Radar Pulsed Power Transistor 25W, 3.1-3.4 GHz, 100µs Pulse, 10% Duty

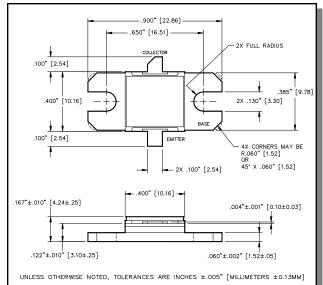
Features

- 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



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Outline Drawing



Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V _{CES}	65	V
Emitter-Base Voltage	V _{EBO}	3.0	V
Collector Current (Peak)	Ι _C	3.0	А
Power Dissipation @ +25°C	P _{TOT}	159	W
Storage Temperature	T _{STG}	-65 to +200	°C
Junction Temperature	TJ	200	°C

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

Parameter	Test Conditions	Frequency	Symbol	Min	Мах	Units
Collector-Emitter Breakdown Voltage	I _C = 10mA		BV _{CES}	65	-	V
Collector-Emitter Leakage Current	V _{CE} = 40V		I _{CES}	-	1.5	mA
Thermal Resistance	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	R _{TH(JC)}	-	1.1	°C/W
Input Power	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	P _{IN}	-	4.45	W
Power Gain	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	G _P	7.5	-	dB
Collector Efficiency	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	η _c	35	-	%
Input Return Loss	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	RL	-	-6	dB
Load Mismatch Tolerance	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	VSWR-T	-	2:1	-

1

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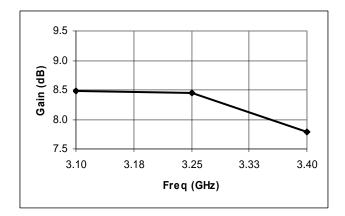
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Radar Pulsed Power Transistor
25W, 3.1-3.4 GHz, 100µs Pulse, 10% Duty

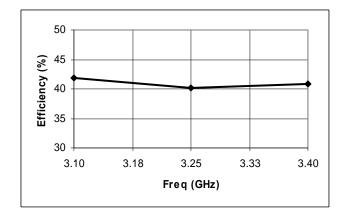
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	lc (A)	Eff (%)	RL (dB)	VSWR-T (2:1)
3.10	3.54	25.0	8.49	1.66	41.8	-10.0	-
3.25	3.57	25.0	8.45	1.73	40.1	-10.8	Р
3.40	4.16	25.0	7.79	1.70	40.8	-17.6	-

Gain vs. Frequency

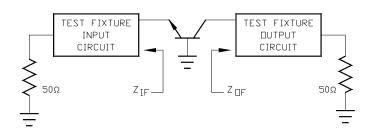


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

F (GHz)	Z _{IF} (Ω)	Z _{OF} (Ω)
3.10	16.0 + j5.0	19.0 + j3.0
3.25	14.5 + j2.0	15.5 - j2.0
3.40	11.5 + j0.0	10.0 - j3.5



2

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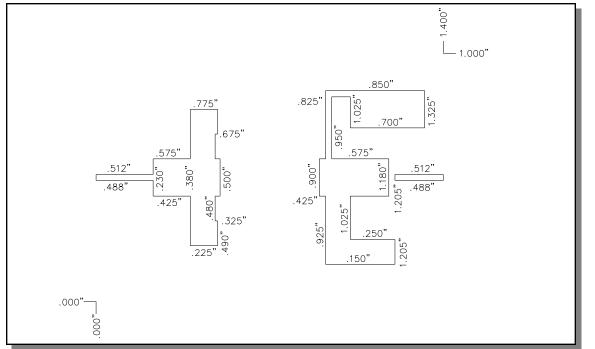
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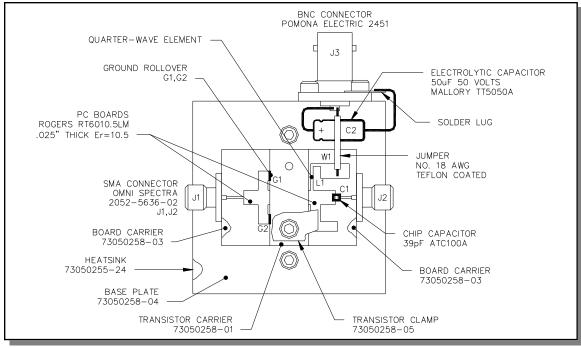
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Test Fixture Circuit Dimensions



Test Fixture Assembly



3

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