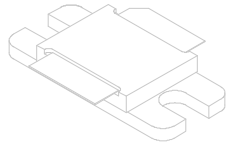




# 2931-150

150 Watts, 38 Volts, 50 $\mu$ s, 4%  
Radar 2900-3100 MHz

## Preliminary

<p><b>GENERAL DESCRIPTION</b></p> <p>The 2931-150 is an internally matched, COMMON BASE bipolar transistor capable of providing 150 Watts of pulsed RF output power at 50<math>\mu</math>s pulse width, 4% duty factor across the 2900 to 3100 MHz band. <b>The transistor prematch and test fixture has been optimized through the use of Pulsed Automated Load Pull.</b> This hermetic ceramic sealed transistor is specifically designed for S-band radar applications. It utilizes gold metallization and emitter ballasting to provide high reliability and supreme ruggedness.</p>	<p><b>CASE OUTLINE</b></p> <p><b>55KS-1</b> <b>Common Base</b></p> 
<p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <p><b>Maximum Power Dissipation</b></p> <p>Device Dissipation @ 25<math>^{\circ}</math>C<sup>1</sup>            500 W</p> <p><b>Maximum Voltage and Current</b></p> <p>Collector to Base Voltage (BV<sub>ces</sub>)            65 V          Emitter to Base Voltage (BV<sub>ebo</sub>)            3.0 V          Collector Current (I<sub>c</sub>)                        15.0 A</p> <p><b>Maximum Temperatures</b></p> <p>Storage Temperature                        -65 to +200 <math>^{\circ}</math>C          Operating Junction Temperature            +200 <math>^{\circ}</math>C</p>	

## ELECTRICAL CHARACTERISTICS @ 25 $^{\circ}$ C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P <sub>out</sub>	Power Output	F=2900-3100 MHz	150			W
P <sub>in</sub>	Power Input	V <sub>cc</sub> = 38 Volts			21.7	W
P <sub>g</sub>	Power Gain	Pulse Width = 50 $\mu$ s	8.3	8.7		dB
$\eta_c$	Collector Efficiency	Duty Factor = 4 %	45	50		%
R <sub>l</sub>	Return Loss		7			dB
P <sub>d</sub>	Pulse Droop				0.6	dB
t <sub>r</sub>	Rise Time				150	nS
VSWR <sub>l</sub>	Load Mismatch Tolerance <sup>1</sup>	F = 3100 MHz, P <sub>o</sub> = 150W			2:1	

## FUNCTIONAL CHARACTERISTICS @ 25 $^{\circ}$ C

BV <sub>ebo</sub>	Emitter to Base Breakdown	I <sub>e</sub> = 30 mA	3.0			V
BV <sub>ces</sub>	Collector to Emitter Breakdown	I <sub>c</sub> = 120 mA	65			V
h <sub>FE</sub>	DC – Current Gain	V <sub>ce</sub> = 5V, I <sub>c</sub> = 600 mA	18	60		
$\theta_{jc}$ <sup>1</sup>	Thermal Resistance				0.35	$^{\circ}$ C/W

NOTE: 1. At rated output power and pulse conditions

Issue 2, April 2005

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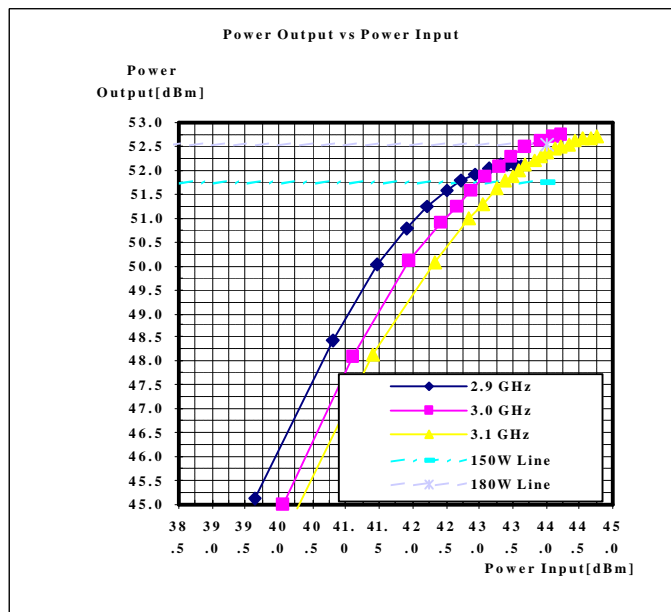


2931-150

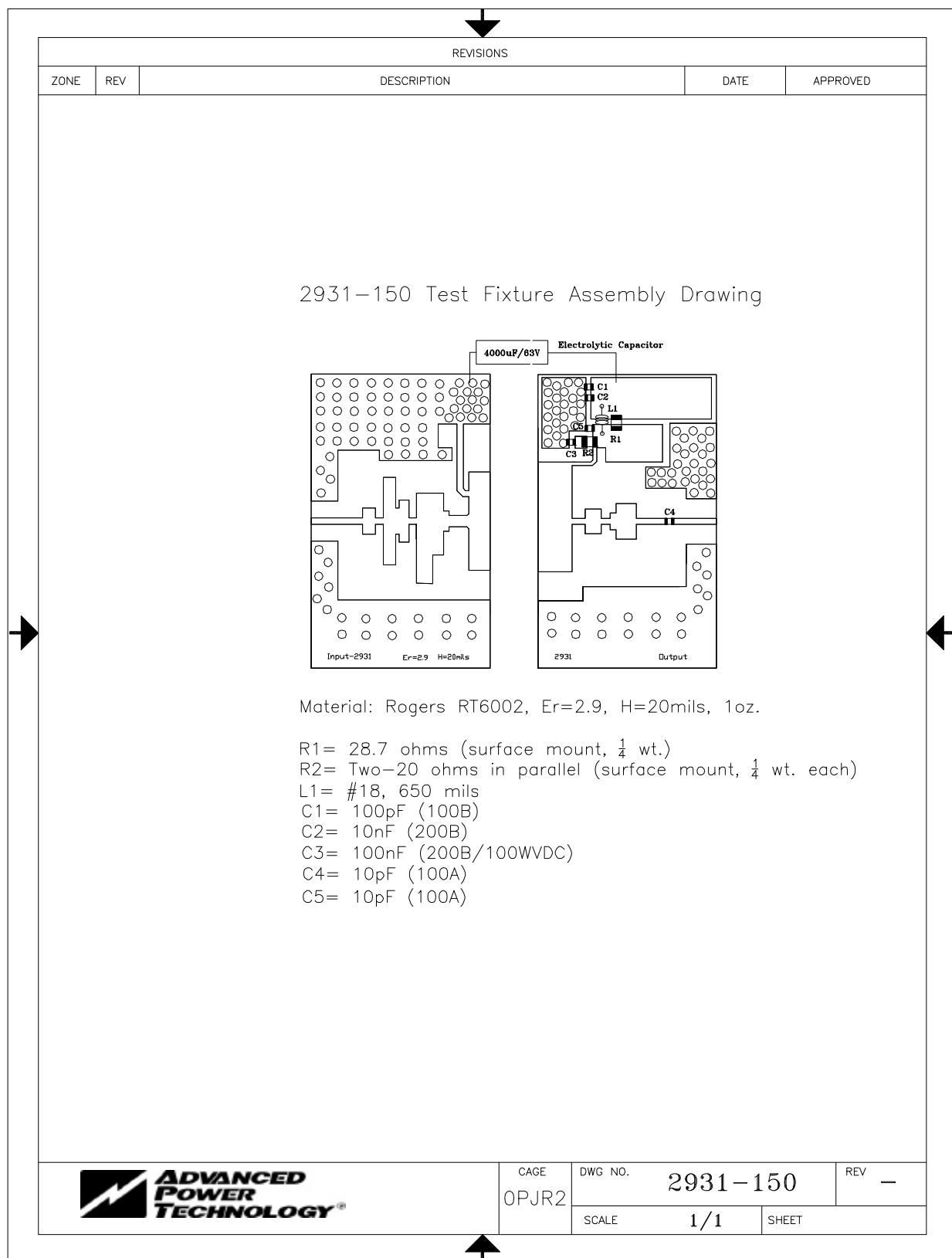
Vcc = 38 Volts, Pulse Width = 50ms, Duty = 4 %

G2754-2,

*Product is in characterization, additional curves will be inserted at the conclusion.*

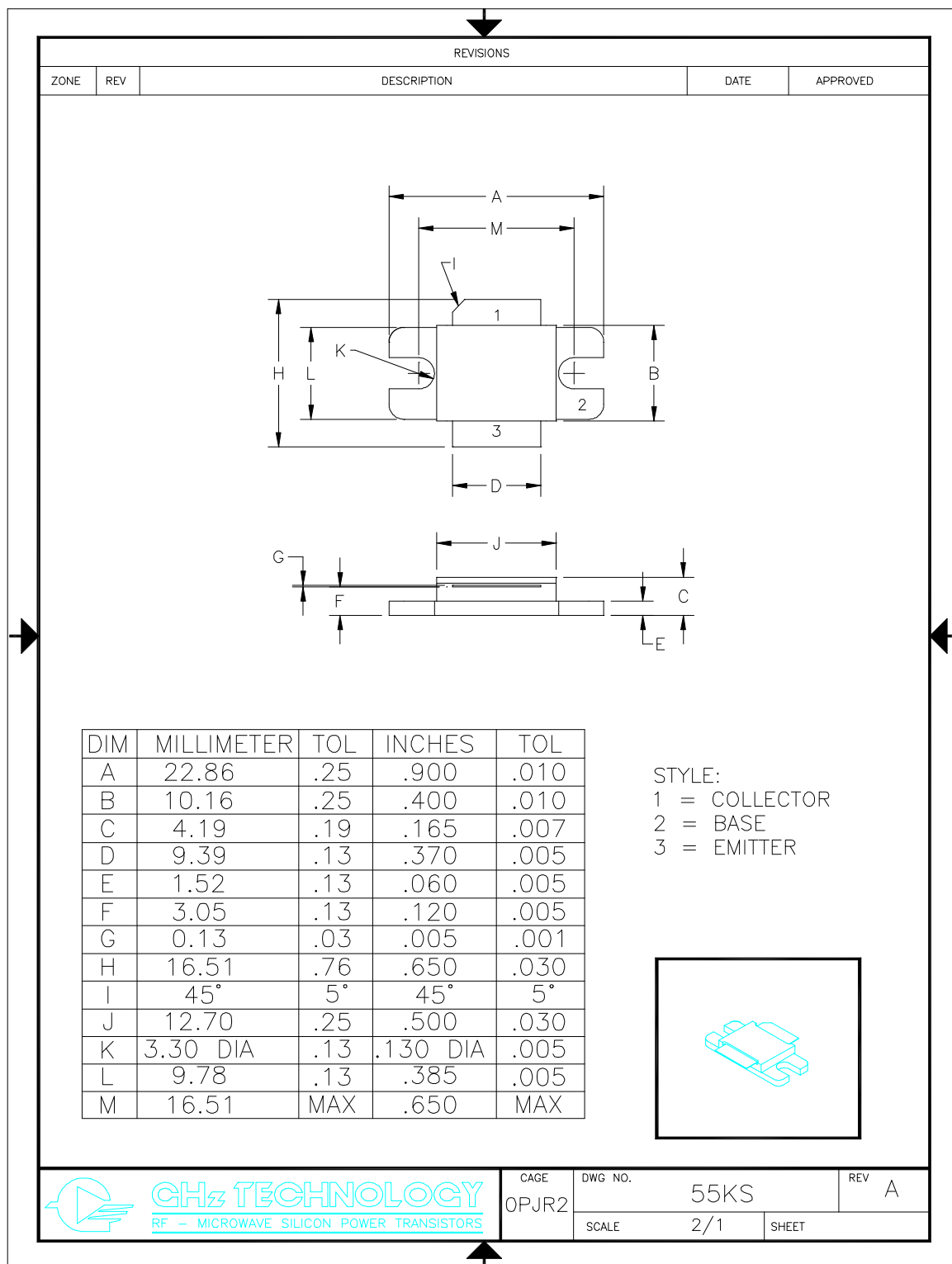


*Impedance curves will be added at the completion of the characterization.*

**Test Circuit**

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