

**M/A-COM Products** 

Released, 10 Aug 07

# Radar Pulsed Power Transistor 65W, 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 <sub>CES</sub>	65	V
Emitter-Base Voltage	V <sub>EBO</sub>	3.0	V
Collector Current (Peak)	Ι <sub>C</sub>	7.7	А
Power Dissipation @ +25°C	P <sub>TOT</sub>	350	W
Storage Temperature	T <sub>STG</sub>	-65 to +200	°C
Junction Temperature	TJ	200	°C

### Electrical Specifications: T<sub>c</sub> = 25 ± 5°C (Room Ambient )

Parameter	Test Conditions	Frequency	Symbol	Min	Мах	Units
Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 25mA		BV <sub>CES</sub>	65	-	V
Collector-Emitter Leakage Current	V <sub>CE</sub> = 36V		I <sub>CES</sub>	-	5.0	mA
Thermal Resistance	Vcc = 36V, Pout = 65W	F = 3.1, 3.3, 3.5 GHz	R <sub>TH(JC)</sub>	-	0.5	°C/W
Output Power	Vcc = 36V, Pout = 65W	F = 3.1, 3.3, 3.5 GHz	P <sub>IN</sub>	-	11.6	W
Power Gain	Vcc = 36V, Pout = 65W	F = 3.1, 3.3, 3.5 GHz	G <sub>P</sub>	75	-	dB
Collector Efficiency	Vcc = 36V, Pout = 65W	F = 3.1, 3.3, 3.5 GHz	η <sub>c</sub>	35	-	%
Input Return Loss	Vcc = 36V, Pout = 65W	F = 3.1, 3.3, 3.5 GHz	RL	-	-6	dB
Load Mismatch Tolerance	Vcc = 36V, Pout = 65W	F = 3.1, 3.3, 3.5 GHz	VSWR-T	-	2:1	-

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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	8.0	65	9.09	4.35	41.5	-10.5	Р
3.3	8.3	65	8.95	4.24	42.6	-9.8	Р
3.5	9.8	65	8.23	4.64	38.9	-17.3	Р

Gain vs. Frequency



#### **Collector Efficiency vs. Frequency**



#### **RF Test Fixture Impedance**

F (GHz)	Z <sub>IF</sub> (Ω)	$Z_{OF}(\Omega)$
3.1	8.9 - j11.2	5.2 - j11.0
3.3	8.7 - j8.6	4.2 - j8.8
3.5	8.6 - j6.0	4.7 - j7.0



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## **Test Fixture Circuit Dimensions**



### **Test Fixture Assembly**



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