MAPR-001090-350S00

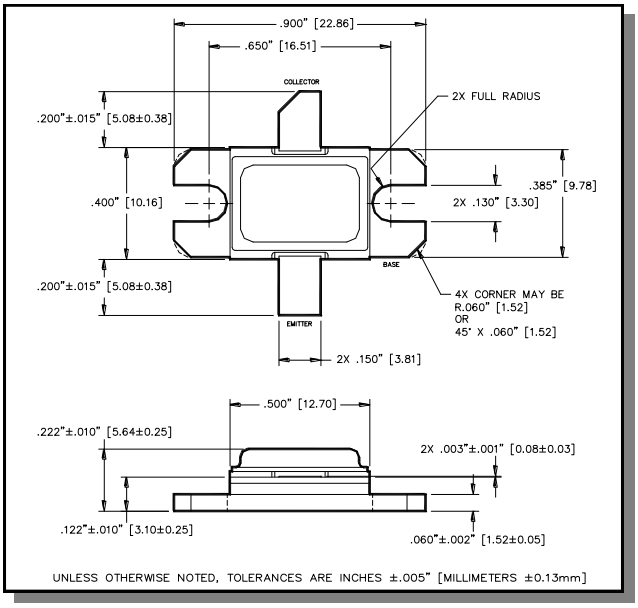
Avionics Pulsed Power Transistor
350W, 1025-1150 MHz, 10µs Pulse, 1% Duty

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



Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	65	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	25	A
Power Dissipation @ +25°C	P_{TOT}	1.1	kW
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

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

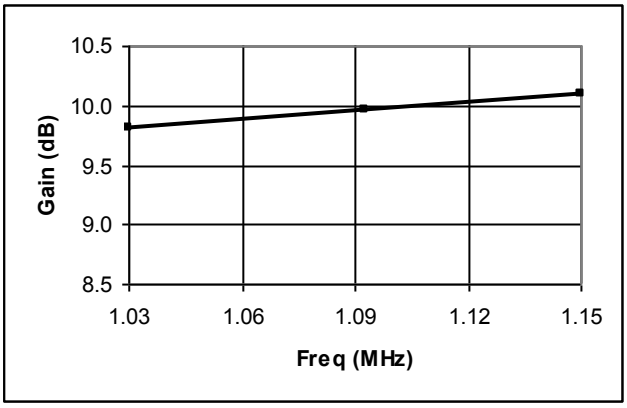
Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I_C = 250mA		BV_{CES}	65	-	V
Collector-Emitter Leakage Current	V_{CE} = 50V		I_{CES}	-	15	mA
Thermal Resistance	Vcc = 50V, Pout = 350W	F = 1090 MHz	$R_{TH(JC)}$	-	0.16	°C/W
Input Power	Vcc = 50V, Pout = 350W	F = 1090 MHz	P_{IN}	-	44	W
Power Gain	Vcc = 50V, Pout = 350W	F = 1090 MHz	G_P	9.0	-	dB
Collector Efficiency	Vcc = 50V, Pout = 350W	F = 1090 MHz	η_C	45	-	%
Input Return Loss	Vcc = 50V, Pout = 350W	F = 1090 MHz	RL	-	-9	dB
Load Mismatch Tolerance	Vcc = 50V, Pout = 350W	F = 1090 MHz	VSWR-T	-	10:1	-
Load Mismatch Stability	Vcc = 50V, Pout = 350W	F = 1090 MHz	VSWR-S	-	1.5:1	-

Typical Broadband RF Performance

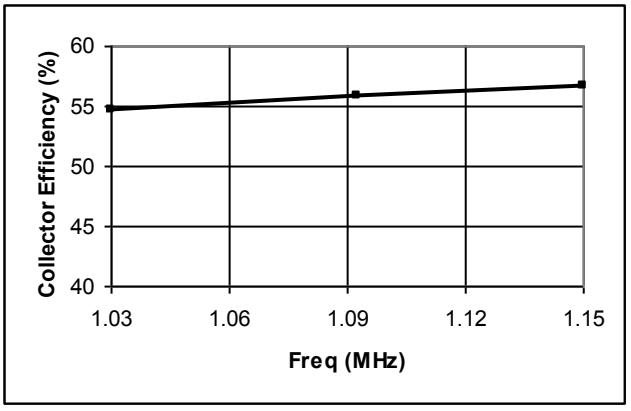
(Provided for information only - 100% Production testing performed at 1090MHz only)

Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (10:1)
1025	37	350	9.81	12.8	54.6	-14.8	S	P
1090	35	350	9.96	12.5	55.8	-16.7	S	P
1150	34	350	10.10	12.4	56.6	-26.1	S	P

Gain vs. Frequency

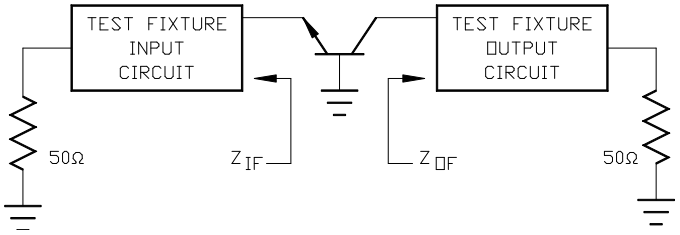


Collector Efficiency vs. Frequency

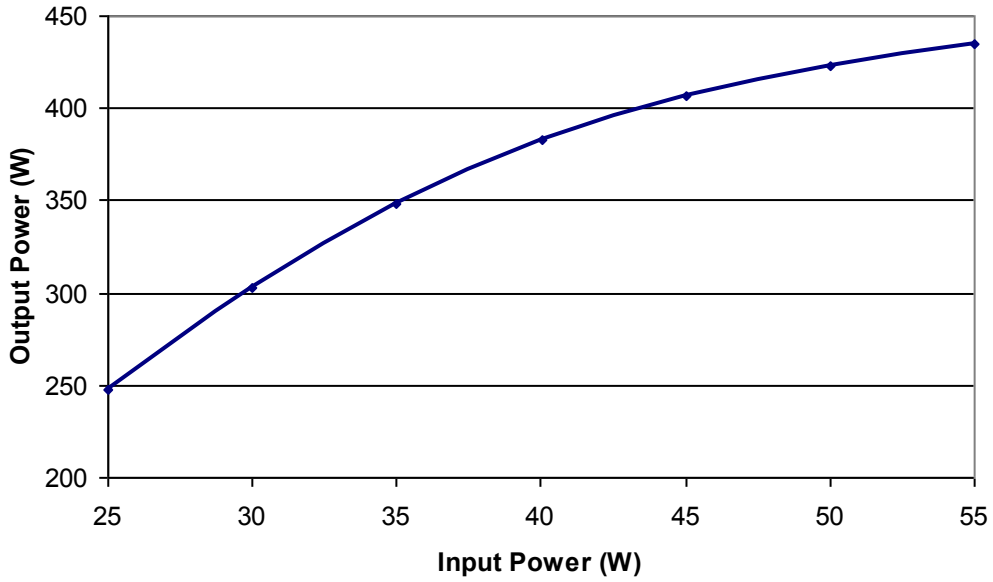


RF Test Fixture Impedance

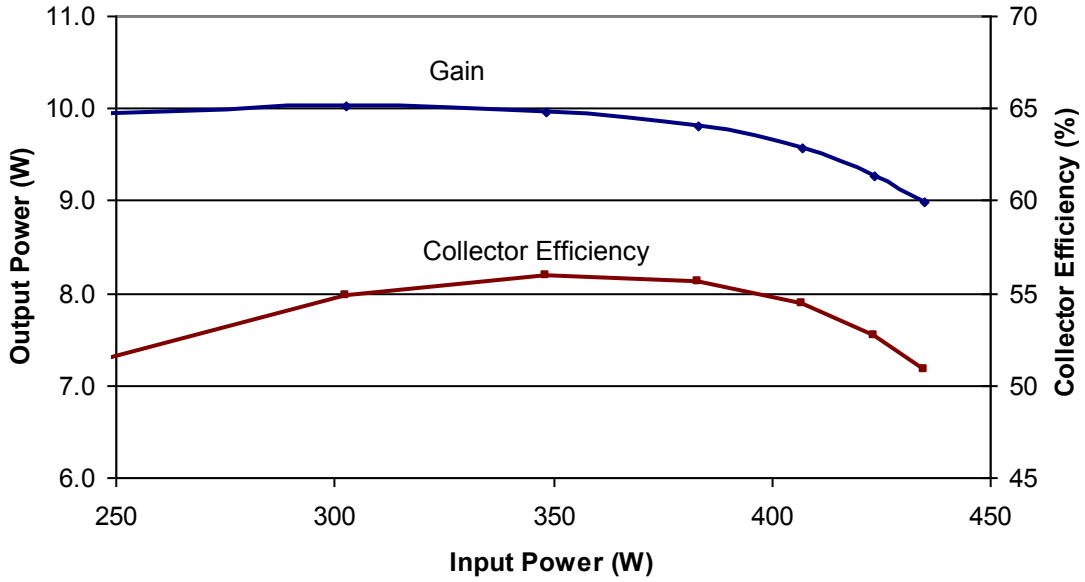
F (MHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
960	1.8 - j3.7	2.2 - j2.8
1025	1.8 - j3.2	2.3 - j2.2
1090	1.8 - j2.7	2.4 - j1.7
1150	1.9 - j2.3	2.6 - j1.5
1215	2.0 - j1.9	2.8 - j1.3



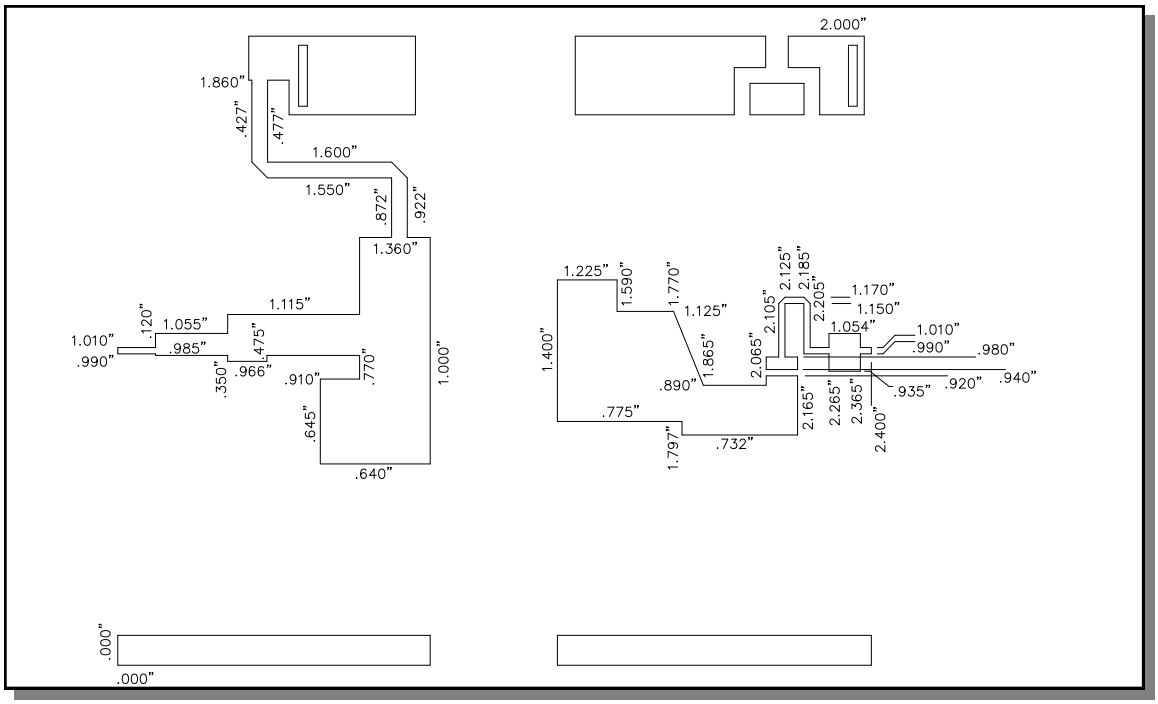
RF Power Transfer Curve
1090 MHz, Output Power vs. Input Power



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



Test Fixture Circuit Dimensions



Test Fixture Assembly