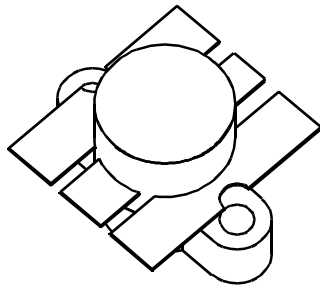


# VTV300

30 Watts, 25 Volts  
VHF Television - Band III

<p><b>GENERAL DESCRIPTION</b> The VTV 300 is a COMMON EMITTER transistor capable of providing 30 Watts Peak, 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 1</b></p> 
<p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <p>Maximum Power Dissipation @ 25°C                      146 Watts</p> <p><b>Maximum Voltage and Current</b></p> <p>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    14 Amps</p> <p><b>Maximum Temperatures</b></p> <p>Storage Temperature    - 65 to + 150°C Operating Junction Temperature                                + 200°C</p>	

## 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	30	35		Watts
<b>Pin</b>	Power Input	Vcc = 25 Volts		5		Watts
<b>Pg</b>	Power Gain	Ic = 5.0 Amps	6	7		dB
$\eta$	Efficiency			30		%
<b>IMD<sup>1</sup></b>	Intermodulation Distortion	Pref = 7.5 Watts		-50		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 = 10 mA	4.0			Volts
<b>h<sub>FE</sub></b>	Current Gain	Vce = 5 V, 1mA	10	40		
<b>Cob</b>	Output Capacitance	Vcb = 25V, F=1MHz		135		pF
<b><math>\theta_{jc}</math></b>	Thermal Resistance	Tc = 25°C		1.0	1.2	°C/W

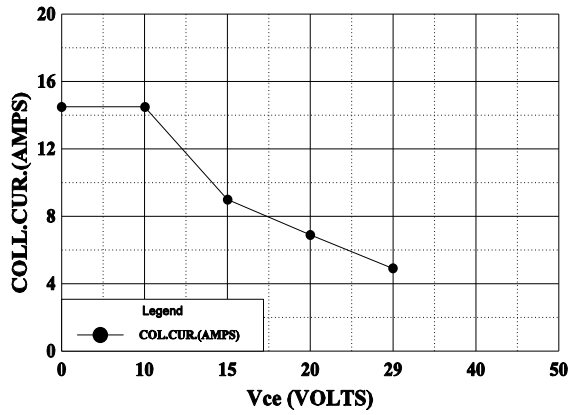
Note 1: European three tone test method: Vision carrier -8dB, sound carrier -7dB, sideband signal -16 dB, 0 dB corresponds to peak sync level.

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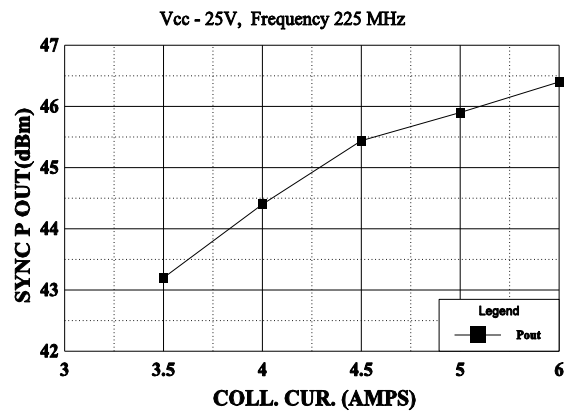
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GHz Technology Inc. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 Tel. 408 / 986-8031 Fax 408 / 986-8120

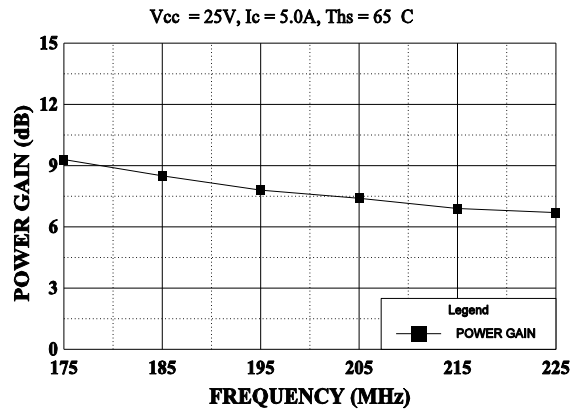
**DC SAFE OPERATING AREA**



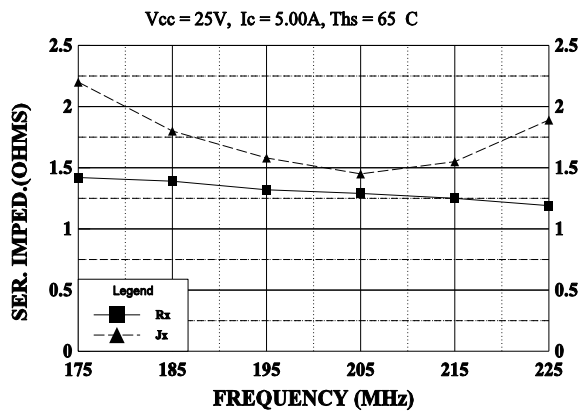
**SYNC OUTPUT vs COLLECTOR CURRENT**



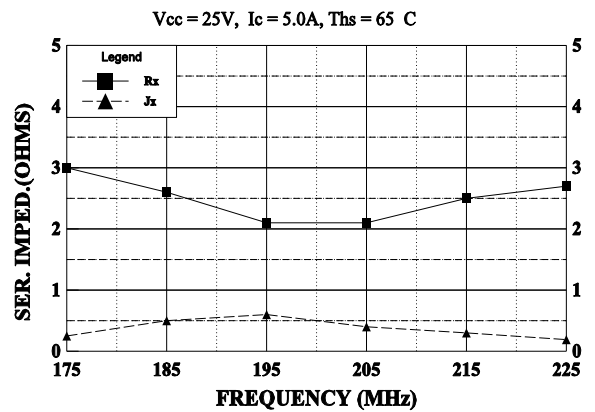
**POWER GAIN vs FREQUENCY**



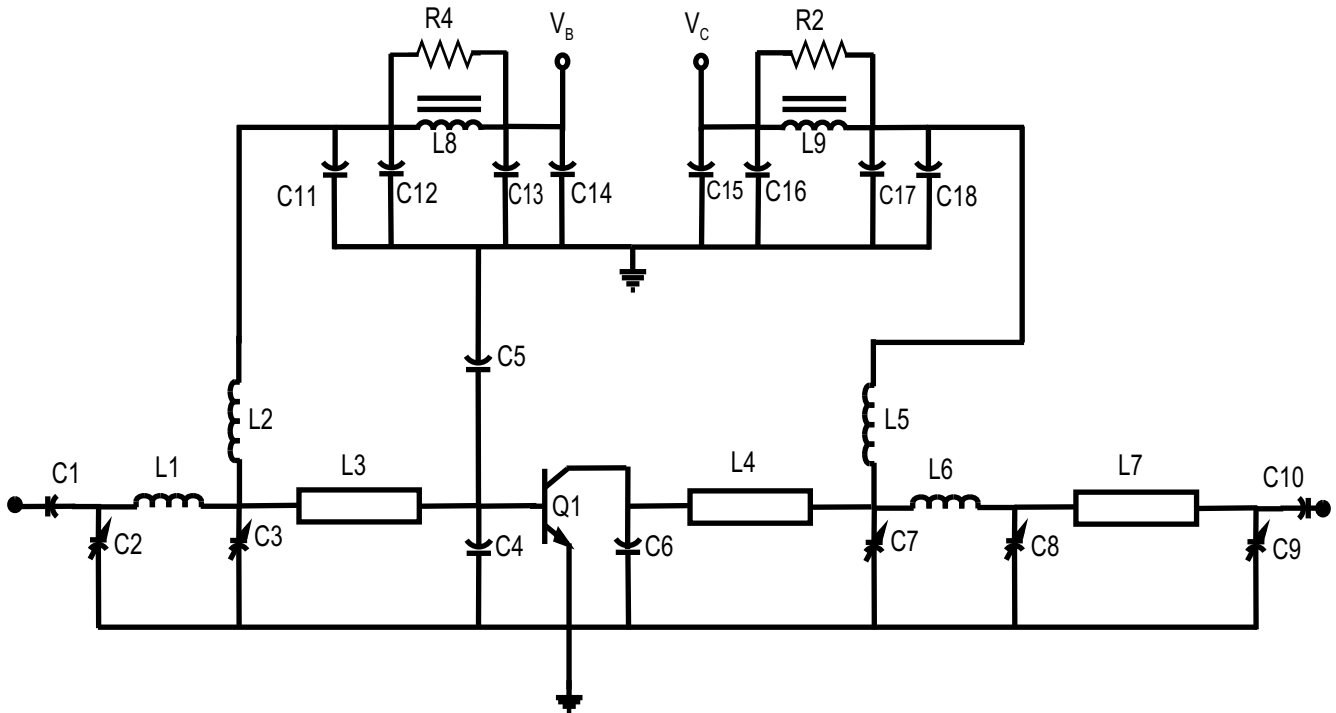
**SERIES INPUT IMPEDANCE vs FREQUENCY**



**SERIES LOAD IMPEDANCE vs FREQUENCY**



**VTV-300 RF Test Circuit (Tunable 175-225 MHz)**  
**Recommended Bias:  $V_{CE}=25V, I_C=5.0 A$  (DC Bias not shown)**



C1, C10, C11, C18..... 220pf ceramic chip  
 C2..... 5-70pf compression mica  
 C3, C7..... 11-170pf compression mica  
 C4, C5, C6..... 68 pf ceramic chip  
 C8, C9..... 4-40pf compression mica  
 C12, C17..... 390 ceramic chip  
 C13, C16..... 1mf electrolytic  
 C14, C15..... 50 mf electrolytic  
 L1..... Copper strap 1.20" x .10" x .025"

L2..... 0.1 nH wire wound  
 L3..... 50 W line .925" long  
 L4..... 50 W line .465" long  
 L5..... 5 turns #24 wire, .12" I.D.  
 L6..... Copper strap 1.10" x .15" x .075"  
 L7..... 50 W line .960" long  
 L8, L9..... 9 turns #22 wire on F627-8 Q1 torroid  
 R1, R2..... 15 W 1/2 watt carbon (10%)  
 Board Material is 1/16" Teflon Fiberglass.