PH1090-350L

Technology Solutions

M/A-COM Products Released, 30 May 07

Avionics Pulsed Power Transistor 350W, 1090 MHz, 250µs 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}	80	V
Emitter-Base Voltage	V _{EBO}	3.0	V
Collector Current (Peak)	Ι _C	17	А
Power Dissipation @ +25°C	P _{TOT}	875	W
Storage Temperature	T _{STG}	-65 to +200	°C
Junction Temperature	TJ	200	°C

Electrical Specifications: $T_c = 25 \pm 5^{\circ}C$ (Room Ambient)

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I _C = 250mA		BV _{CES}	80	-	V
Collector-Emitter Leakage Current	V _{CE} = 45V		I _{CES}	-	25	mA
Thermal Resistance	Vcc = 45V, Pout = 350W	F = 1090 MHz	R _{TH(JC)}	-	0.2	°C/W
Input Power	Vcc = 45V, Pout = 350W	F = 1090 MHz	P _{IN}	35	55	W
Power Gain	Vcc = 45V, Pout = 350W	F = 1090 MHz	G _P	8.0	10.0	dB
Collector Efficiency	Vcc = 45V, Pout = 350W	F = 1090 MHz	η _c	55	-	%
Input Return Loss	Vcc = 45V, Pout = 350W	F = 1090 MHz	RL	-	-9	dB
Load Mismatch Tolerance	Vcc = 45V, Pout = 350W	F = 1090 MHz	VSWR-T	-	2:1	-
Load Mismatch Stability	Vcc = 45V, Pout = 350W	F = 1090 MHz	VSWR-S	-	1.5:1	-

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Typical RF Performance

	⁼ req.	Pin	Pout	Gain	lc	Eff	RL	VSWR-S	VSWR-T
	MHz)	(W)	(W)	(dB)	(A)	(%)	(dB)	(1.5:1)	(2:1)
1	1090	51.6	350	8.32	12.8	61.0	-15.0	S	Р

RF Test Fixture Impedance

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F (MHz)	Z _{IF} (Ω)	Z _{OF} (Ω)
1090	2.5 - j1.5	1.0 - j0.9



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RF Power Transfer Curve

1030 MHz, Output Power & Efficiency vs. Input Power



RF Power Transfer Curve 1090 MHz, Output Power & Efficiency vs. Input Power



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Test Fixture Circuit Dimensions



Test Fixture Assembly

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