

1517-20M

20 Watts, 36 Volts, 200 μ s, 10%

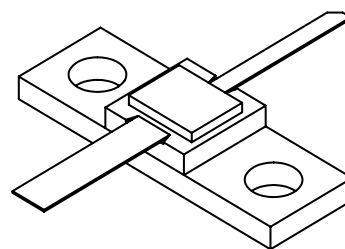
Radar 1480 to 1650 MHz

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°C¹ 175 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) 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 _{out}	Power Output	F = 1480-1650 MHz V _{cc} = 36 Volts Pin = 3.5 W Pulse Width = 200 μ s Duty Factor = 10%	20	25	30	W
P _g	Power Gain		7.6		9.3	dB
η_c	Collector Efficiency		40			%
IR _L	Input Return Loss		9			dB
Pd	Pulse Droop				0.5	dB
VSWR ¹	Load Mismatch Tolerance	F=1480 MHz, Pin = 3.5W			3.0:1	

ELECTRICAL CHARACTERISTICS @ 25°C

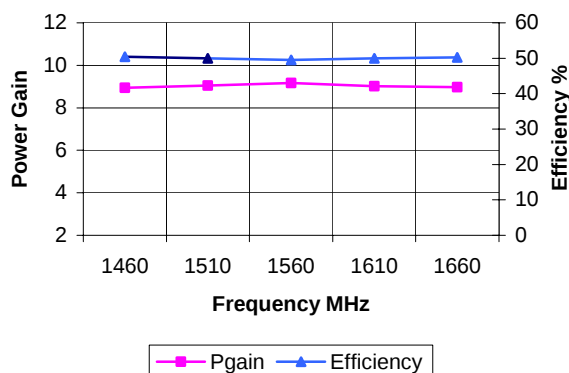
I _{EBO}	Emitter cut-off current	V _{EB} = 3 V			3	mA
BV _{CES}	Collector to Emitter Breakdown	I _C = 15 mA	65			V
h _{FE}	DC – Current Gain	V _{CE} = 5V, I _C = 500 mA	20			
θ_{jc} ¹	Thermal Resistance				1	°C/W

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

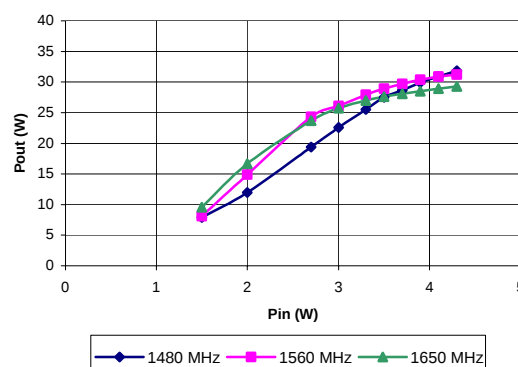
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ADVANCED POWER TECHNOLOGY RF® Performance Curves –

Power Gain and Efficiency vs Frequency
 $V_{cc} = 36 \text{ V}$, $P_{out} = 22 \text{ W}$, 200 us, 10%

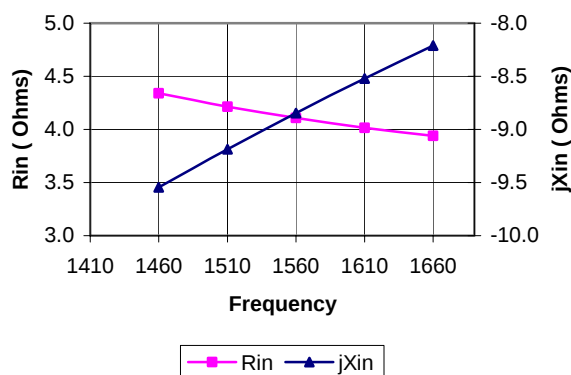


Power Output vs Power Input
 $V_{cc} = 36 \text{ V}$, 200us, 10%

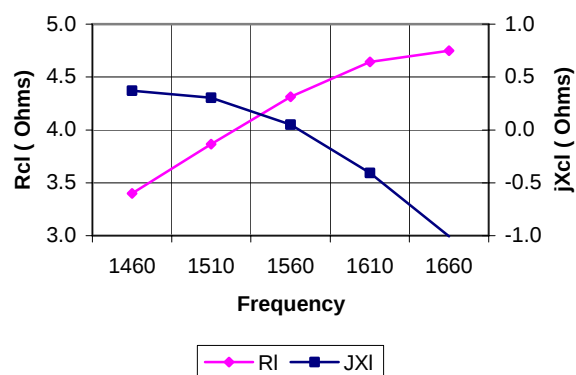


Typical Impedances

Series Source Impedance vs Frequency
 $V_{cc} = 36 \text{ Volts}$, $P_{out} = 22 \text{ W}$, 200 us, 10%

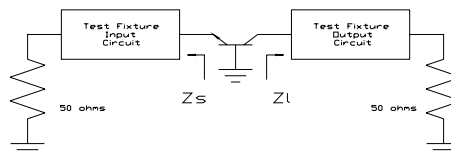


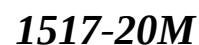
Series Load Impedance Vs Frequency
 $V_{cc} = 36 \text{ Volts}$, $P_{out} = 22 \text{ W}$, 200 us, 10%



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 - j 8.21	4.75 - j 1.01

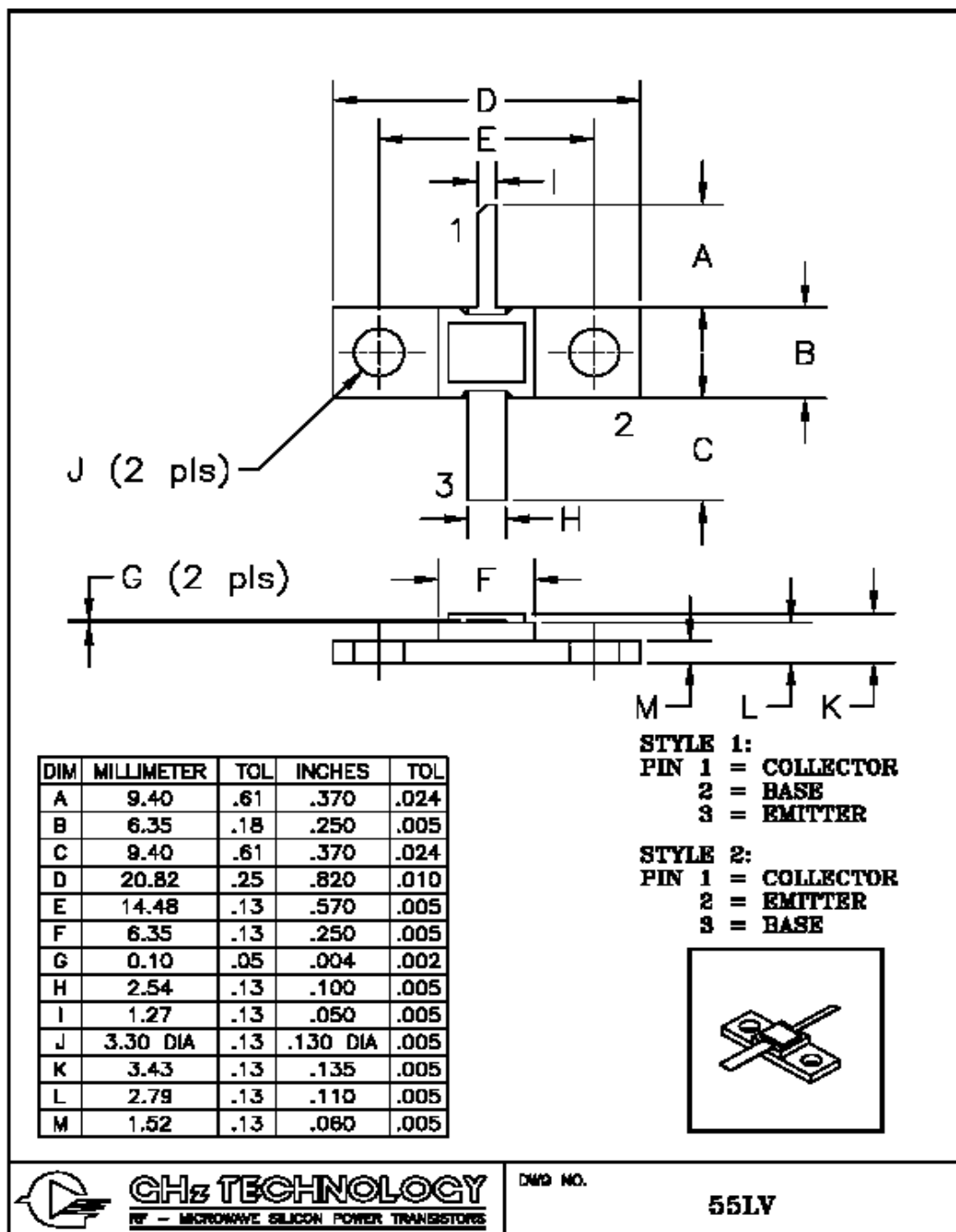




BROADBAND TEST CIRCUIT



Case Outline



GHz TECHNOLOGY
RF — MICROWAVE SILICON POWER TRANSISTORS

DWG NO.

55LV