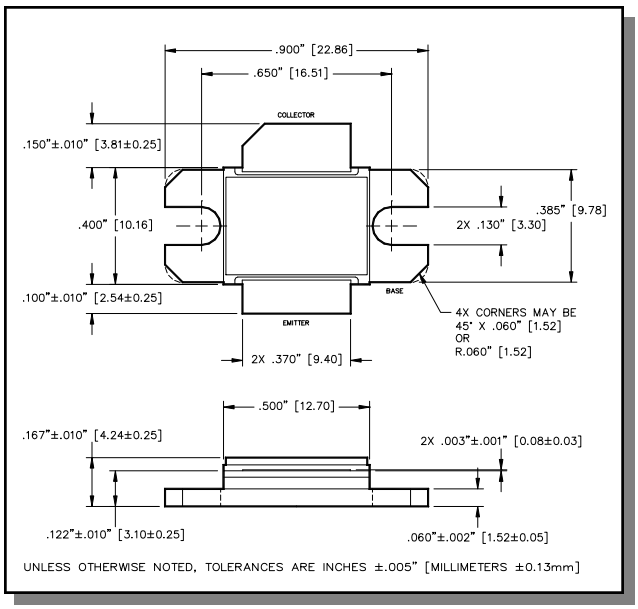
Radar Pulsed Power Transistor
135W, 2.9-3.1 GHz, 20µs Pulse, 1% Duty

M/A-COM Products
Released, 10 Aug 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	12	A
Power Dissipation @ +25°C	P_{TOT}	580	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 = 100mA		BV_{CES}	80	-	V
Collector-Emitter Leakage Current	V_{CE} = 40V		I_{CES}	-	7.5	mA
Thermal Resistance	Vcc = 42V, Pin = 24W	F = 2.9, 3.0, 3.1 GHz	$R_{TH(JC)}$	-	0.3	°C/W
Output Power	Vcc = 42V, Pin = 24W	F = 2.9, 3.0, 3.1 GHz	P_{OUT}	135	-	W
Power Gain	Vcc = 42V, Pin = 24W	F = 2.9, 3.0, 3.1 GHz	G_P	7.5	-	dB
Collector Efficiency	Vcc = 42V, Pin = 24W	F = 2.9, 3.0, 3.1 GHz	η_C	40	-	%
Input Return Loss	Vcc = 42V, Pin = 24W	F = 2.9, 3.0, 3.1 GHz	RL	-	-9	dB
Load Mismatch Tolerance	Vcc = 42V, Pin = 24W	F = 2.9, 3.0, 3.1 GHz	VSWR-T	-	2:1	-

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macomtech.com for additional data sheets and product information.

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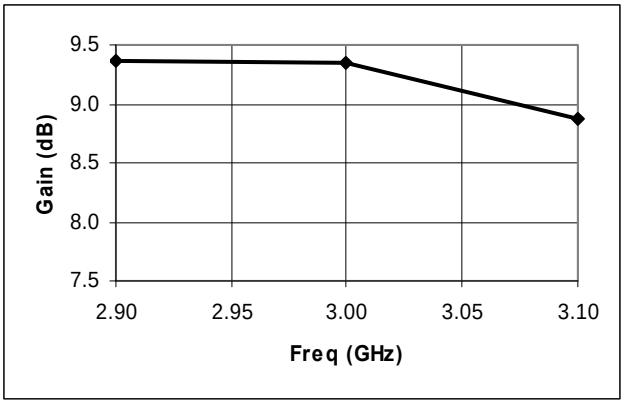
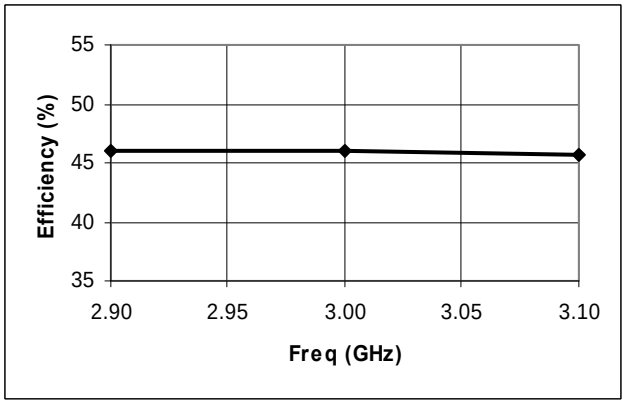
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-T (2:1)
2.9	24	207	9.36	10.8	46.0	-18.1	P
3.0	24	207	9.35	10.7	45.9	-19.6	P
3.1	24	185	8.87	9.7	45.6	-13.3	P

Gain vs. Frequency

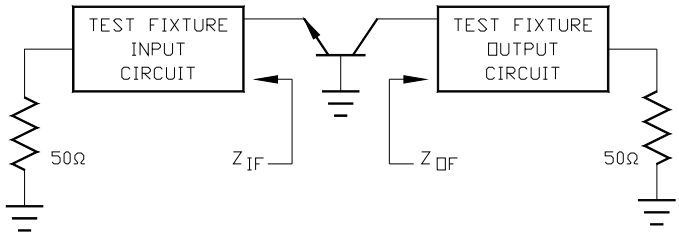


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

F (GHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
2.9	4.0 - j6.0	2.3 - j4.3
3.0	4.2 - j5.9	2.5 - j3.9
3.1	4.1 - j5.9	2.4 - j3.8



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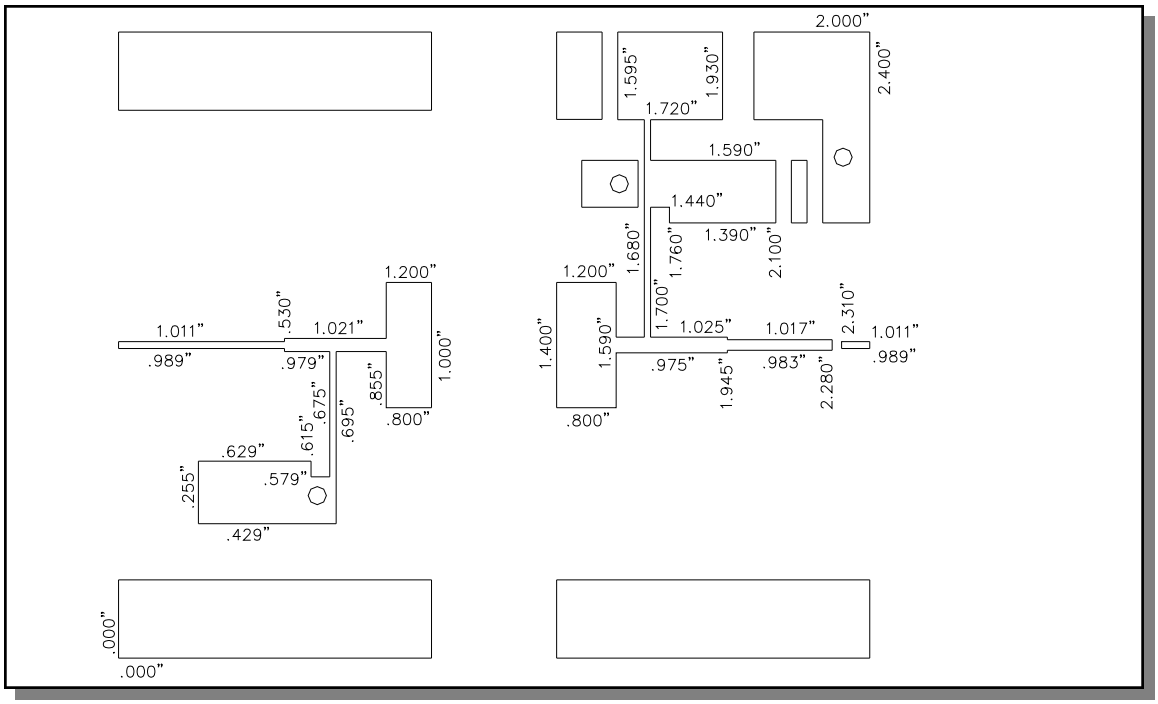
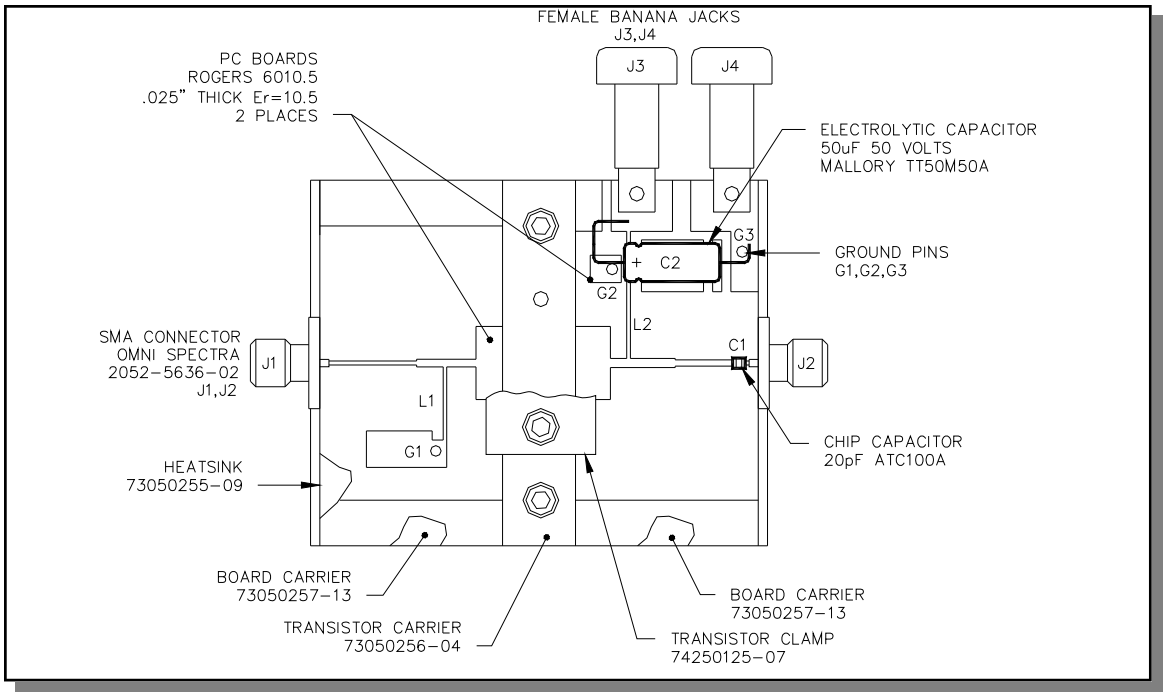
Test Fixture Circuit Dimensions



Test Fixture Assembly



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