

VTV150

15 Watts, 25 Volts
VHF Television - Band III

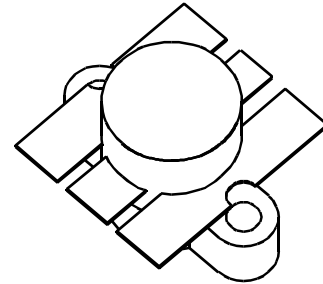
GENERAL DESCRIPTION

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.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C	97 Watts
Maximum Voltage and Current	
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
Maximum Temperatures	
Storage Temperature	- 65 to + 150°C
Operating Junction Temperature	+ 200°C

CASE OUTLINE 55HV, STYLE 2



ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out - Pk Sync ¹	F = 175-225 MHz	15	20		Watts
P_{in}	Power Input	V _{cc} = 25 Volts		1.9		Watts
P_g	Power Gain	I _c = 2.4 Amps	8.0	9.0		dB
η	Efficiency			33		%
IMD¹	Intermodulation Distortion	P _{ref} = 15 Watts		-52		dB
VSWR₁	Load Mismatch Tolerance	F = 225 MHz			3:1	

LVceo	Collector to Emitter Breakdown	I _c = 25 mA	28			Volts
BVces	Collector to Base Breakdown	I _c = 100mA	45			Volts
BVebo	Emitter to Base Breakdown	I _e = 10mA	4.0			Volts
h_{FE}	Current Gain	V _{ce} = 5 V, I _c = 1 mA	10			
Cob	Output Capacitance	V _{cb} = 25 V, F = 1 MHz		68		pF
θjc	Thermal Resistance	T _c = 25°C		1.6	1.8	°C/W

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

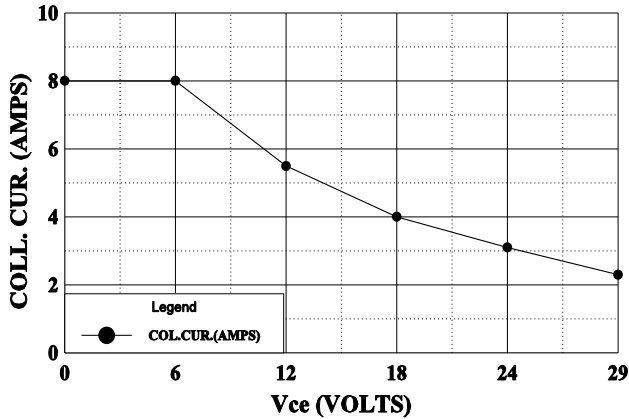
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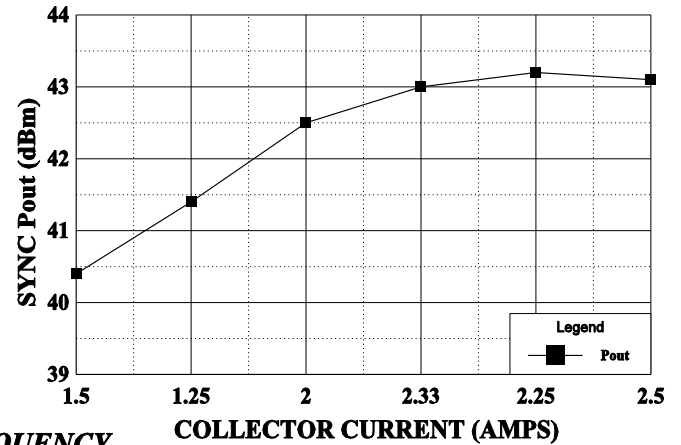
DC SAFE OPERATING AREA

Pin = 1.9 Watt Pk, Vcc = 25 Volts



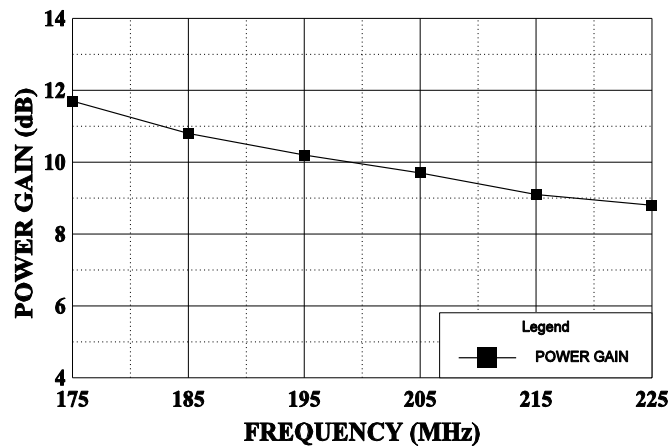
SYNC OUTPUT vs COLLECTOR CURRENT

Vcc = 25V, Frequency 225 MHz



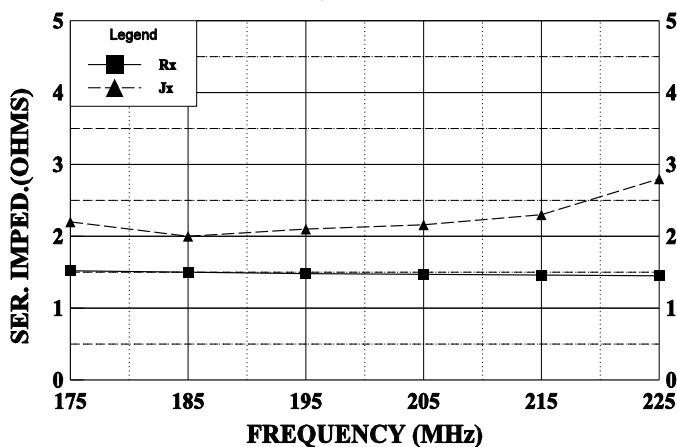
POWER GAIN vs FREQUENCY

Vcc 25V, Pin = 1.9 W



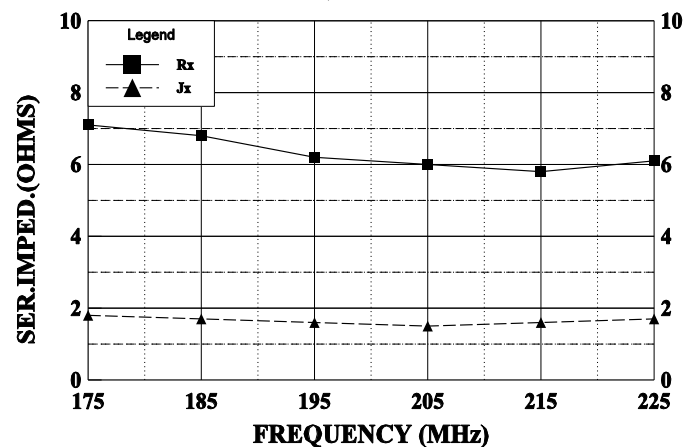
SERIES INPUT IMPEDANCE vs FREQUENCY

Vcc = 25V, Pin = 1.9W

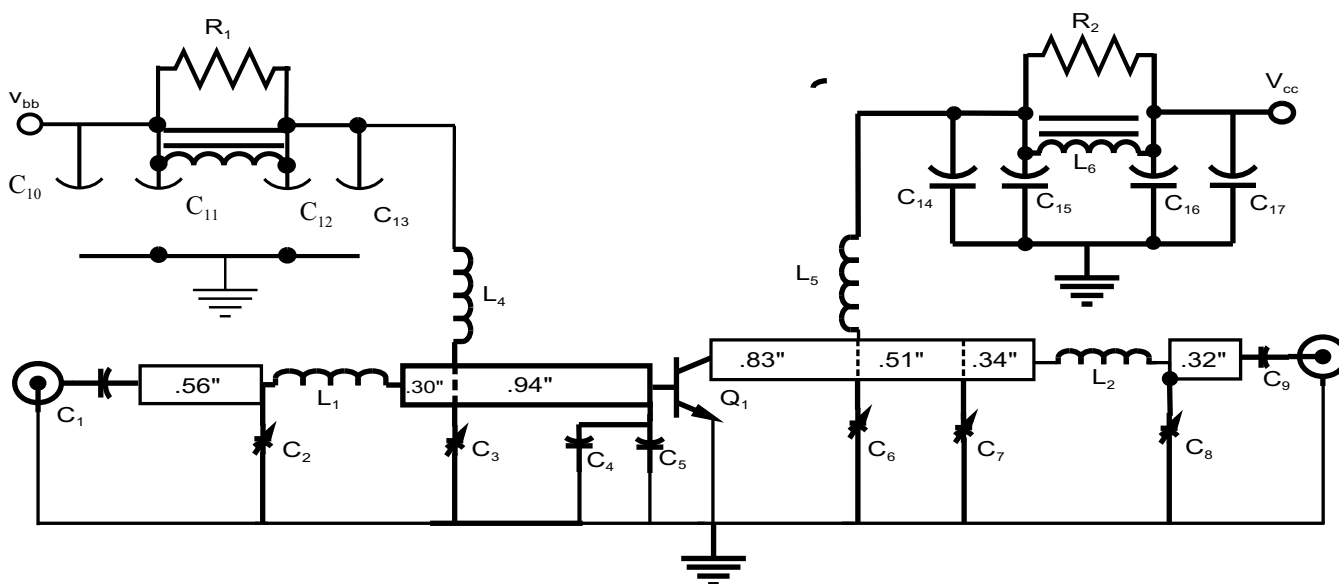


SERIES LOAD IMPEDANCE vs FREQUENCY

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)
R1, R2 15 W 1/2- Watt carbon

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