PH2729-65M

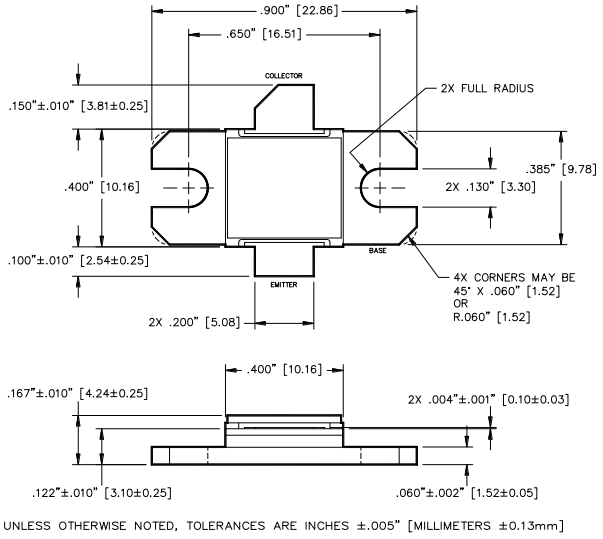
Radar Pulsed Power Transistor
65W, 2.7-2.9 GHz, 100µs Pulse, 10% Duty

Rev. V2

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	Sym-bol	Rating	Units
Collector-Emitter Volt-age	V_{CES}	65	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	8.0	A
Power Dissipation @ +25°C	P_{TOT}	330	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 = 50mA		BV_{CES}	65	-	V
Collector-Emitter Leakage Current	V_{CE} = 36V		I_{CES}	-	7.5	mA
Thermal Resistance	Vcc = 36V, Pout = 65W	F = 2.7, 2.8, 2.9 GHz	$R_{TH(JC)}$	-	0.45	°C/W
Input Power	Vcc = 36V, Pout = 65W	F = 2.7, 2.8, 2.9 GHz	P_{IN}	-	9.0	W
Power Gain	Vcc = 36V, Pout = 65W	F = 2.7, 2.8, 2.9 GHz	G_P	8.5	-	dB
Collector Efficiency	Vcc = 36V, Pout = 65W	F = 2.7, 2.8, 2.9 GHz	η_C	40	-	%
Input Return Loss	Vcc = 36V, Pout = 65W	F = 2.7, 2.8, 2.9 GHz	RL	-	-9	dB
Load Mismatch Tolerance	Vcc = 36V, Pout = 65W	F = 2.7, 2.8, 2.9 GHz	VSWR-T	-	2:1	-
Load Mismatch Stability	Vcc = 36V, Pout = 65W	F = 2.7, 2.8, 2.9 GHz	VSWR-S	-	1.5:1	-

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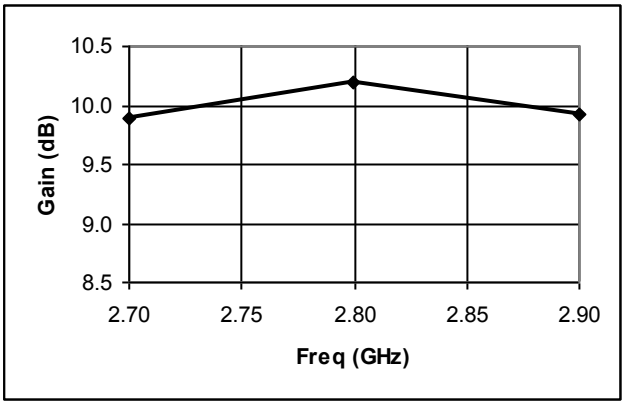
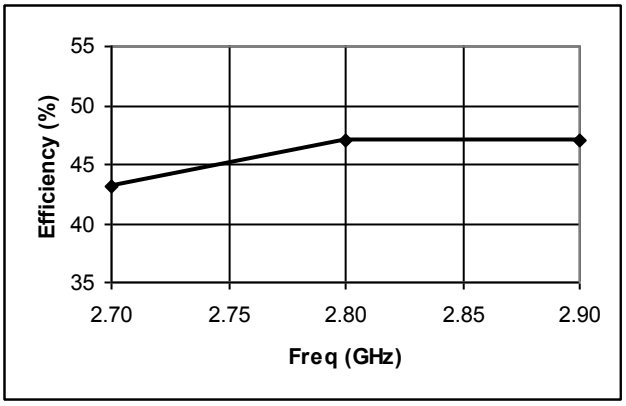
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (2:1)
2.7	6.7	65	9.88	4.20	43.1	-15.5	S	P
2.8	6.2	65	10.20	3.84	47.0	-17.9	S	P
2.9	6.6	65	9.93	3.83	47.1	-12.4	S	P

Gain vs. Frequency

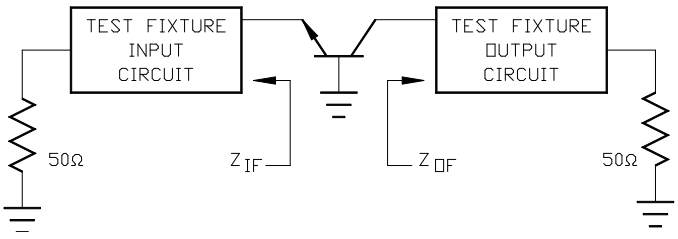


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

F (GHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
2.7	7.8 - j8.3	9.3 - j8.9
2.8	7.3 - j6.7	9.0 - j8.4
2.9	7.2 - j5.0	8.6 - j8.0



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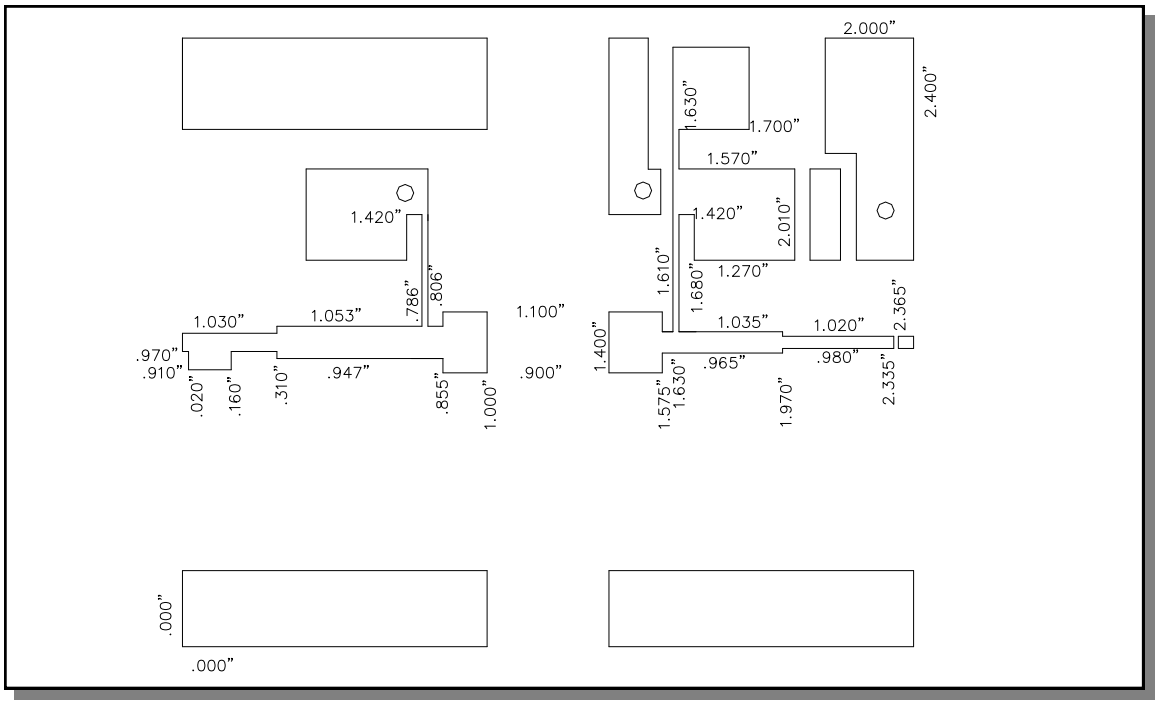
Test Fixture Circuit Dimensions



Test Fixture Assembly