

Radar Pulsed Power Transistor 110W, 2.7-2.9 GHz, 100µs Pulse, 10% Duty

Rev. V1

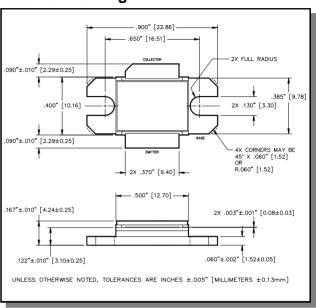
Features

- 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

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	8.0	Α
Power Dissipation @ +25°C	P _{TOT}	330	W
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

Outline Drawing



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

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I _C = 50mA		BV _{CES}	63	-	V
Collector-Emitter Leakage Current	V _{CE} = 36V		I _{CES}	-	7.5	mA
Thermal Resistance	Vcc = 36V, Pin = 23W	F = 2.7, 2.8, 2.9 GHz	R _{TH(JC)}	-	0.3	°C/W
Output Power	Vcc = 36V, Pin = 23W	F = 2.7, 2.8, 2.9 GHz	P _{OUT}	110	-	W
Power Gain	Vcc = 36V, Pin = 23W	F = 2.7, 2.8, 2.9 GHz	G _P	6.8	-	dB
Collector Efficiency	Vcc = 36V, Pin = 23W	F = 2.7, 2.8, 2.9 GHz	ης	35	-	%
Input Return Loss	Vcc = 36V, Pin = 23W	F = 2.7, 2.8, 2.9 GHz	RL	-	-6	dB
Load Mismatch Tolerance	Vcc = 36V, Pin = 23W	F = 2.7, 2.8, 2.9 GHz	VSWR-T	-	2:1	-
Load Mismatch Stability	Vcc = 36V, Pin = 23W	F = 2.7, 2.8, 2.9 GHz	VSWR-S	-	1.5:1	-



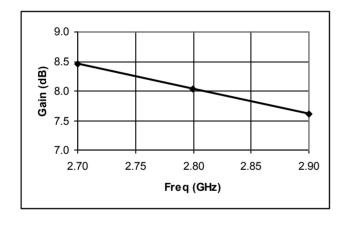
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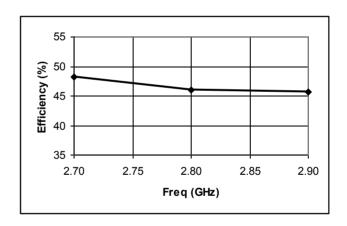
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (2:1)
2.7	23	162	8.46	9.31	48.2	-23.9	S	Р
2.8	23	146	8.03	8.82	46.0	-16.6	S	Р
2.9	23	133	7.60	8.07	45.6	-13.8	S	Р

Gain vs. Frequency

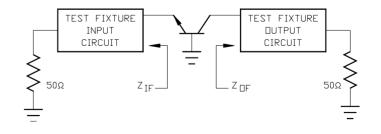


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

F (GHz)	Z _{IF} (Ω)	Z _{OF} (Ω)
2.7	4.3 - j7.0	2.6 - j3.9
2.8	4.4 - j6.4	2.8 - j3.5
2.9	4.6 - j5.8	2.9 - j3.1

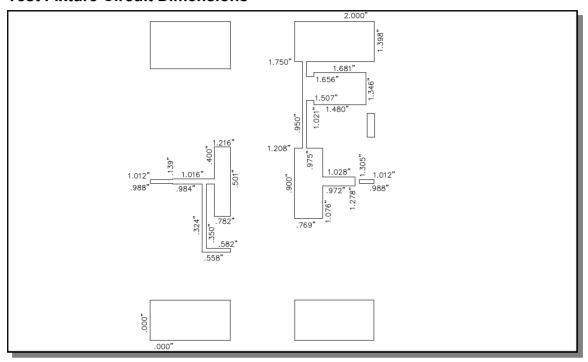




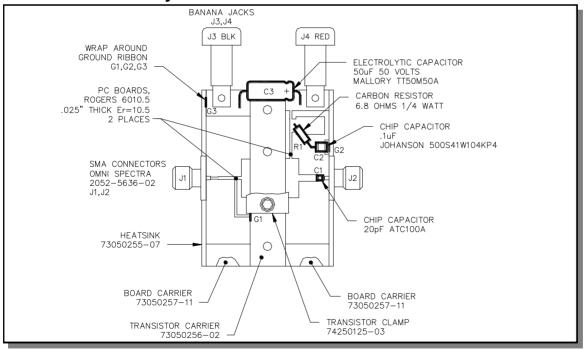
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Test Fixture Circuit Dimensions



Test Fixture Assembly



PH2729-110M



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