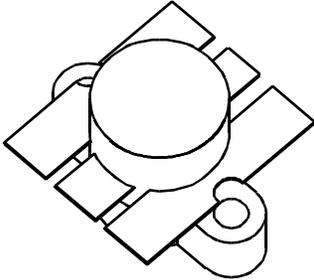




# VTV150

15 Watts, 25 Volts  
VHF Television - Band III

<p><b>GENERAL DESCRIPTION</b> The VTV 150 is a COMMON EMITTER transistor capable of providing 15 Watts Peak Sync, Class A, RF Output Power over the band 175 - 225 MHz. It is designed for high efficiency, high linearity, Class A operation. Gold Metalization and Diffused Ballasting are used to provide high reliability and supreme ruggedness.</p>	<p><b>CASE OUTLINE</b> <b>55HV, STYLE 2</b></p> 																		
<p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Maximum Power Dissipation @ 25°C</td> <td style="text-align: right;">97 Watts</td> </tr> <tr> <td colspan="2"><b>Maximum Voltage and Current</b></td> </tr> <tr> <td>BVces Collector to Emitter Voltage</td> <td style="text-align: right;">45 Volts</td> </tr> <tr> <td>BVceo Collector to Emitter Voltage</td> <td style="text-align: right;">25 Volts</td> </tr> <tr> <td>BVebo Emitter to Base Voltage</td> <td style="text-align: right;">4.0 Volts</td> </tr> <tr> <td>Ic Collector Current</td> <td style="text-align: right;">8.0 Amps</td> </tr> <tr> <td colspan="2"><b>Maximum Temperatures</b></td> </tr> <tr> <td>Storage Temperature</td> <td style="text-align: right;">- 65 to + 150°C</td> </tr> <tr> <td>Operating Junction Temperature</td> <td style="text-align: right;">+ 200°C</td> </tr> </table>	Maximum Power Dissipation @ 25°C	97 Watts	<b>Maximum Voltage and Current</b>		BVces Collector to Emitter Voltage	45 Volts	BVceo Collector to Emitter Voltage	25 Volts	BVebo Emitter to Base Voltage	4.0 Volts	Ic Collector Current	8.0 Amps	<b>Maximum Temperatures</b>		Storage Temperature	- 65 to + 150°C	Operating Junction Temperature	+ 200°C	
Maximum Power Dissipation @ 25°C	97 Watts																		
<b>Maximum Voltage and Current</b>																			
BVces Collector to Emitter Voltage	45 Volts																		
BVceo Collector to Emitter Voltage	25 Volts																		
BVebo Emitter to Base Voltage	4.0 Volts																		
Ic Collector Current	8.0 Amps																		
<b>Maximum Temperatures</b>																			
Storage Temperature	- 65 to + 150°C																		
Operating Junction Temperature	+ 200°C																		

**ELECTRICAL CHARACTERISTICS @ 25 °C**

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>P<sub>out</sub></b>	Power Out - Pk Sync <sup>1</sup>	F = 175-225 MHz	15	20		Watts
<b>P<sub>in</sub></b>	Power Input	V <sub>cc</sub> = 25 Volts		1.9		Watts
<b>P<sub>g</sub></b>	Power Gain	I <sub>c</sub> = 2.4 Amps	8.0	9.0		dB
<b>η</b>	Efficiency			33		%
<b>IMD<sup>1</sup></b>	Intermodulation Distortion	P <sub>ref</sub> = 15 Watts		-52		dB
<b>VSWR<sub>1</sub></b>	Load Mismatch Tolerance	F = 225 MHz			3:1	

<b>LV<sub>ceo</sub></b>	Collector to Emitter Breakdown	I <sub>c</sub> = 25 mA	28			Volts
<b>BV<sub>ces</sub></b>	Collector to Base Breakdown	I <sub>c</sub> = 100mA	45			Volts
<b>BV<sub>ebo</sub></b>	Emitter to Base Breakdown	I <sub>e</sub> = 10mA	4.0			Volts
<b>h<sub>FE</sub></b>	Current Gain	V <sub>ce</sub> = 5 V, I <sub>m</sub> = 1 mA	10			
<b>C<sub>ob</sub></b>	Output Capacitance	V <sub>cb</sub> = 25 V, F = 1 MHz		68		pF
<b>θ<sub>jc</sub></b>	Thermal Resistance	T <sub>c</sub> = 25°C		1.6	1.8	°C/W

Note 1: European test method, Vision = - 8dB, Sideband = - 16dB, Sound = -7 dB

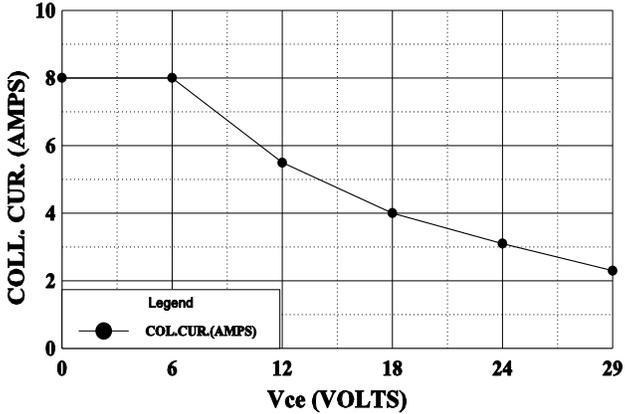
Issue October 1997

GHz TECHNOLOGY INC. RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE. GHz RECOMMENDS THAT BEFORE THE PRODUCT(S) DESCRIBED HEREIN ARE WRITTEN INTO SPECIFICATIONS, OR USED IN CRITICAL APPLICATIONS, THAT THE PERFORMANCE CHARACTERISTICS BE VERIFIED BY CONTACTING THE FACTORY.

GHz Technology Inc. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 Tel. 408 / 986-8031 Fax 408 / 986-8120

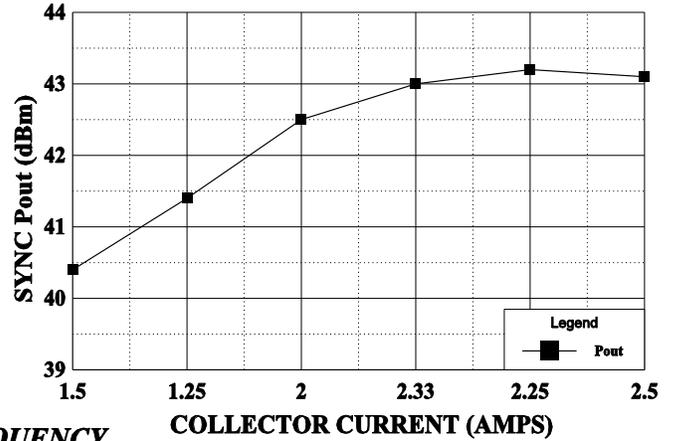
**DC SAFE OPERATING AREA**

Pin = 1.9 Watt Pk, Vcc = 25 Volts



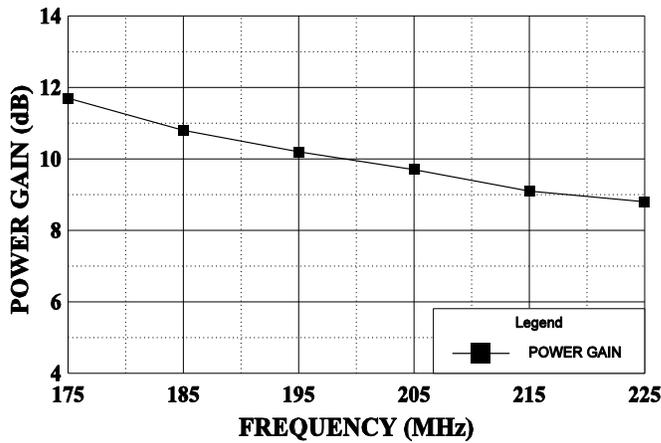
**SYNC OUTPUT vs COLLECTOR CURRENT**

Vcc - 25V, Frequency 225 MHz



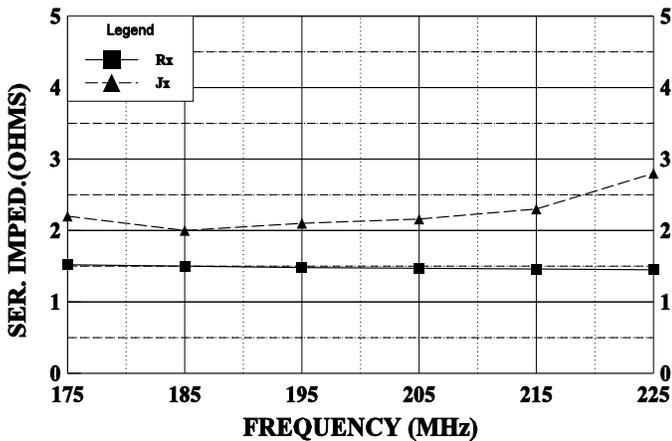
**POWER GAIN vs FREQUENCY**

Vcc 25V, Pin = 1.9 W



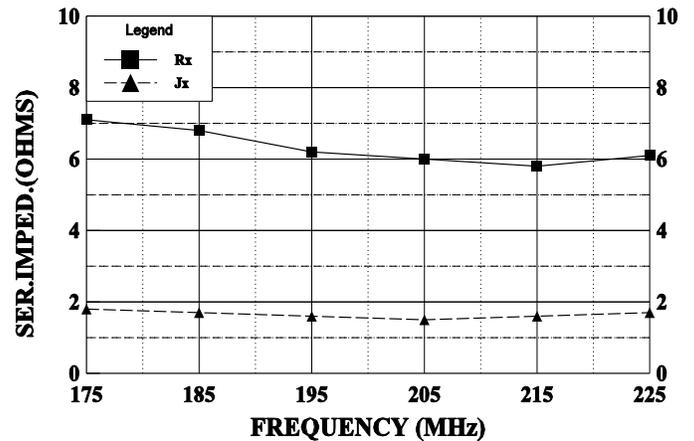
**SERIES INPUT IMPEDANCE vs FREQUENCY**

Vcc = 25V, Pin = 1.9W

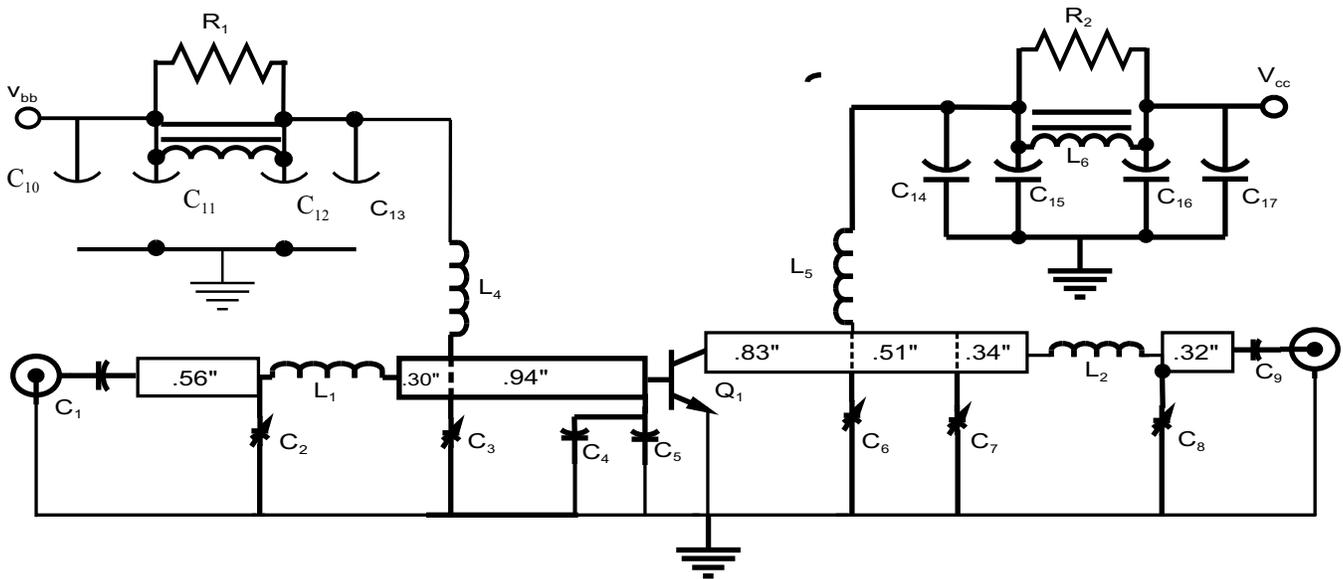


**SERIES LOAD IMPEDANCE vs FREQUENCY**

Vcc = 25V, Pin = 1.9W



**VTV-150 RF Test Circuit (Tunable 175-225 MHz)**  
Recommended Bias:  $V_{CE}=25\text{ V}$ ,  $I_C=2.4\text{ A}$  (DC Bias not shown)



- C1, C9, C13, C14 ..... 470pF ceramic chip
- C2, C3, C8 ..... 5-70pF compressed mica
- C4 ..... 75pF ceramic chip
- C5 ..... 82pF ceramic chip
- C6 ..... 2-20pF air tuned
- C7 ..... 25-240pF compressed mica
- C10, C17 ..... 50 mF electrolytic
- C11, C16 ..... 1mF electrolytic
- C12, C15 ..... 1000pF ceramic chip

- L1 ..... Cu strap, 1.20" X .12" X .03"
- L2 ..... Cu strap, 1.05" X .12" X .04"
- L3, L6 ..... 10 turns #22 wire on F627-8Q1
- L4 ..... 4.7 m H
- L5 ..... 7 turns #22 wire (0.15" outer diameter)
- R<sub>1</sub>, R<sub>2</sub>.....15 W 1/2- Watt carbon

BOARD MATERIAL is 1/16" Teflon glass,  
2 oz. Cu microstriplines are 50W nominal.