

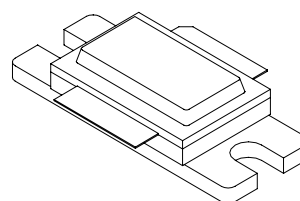
# 1517-250M

**250 Watts, 40 Volts, 200 $\mu$ 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.

## CASE OUTLINE 55ST-1



## ABSOLUTE MAXIMUM RATINGS

### Maximum Power Dissipation

Device Dissipation @25°C<sup>1</sup>                      700 W

### Maximum Voltage and Current

Collector to Base Voltage (BV<sub>CES</sub>)              70 V

Emitter to Base Voltage (BV<sub>EBO</sub>)                3 V

Collector Current (I<sub>C</sub>)                              20 A

### Maximum Temperatures

Storage Temperature                                -65 to +200 °C

Operating Junction Temperature                +200 °C

## FUNCTIONAL CHARACTERISTICS @ 25°C

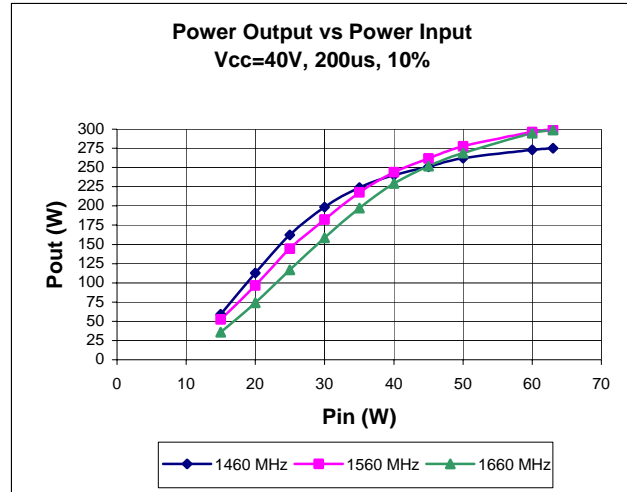
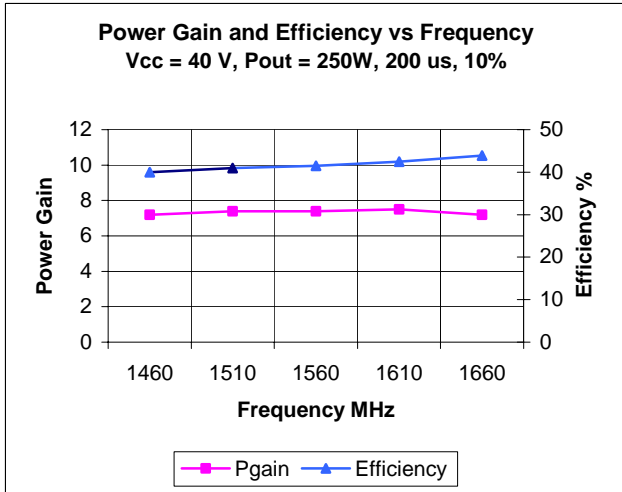
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P <sub>out</sub>	Power Output	F = 1480-1650 MHz	250	280	350	W
P <sub>g</sub>	Power Gain	V <sub>CC</sub> = 40 Volts	7.0		8.5	dB
$\eta_c$	Collector Efficiency	Pin = 50 W	38	40		%
IR <sub>L</sub>	Input Return Loss	Pulse Width = 200 $\mu$ s	9			dB
Pd	Pulse Droop	Duty Factor = 10%			0.5	dB
VSWR <sup>1</sup>	Load Mismatch Tolerance	F=1480 MHz, Pin = 50W			3.0:1	

## ELECTRICAL CHARACTERISTICS @ 25°C

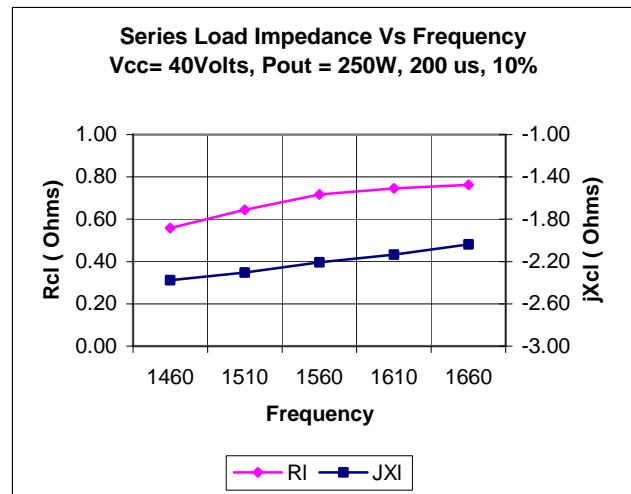
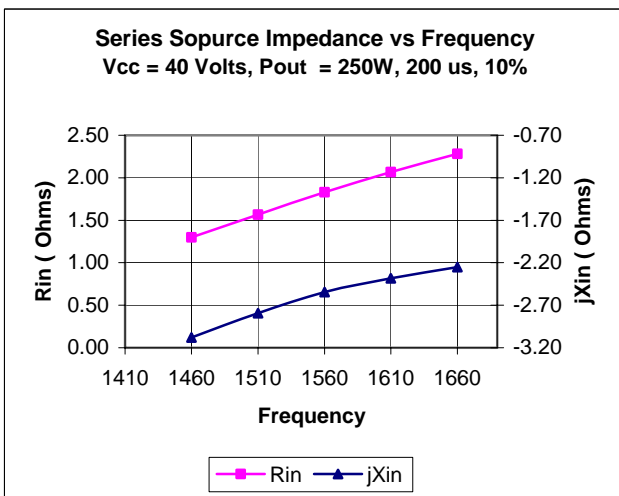
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 3 V			20	mA
BV <sub>CES</sub>	Collector to Emitter Breakdown	I <sub>C</sub> = 100 mA	70			V
h <sub>FE</sub>	DC – Current Gain	V <sub>CE</sub> = 5V, I <sub>c</sub> = 1A	20			
$\theta_{jc}$ <sup>1</sup>	Thermal Resistance				0.25	°C/W

NOTES: 1. Pulse condition of 200 $\mu$ sec, 10%

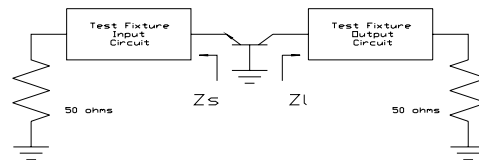
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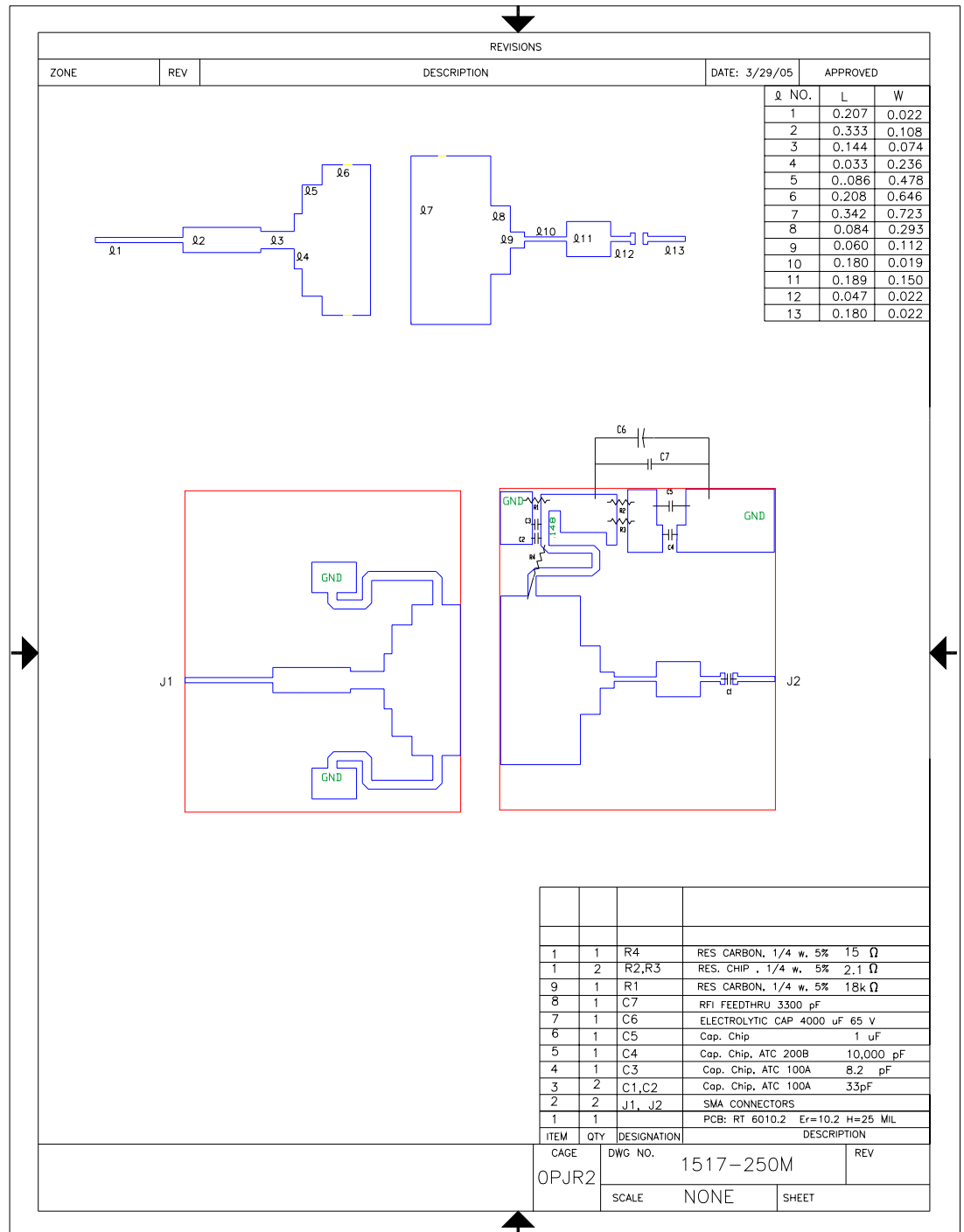


**Typical Impedances**

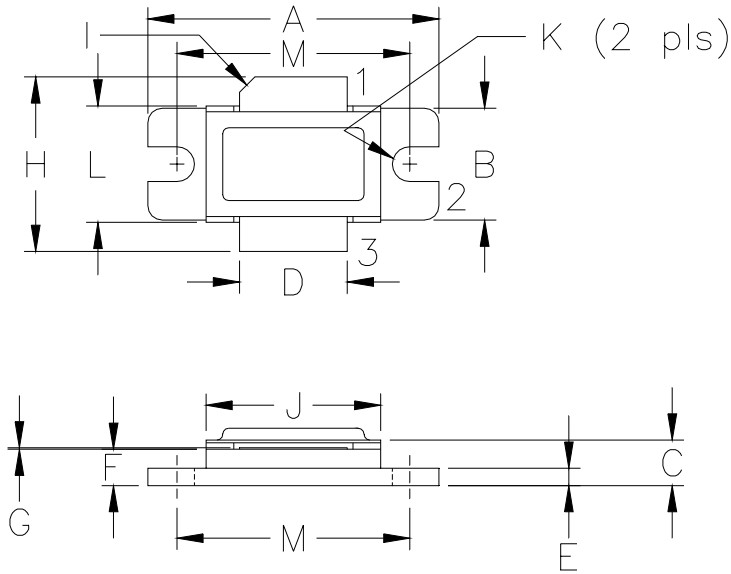


IMPEDANCE		
Freq (MHz)	Zs	Zl
1480	1.30 - j3.08	0.56 - j2.38
1510	1.57 - j2.79	0.64 - j2.30
1560	1.83 - j2.54	0.72 - j2.21
1610	2.07 - j2.38	0.75 - j2.13
1650	2.28 - j2.25	0.76 - j 2.04



**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

