



1517-250M

250 Watts, 40 Volts, 200 μ s, 10%

Radar 1480 to 1650 MHz

GENERAL DESCRIPTION

The 1517-250M is an internally matched, COMMON BASE transistor capable of providing 250 Watts of pulsed RF output power at 200 microseconds pulse width, 10% duty factor across the band 1480 to 1650 MHz. This hermetically solder-sealed transistor is specifically designed for upper L-Band radar applications. It utilizes gold metallization and diffused emitter ballasting to provide high reliability and supreme ruggedness.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @25°C¹ 700 W

Maximum Voltage and Current

Collector to Base Voltage (BV_{CES}) 70 V

Emitter to Base Voltage (BV_{EBO}) 3 V

Collector Current (I_C) 20 A

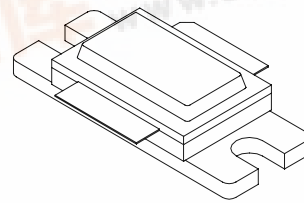
Maximum Temperatures

Storage Temperature -65 to +200 °C

Operating Junction Temperature +200 °C

CASE OUTLINE

55ST-1



FUNCTIONAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P _{out}	Power Output	F = 1480-1650 MHz	250	280	350	W
P _g	Power Gain	V _{CC} = 40 Volts	7.0		8.5	dB
η_c	Collector Efficiency	Pin = 50 W	38	40		%
IR _L	Input Return Loss	Pulse Width = 200 μ s	9			dB
Pd	Pulse Droop	Duty Factor = 10%			0.5	dB
VSWR ¹	Load Mismatch Tolerance	F=1480 MHz, Pin = 50W			3.0:1	

ELECTRICAL CHARACTERISTICS @ 25°C

I _{EBO}	Emitter Cutoff Current	V _{EB} = 3 V			20	mA
BV _{CES}	Collector to Emitter Breakdown	I _C = 100 mA	70			V
h _{FE}	DC – Current Gain	V _{CE} = 5V, I _C = 1A	20			
θ_{jc} ¹	Thermal Resistance				0.25	°C/W

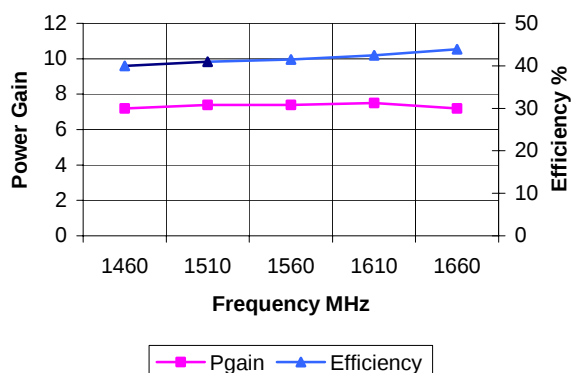
NOTES: 1. Pulse condition of 200 μ sec, 10%

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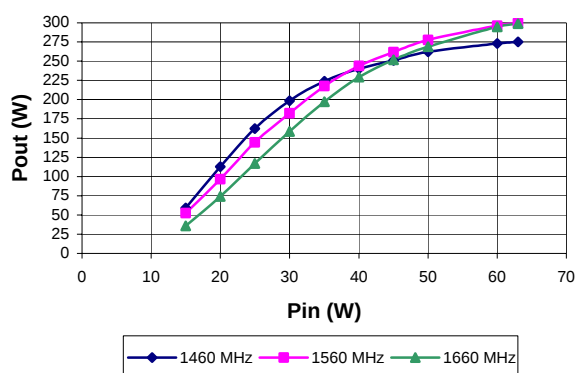




Power Gain and Efficiency vs Frequency
 $V_{cc} = 40\text{ V}$, $P_{out} = 250\text{ W}$, 200 us, 10%

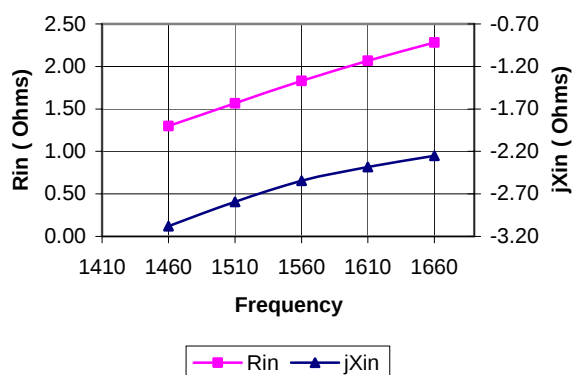


Power Output vs Power Input
 $V_{cc}=40\text{V}$, 200us, 10%

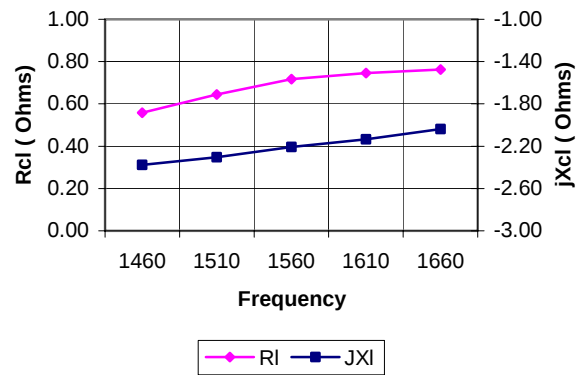


Typical Impedances

Series Soporuce Impedance vs Frequency
 $V_{cc} = 40\text{ Volts}$, $P_{out} = 250\text{ W}$, 200 us, 10%

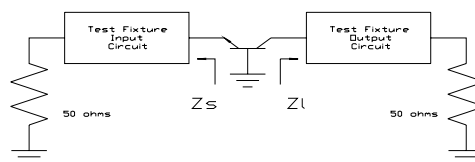


Series Load Impedance Vs Frequency
 $V_{cc} = 40\text{ Volts}$, $P_{out} = 250\text{ W}$, 200 us, 10%

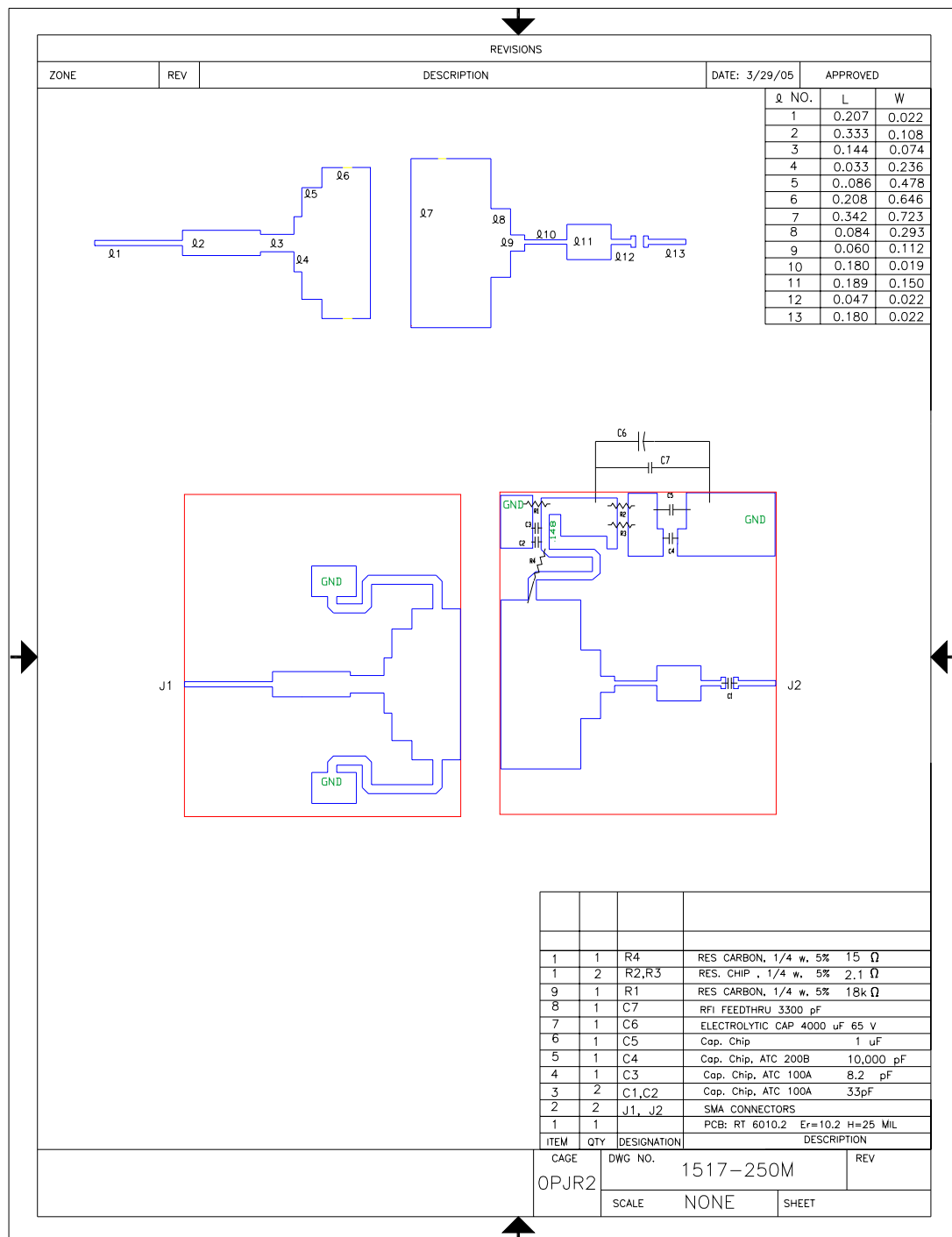


IMPEDANCE

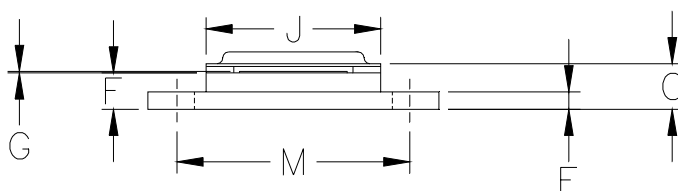
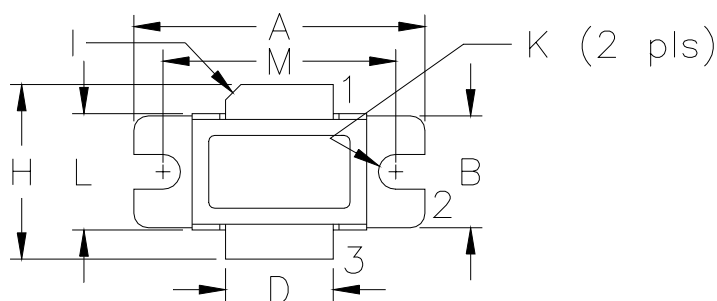
Freq (MHz)	Zs	Zl
1480	1.30 - j3.08	0.56 - j2.38
1510	1.57 - j2.79	0.64 - j2.30
1560	1.83 - j2.54	0.72 - j2.21
1610	2.07 - j2.38	0.75 - j2.13
1650	2.28 - j2.25	0.76 - j 2.04



BROADBAND TEST Circuit



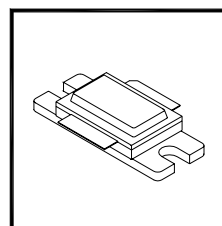
Case Outline



DIM	MILLIMETER	±TOL	INCHES	±TOL
A	25.40	.25	1.000	.010
B	9.78	.25	.385	.010
C	4.00	.19	.142	.007
D	9.40	.13	.370	.005
E	1.53	.13	.060	.005
F	3.18	.13	.125	.005
G	0.08	+05/-00	.003	+.002/ -.000
H	19.05	0.51	.750	.020
I	45°	5°	45°	5°
J	15.24	.25	.600	.010
K	3.05 DIA	.13	.120 DIA	.005
L	10.15	.13	.400	.005
M	20.32	.25	.800	.010

STYLE 1:
PIN 1 = COLLECTOR
2 = BASE
3 = EMITTER

STYLE 2:
PIN 1 = COLLECTOR
2 = EMITTER
3 = BASE



GHz TECHNOLOGY
RF — MICROWAVE SILICON POWER TRANSISTORS

DWG NO.

55ST