PH3134-10M

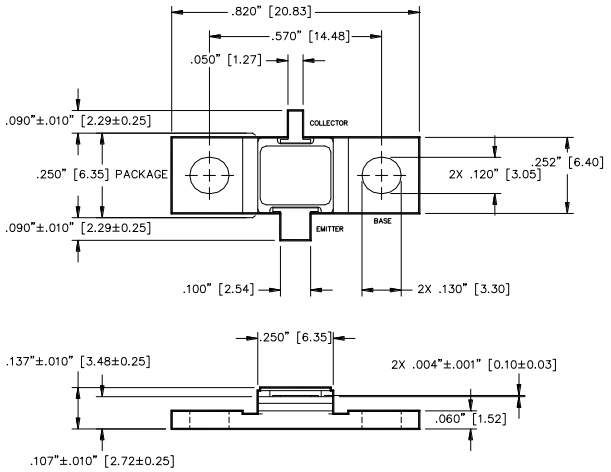
Radar Pulsed Power Transistor
10W, 3.1-3.4 GHz, 100µs Pulse, 10% Duty

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

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}	60	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	1.2	A
Power Dissipation @ +25°C	P_{TOT}	70	W
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

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

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I_C = 12.5mA		BV_{CES}	60	-	V
Collector-Emitter Leakage Current	V_{CE} = 36V		I_{CES}	-	1.25	mA
Thermal Resistance	Vcc = 36V, Pout = 10W	F = 3.1, 3.25, 3.4 GHz	$R_{TH(JC)}$	-	2.5	°C/W
Input Power	Vcc = 36V, Pout = 10W	F = 3.1, 3.25, 3.4 GHz	P_{IN}	-	1.6	W
Power Gain	Vcc = 36V, Pout = 10W	F = 3.1, 3.25, 3.4 GHz	G_P	8.0	-	dB
Collector Efficiency	Vcc = 36V, Pout = 10W	F = 3.1, 3.25, 3.4 GHz	η_C	35	-	%
Input Return Loss	Vcc = 36V, Pout = 10W	F = 3.1, 3.25, 3.4 GHz	RL	-	-6	dB
Load Mismatch Tolerance	Vcc = 36V, Pout = 10W	F = 3.1, 3.25, 3.4 GHz	VSWR-T	-	2:1	-

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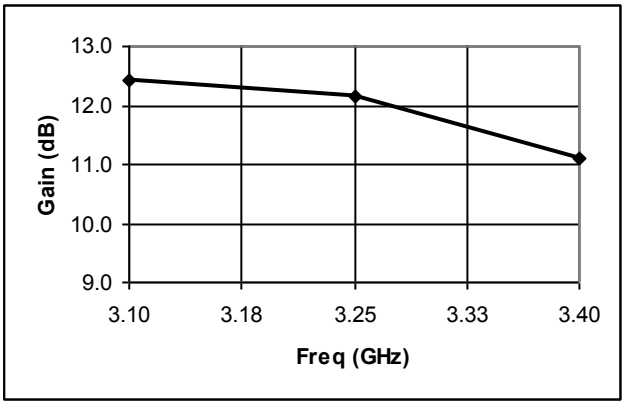
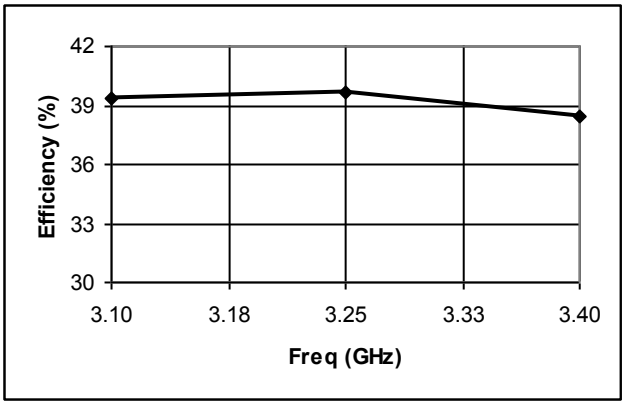
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-T (2:1)
3.10	0.58	10.0	12.42	0.705	39.4	-13.5	-
3.25	0.61	10.0	12.14	0.701	39.6	-16.7	P
3.40	0.78	10.0	11.11	0.723	38.4	-16.3	-

Gain vs. Frequency

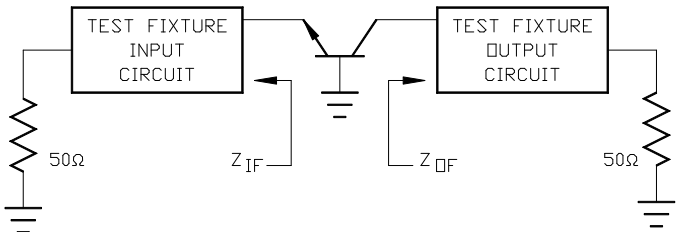


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

F (GHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
3.10	17.5 - j8.5	90 + j37
3.25	15.0 - j8.2	58 + j7.0
3.40	13.0 - j8.0	30 + j14.5



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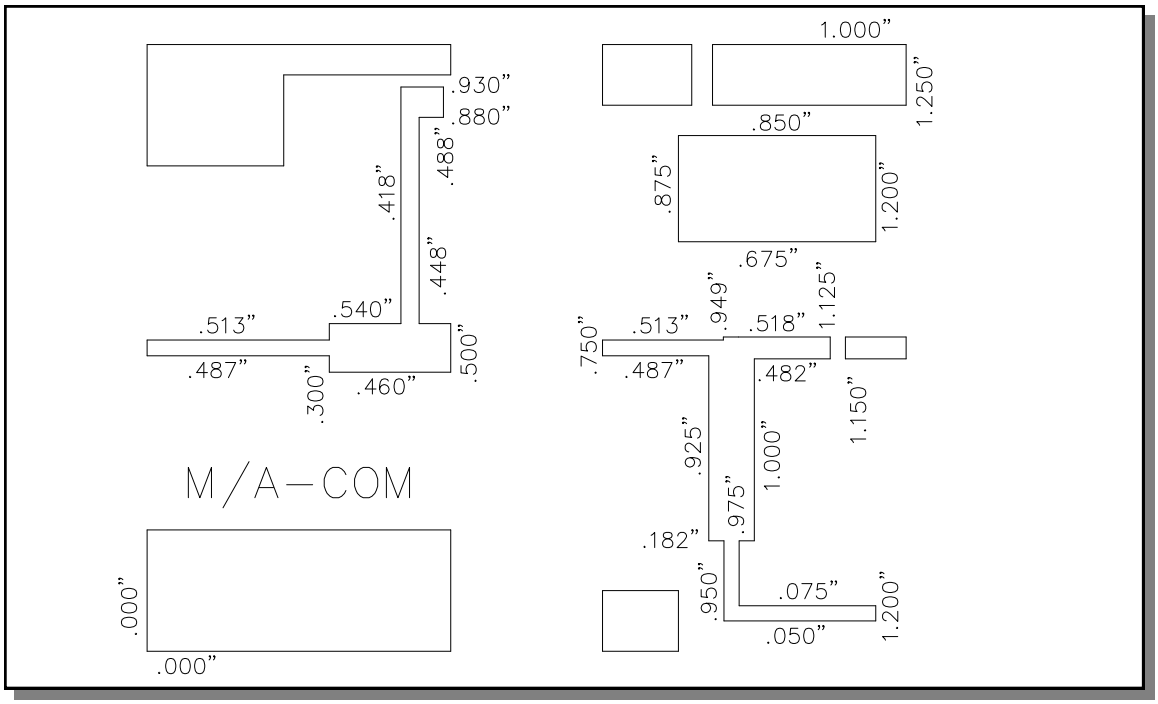
Test Fixture Circuit Dimensions



Test Fixture Assembly