

# 1517-20M

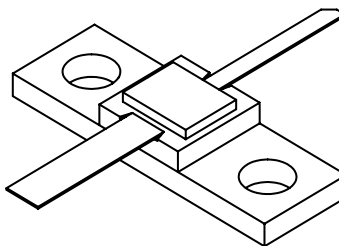
20 Watts, 36 Volts, 200 $\mu$ s, 10%

Radar 1480 to 1650 MHz

## GENERAL DESCRIPTION

The 1517-20M is an internally matched, COMMON BASE transistor capable of providing 20 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 55LV-1



## ABSOLUTE MAXIMUM RATINGS

### Maximum Power Dissipation

Device Dissipation @25°C<sup>1</sup> 175 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>) 3 A

### Maximum Temperatures

Storage Temperature -65 to +200 °C

Operating Junction Temperature +200 °C

## FUNCTIONAL CHARACTERISTICS @ 25°C

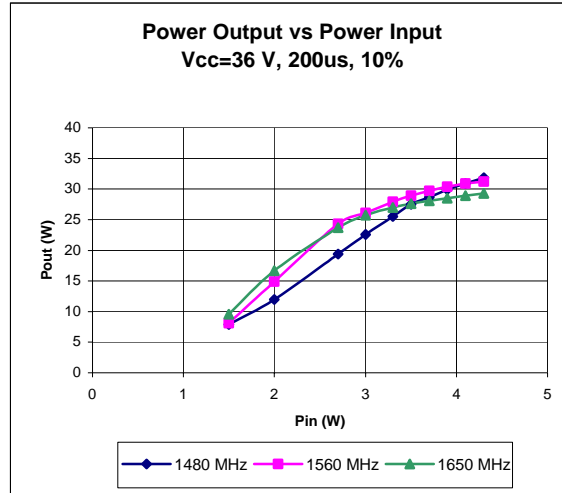
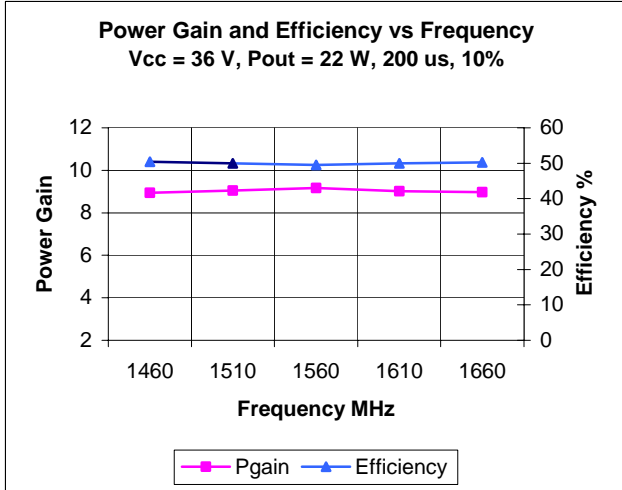
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P <sub>out</sub>	Power Output	F = 1480-1650 MHz	20	25	30	W
P <sub>g</sub>	Power Gain	V <sub>cc</sub> = 36 Volts	7.6		9.3	dB
$\eta_c$	Collector Efficiency	Pin = 3.5 W	40			%
IR <sub>L</sub>	Input Return Loss	Pulse Width = 200 $\mu$ s	9			dB
Pd	Pulse Droop	Duty Factor = 10%			0.5	dB
VSWR <sup>1</sup>	Load Mismatch Tolerance	F=1480 MHz, Pin = 3.5W			3.0:1	

## ELECTRICAL CHARACTERISTICS @ 25°C

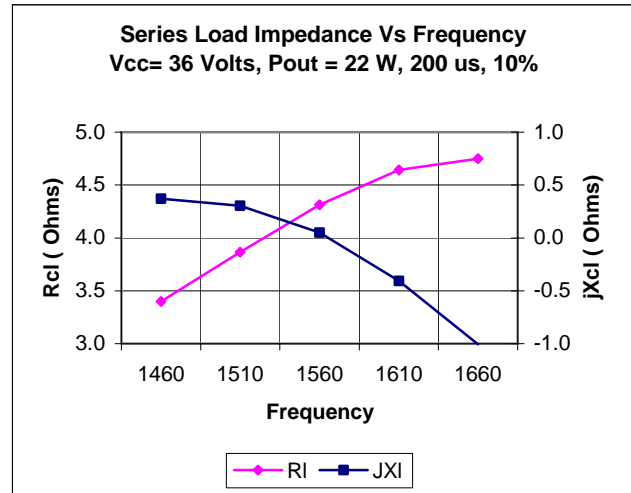
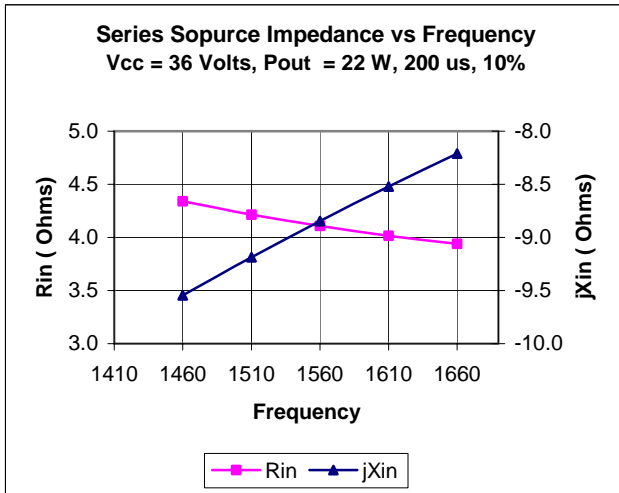
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> = 3 V			3	mA
BV <sub>CES</sub>	Collector to Emitter Breakdown	I <sub>C</sub> = 15 mA	65			V
h <sub>FE</sub>	DC – Current Gain	V <sub>CE</sub> = 5V, I <sub>c</sub> = 500 mA	20			
$\theta_{jc}$ <sup>1</sup>	Thermal Resistance				1	°C/W

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

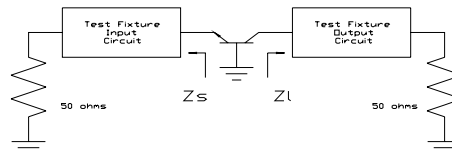
Issue Jan 2006



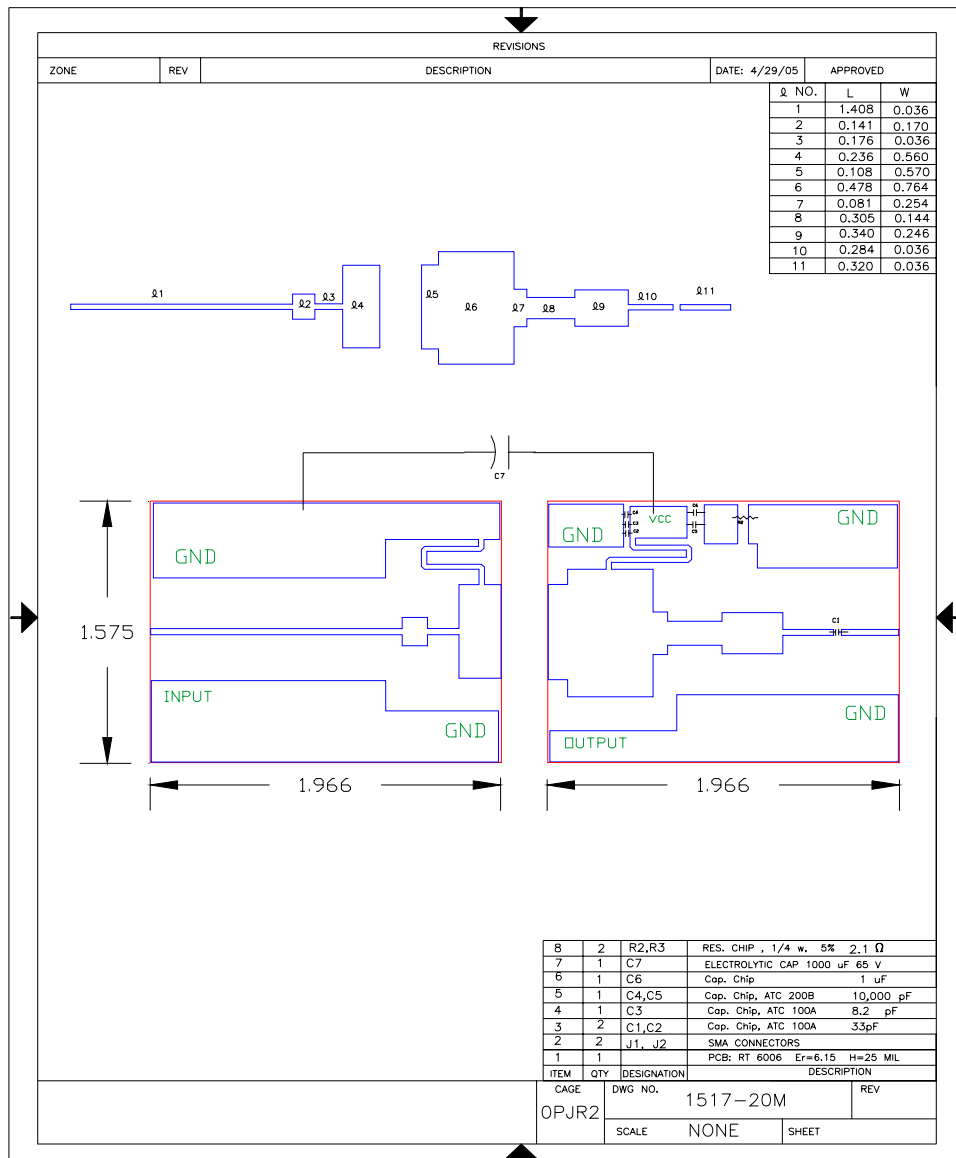
**Typical Impedances**



IMPEDANCE		
Freq (MHz)	Zs	Zl
1480	4.34 - j 9.55	3.40 + j 0.37
1510	4.22 - j 9.18	3.86 + j 0.31
1560	4.11 - j 8.85	4.31 + j 0.05
1610	4.02 - j 8.52	4.64 - j 0.41
1650	3.94 - j8.21	4.75 - j 1.01



**BROADBAND TEST CIRCUIT**



Case Outline

