GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

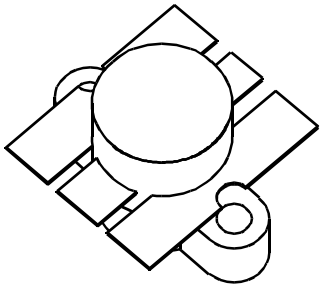
VTV075

7.5 Watts, 25 Volts, Class A
VHF Television - Band III

GENERAL DESCRIPTION

The VTV 075 is a COMMON EMITTER transistor capable of providing 7.5 Watts Peak Sync, Class A, RF Output Power over the band 175 - 225 MHz. It is designed for high efficiency, high linereity, Class A operation. Gold Metalization and Diffused Ballasting are used to provide high reliability and supreme ruggedness.

CASE OUTLINE
55HV, STYLE 2



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 53 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	4.0 Amps

Maximum Temperatures

Storage Temperature	- 65 to + 150°C
Operating Junction Temperature	+ 200°C

ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout	Power Out - Pk Sync[1]	F = 175-225 MHz	7.5	10		Watts
Pin	Power Input	Vcc = 25 Volts				Watts
Pg	Power Gain	Ic = 1.2Amps	10	11.2		dB
η	Efficiency			33		%
IMD	Intermodulation Distortion	Pref = 7.5 Watts		- 52		dB
VSWR	Load Mismatch Tolerance	F = 225 MHz	5:1			

BVceo	Collector to Emitter Breakdown	Ic = 25mA	28			Volts
BVces	Collector to Base Breakdown	Ic = 50 mA	45			Volts
BVebo	Emitter to Base Breakdown	Ie = 10 mA	4.0			Volts
$\mathbf{h_{FE}}$	Current Gain	Vce = 5 V, 500 mA	10			
Cob	Output Capacitance	Vcb = 25 V, F = 1MHz		35		pF
θ**jc**	Thermal Resistance	Tc = 25°C, IR Scan		3.0	3.3	°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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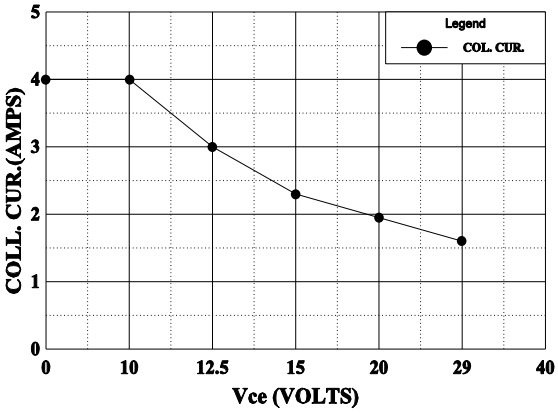
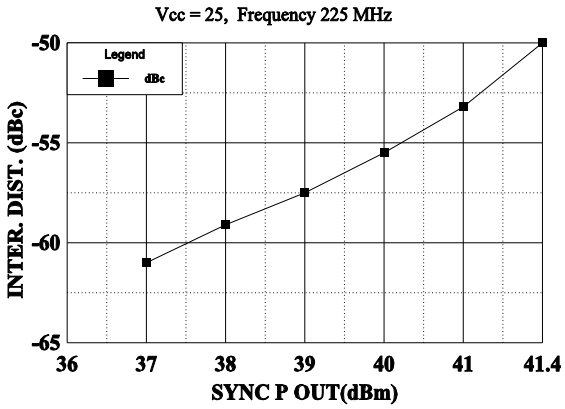
VTV 075

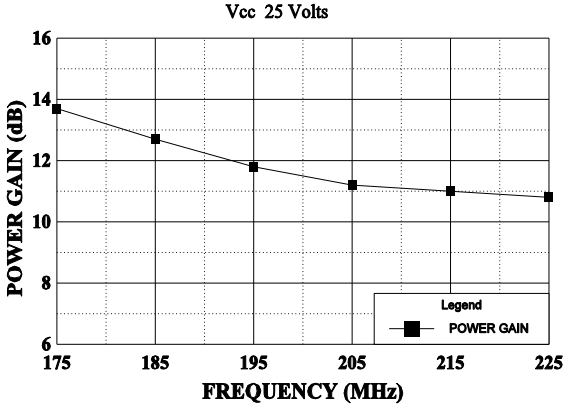
DC SAFE OPERATING AREA



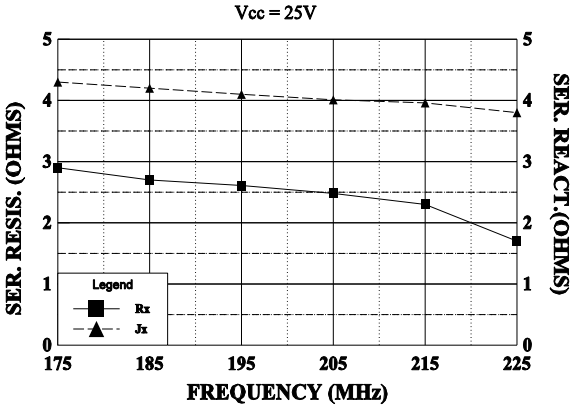
INTERMODULATION DISTORT. vs SYNC Pout



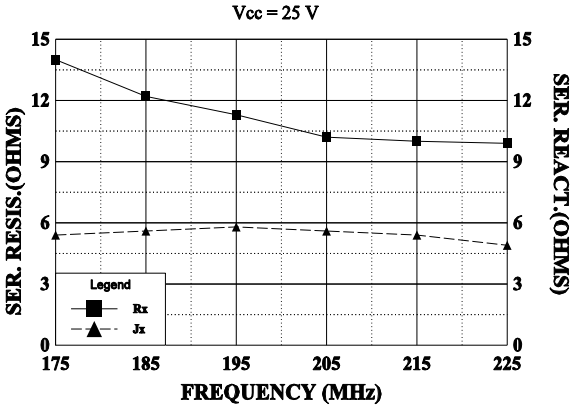
POWER GAIN vs FREQUENCY



SERIES INPUT IMPEDANCE vs FREQUENCY



SERIES LOAD IMPEDANCE vs FREQUENCY



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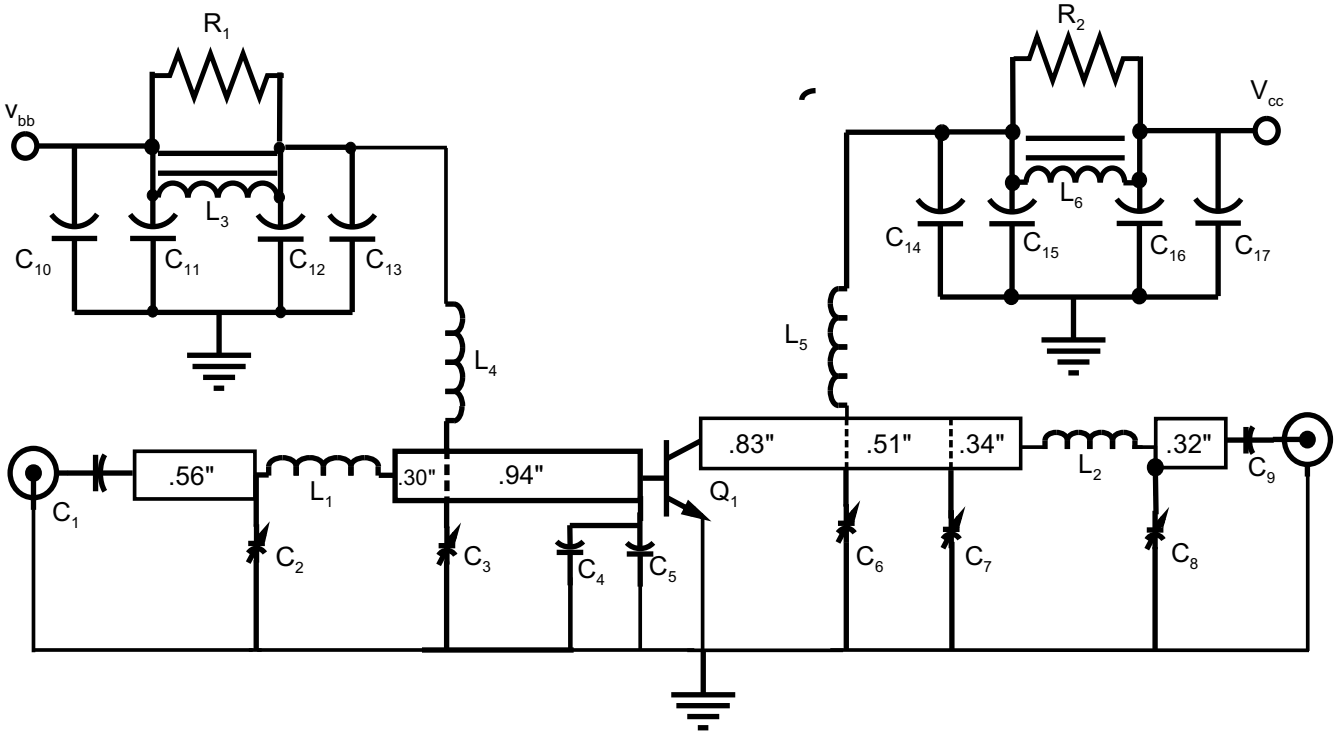
VTV-075

VTV-075 RF Test Circuit (Tunable 175-225 MHz)
Recommended Bias: V_{CE}=25 V, I_C=1.2 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 electolytic
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 (.15" outer diameter)
R1, R2 .....15 Ohm 1/2 Watt Carbon

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

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