

M/A-COM Products

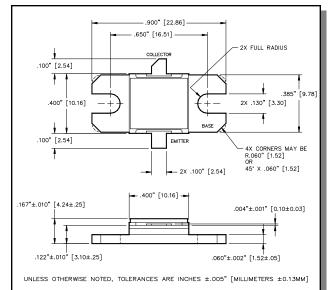
Released, 10 Jul 07

Radar Pulsed Power Transistor 5W, 3.1-3.5 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

Outline Drawing



Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V _{CES}	60	V
Emitter-Base Voltage	V _{EBO}	3.0	V
Collector Current (Peak)	Ι _C	0.7	А
Power Dissipation @ +25°C	P _{TOT}	50	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}	60	-	V
Collector-Emitter Leakage Current	$V_{CE} = 40V$		I _{CES}	-	1.0	mA
Thermal Resistance	Vcc = 33V, Pin = 0.7W	F = 3.1, 3.3, 3.5 GHz	R _{TH(JC)}	-	3.5	°C/W
Output Power	Vcc = 33V, Pin = 0.7W	F = 3.1, 3.3, 3.5 GHz	P _{OUT}	5.0	-	W
Power Gain	Vcc = 33V, Pin = 0.7W	F = 3.1, 3.3, 3.5 GHz	G _P	8.5	-	dB
Collector Efficiency	Vcc = 33V, Pin = 0.7W	F = 3.1, 3.3, 3.5 GHz	η _c	30	-	%
Input Return Loss	Vcc = 33V, Pin = 0.7W	F = 3.1, 3.3, 3.5 GHz	RL	-	-6	dB
Load Mismatch Tolerance	Vcc = 33V, Pin = 0.7W	F = 3.1, 3.3, 3.5 GHz	VSWR-T	-	2:1	-

1

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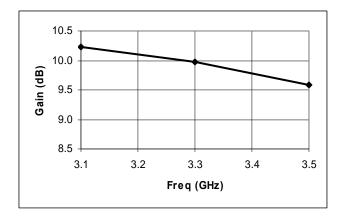
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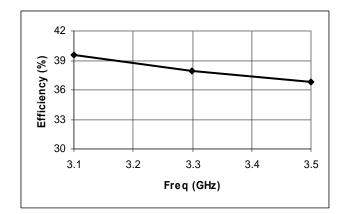
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	lc (A)	Eff (%)	RL (dB)	VSWR-T (2:1)
3.1	0.7	7.37	10.22	0.565	39.5	-10.6	Р
3.3	0.7	6.98	9.98	0.558	37.9	-19.3	Р
3.5	0.7	6.36	9.58	0.523	36.9	-11.2	Р

Gain vs. Frequency

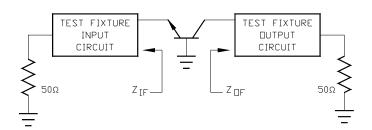


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

F (GHz)	Z _{IF} (Ω)	Z _{OF} (Ω)
3.1	24 - j4.4	24 - j20
3.3	20 - j0.7	18 - j11
3.5	17 + j3.9	15 - j3.0



2

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