

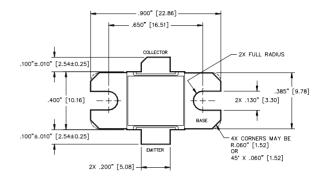
Radar Pulsed Power Transistor 130 W, 2.7—-2.9 GHz, 100 µs Pulse, 10% Duty

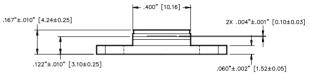
Rev. V1

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





UNLESS OTHERWISE NOTED, TOLERANCES ARE INCHES ±.005" [MILLIMETERS ±0.13MM]

Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V _{CES}	63	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	Ic	12.5	Α
Power Dissipation @ +25°C	P _{TOT}	575	W
Storage Temperature	T _{STG}	-65 to +200	°C
Junction Temperature	Τ _J	200	°C

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 = 40mA		BV _{CES}	63	-	V
Collector-Emitter Leakage Current	V _{CE} = 36V		I _{CES}	-	7.5	mA
Thermal Resistance	Vcc = 36V, Pout = 130W	F = 2.7, 2.8, 2.9 GHz	R _{TH(JC)}	-	0.3	°C/W
Input Power	Vcc = 36V, Pout = 130W	F = 2.7, 2.8, 2.9 GHz	P _{IN}	-	23	W
Power Gain	Vcc = 36V, Pout = 130W	F = 2.7, 2.8, 2.9 GHz	G _P	7.0	-	dB
Collector Efficiency	Vcc = 36V, Pout = 130W	F = 2.7, 2.8, 2.9 GHz	ης	40	-	%
Input Return Loss	Vcc = 36V, Pout = 130W	F = 2.7, 2.8, 2.9 GHz	RL	-	-10	dB
Pulse Droop	Vcc = 36V, Pout = 130W	F = 2.7, 2.8, 2.9 GHz	Droop	-	0.5	dB
Load Mismatch Tolerance	Vcc = 36V, Pout = 130W	F = 2.7, 2.8, 2.9 GHz	VSWR-T	-	2:1	-
Load Mismatch Stability	Vcc = 36V, Pout = 130W	F = 2.7, 2.8, 2.9 GHz	VSWR-S	-	1.5:1	-



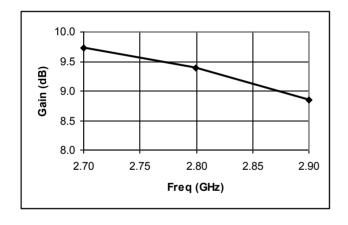
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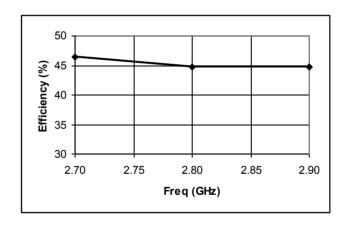
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (2:1)
2.7	13.9	130	9.73	7.78	46.4	-11.4	S	Р
2.8	15.0	130	9.38	8.07	44.8	-13.6	S	Р
2.9	17.0	130	8.85	8.07	44.8	-13.8	S	Р

Gain vs. Frequency

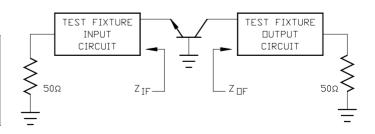


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

F (GHz)	Z _{IF} (Ω)	Z _{OF} (Ω)
2.7	5.5 - j9.1	1.9 - j5.6
2.8	5.25 - j8.8	1.75 - j5.2
2.9	5.05 - j8.3	1.6 - j4.8

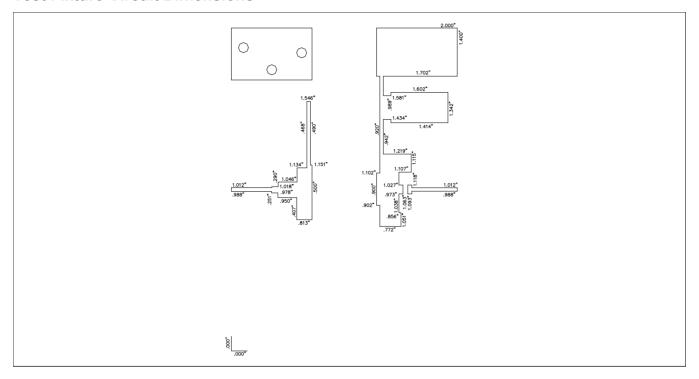




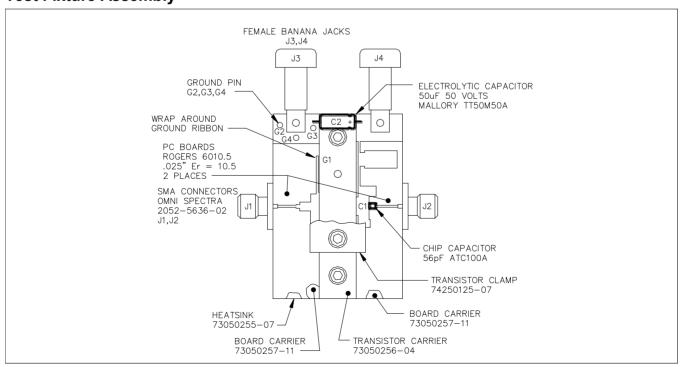
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Test Fixture Circuit Dimensions



Test Fixture Assembly



PH2729-130M



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