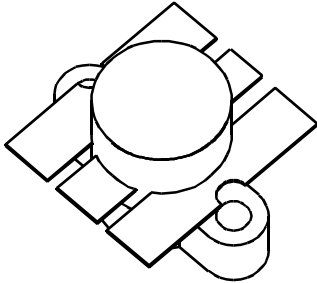




# VTV150

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	
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**ELECTRICAL CHARACTERISTICS @ 25 °C**

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>Pout</b>	Power Out - Pk Sync <sup>1</sup>	F = 175-225 MHz	15	20		Watts
<b>Pin</b>	Power Input	Vcc = 25 Volts		1.9		Watts
<b>Pg</b>	Power Gain	Ic = 2.4 Amps	8.0	9.0		dB
$\eta$	Efficiency			33		%
<b>IMD<sup>1</sup></b>	Intermodulation Distortion	Pref = 15 Watts		-52		dB
<b>VSWR<sub>1</sub></b>	Load Mismatch Tolerance	F = 225 MHz			3:1	

<b>LVceo</b>	Collector to Emitter Breakdown	Ic = 25 mA	28			Volts
<b>BVces</b>	Collector to Base Breakdown	Ic = 100mA	45			Volts
<b>BVebo</b>	Emitter to Base Breakdown	Ie = 10mA	4.0			Volts
<b>h<sub>FE</sub></b>	Current Gain	Vce = 5 V, I <sub>m</sub> = 1 mA	10			
<b>Cob</b>	Output Capacitance	Vcb = 25 V, F = 1 MHz		68		pF
<b>θjc</b>	Thermal Resistance	Tc = 25°C		1.6	1.8	°C/W

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

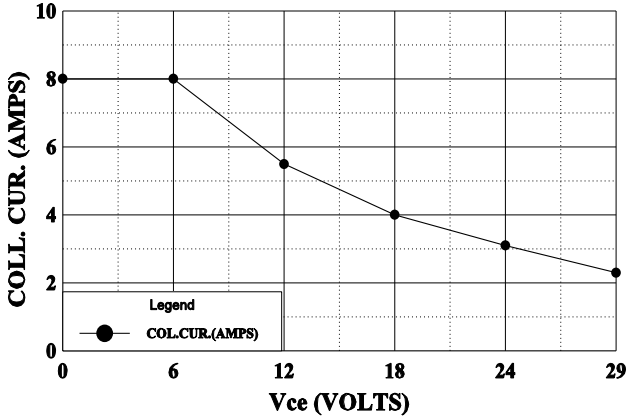
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GHZ Technology Inc. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 Tel. 408 / 986-8031 Fax 408 / 986-8120

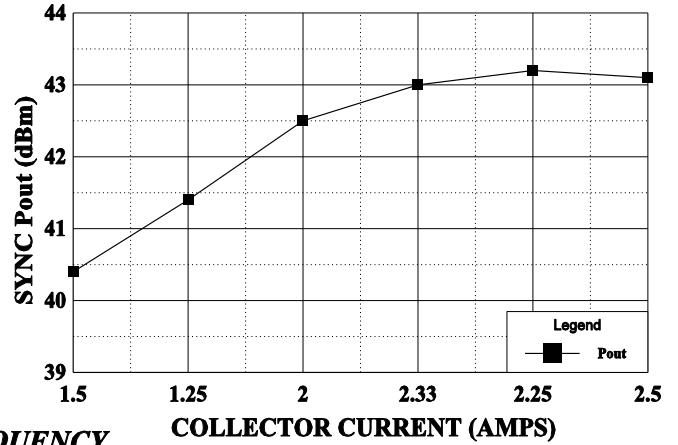
**DC SAFE OPERATING AREA**

Pin = 1.9 Watt Pk, Vcc = 25 Volts



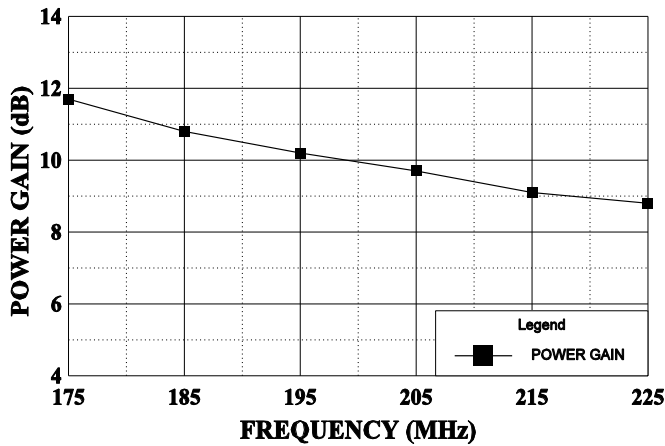
**SYNC OUTPUT vs COLLECTOR CURRENT**

Vcc - 25V, Frequency 225 MHz



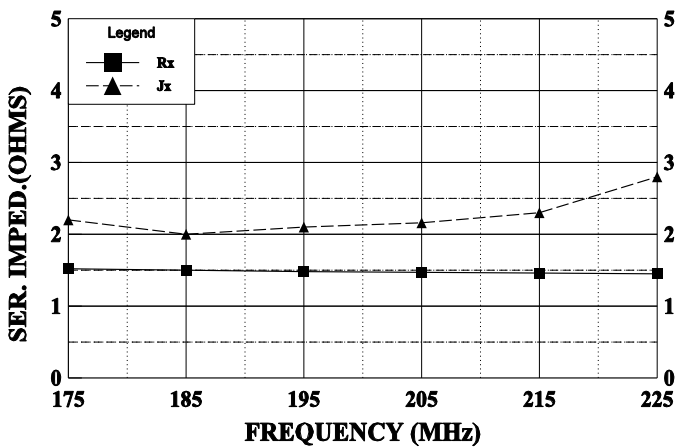
**POWER GAIN vs FREQUENCY**

Vcc 25V, Pin = 1.9 W



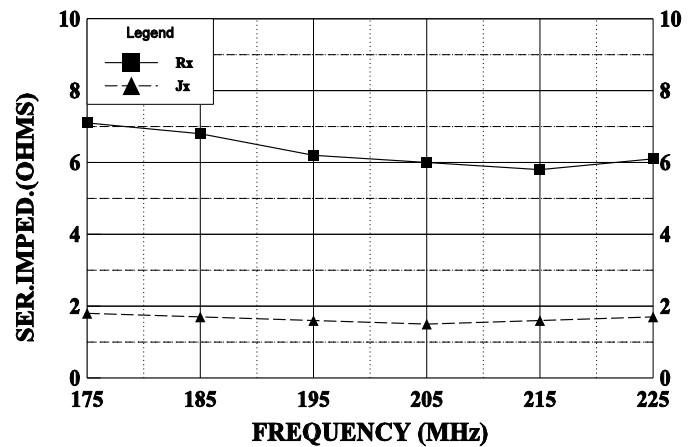
**SERIES INPUT IMPEDANCE vs FREQUENCY**

Vcc = 25V, Pin = 1.9W

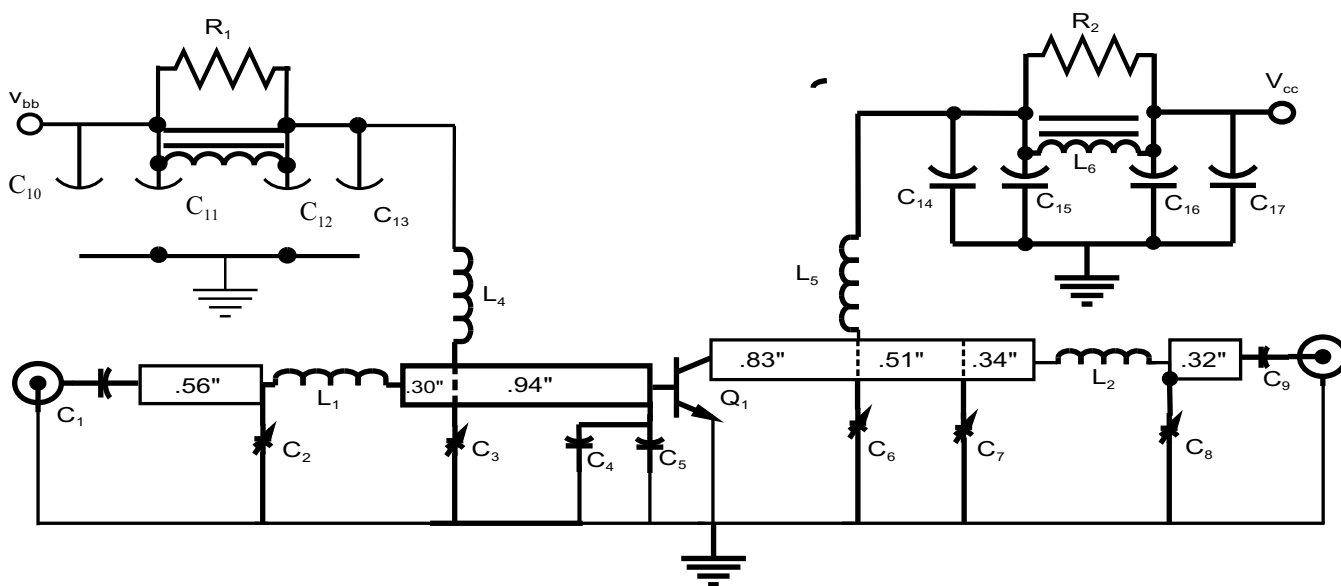


**SERIES LOAD IMPEDANCE vs FREQUENCY**

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.