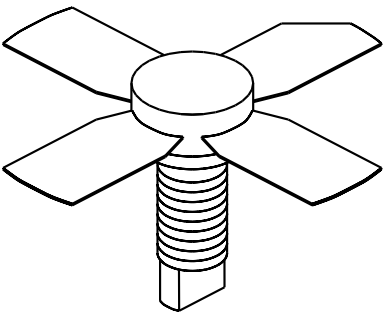


# UTV005

0.5 Watt, 20 Volts, Class A  
UHF Television - Band IV & V

<p><b>GENERAL DESCRIPTION</b> The UTV 005 is a COMMON EMITTER transistor capable of providing 0.5 Watt Peak, Class A, RF Output Power over the band 470 - 860 MHz. Gold Metalization and Diffused Ballasting are used to provide high reliability and supreme ruggedness.</p>	<p><b>CASE OUTLINE</b> <b>55FT, STYLE 2</b></p> 
<p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <p>Maximum Power Dissipation @ 25°C <span style="float: right;">8.0 Watts</span></p> <p><b>Maximum Voltage and Current</b></p> <p>BVces Collector to Emitter Voltage <span style="float: right;">45 Volts</span>          BVceo Collector to Emitter Voltage <span style="float: right;">3.5 Volts</span>          BVebo Emitter to Base Voltage <span style="float: right;">4 Volts</span>          Ic Collector Current <span style="float: right;">0.75 Amps</span></p> <p><b>Maximum Temperatures</b></p> <p>Storage Temperature <span style="float: right;">- 65 to + 150°C</span>          Operating Junction Temperature <span style="float: right;">+ 200°C</span></p>	

## ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>Pout</b>	Power Out - Pk Sync	F = 470 - 860 MHz	0.5			Watts
<b>Pin</b>	Power Input	Vcc = 20 Volts			.05	Watts
<b>Pg</b>	Power Gain	Ic = 220 mA		11		dB
<b>IMD<sup>1</sup></b>	Intermodulation Distortion	Pref = 0.5 Watts		-60		dB
<b>VSWR<sub>1</sub></b>	Load Mismatch Tolerance	F = 860 MHz			30:1	

<b>BVceo</b>	Collector to Emitter Breakdown	Ic = 20 mA	24			Volts
<b>BVces</b>	Collector to Base Breakdown	Ic = 10 mA	45			Volts
<b>BVebo</b>	Emitter to Base Breakdown	Ie = 1 mA	3.5			Volts
<b>h<sub>FE</sub></b>	Current Gain	Vce = 5 V, 100 mA	20			
<b>Cob</b>	Output Capacitance	Vcb = 20 V, F = 1 MHz		5.0		pF
<b>θjc</b>	Thermal Resistance	Tc = 25°C			22	°C/W

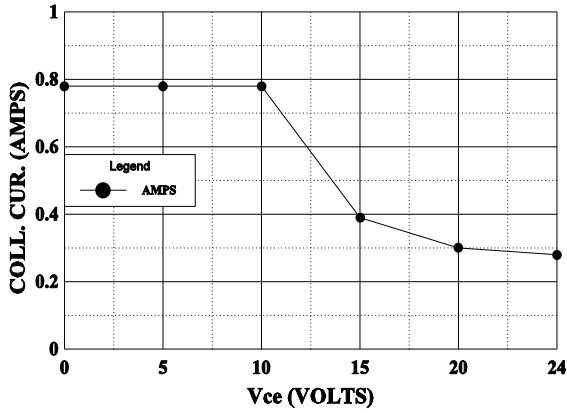
Note 1: F1=860 MHz, F2=863.5 MHz, F3=864.5 MHz

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

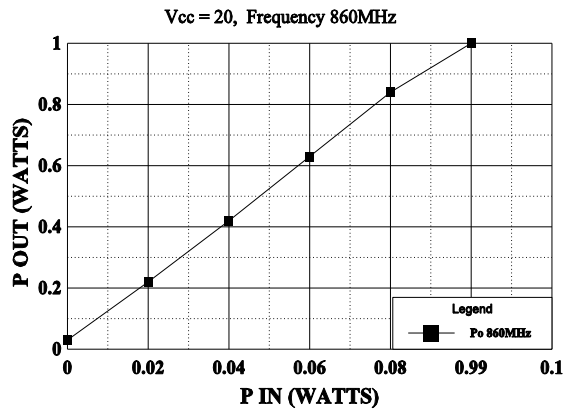
Issue August 1996

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.

**DC SAFE OPERATING AREA**

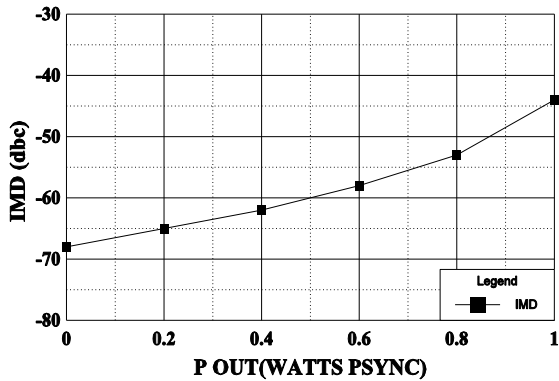


**POWER OUTPUT vs POWER INPUT**



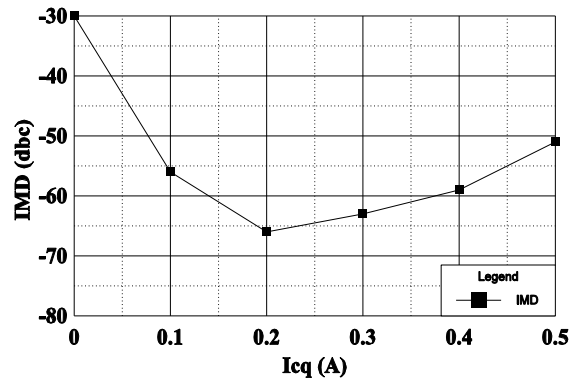
**IMD vs Pout**

Vcc = 20V, Ic = 220mA



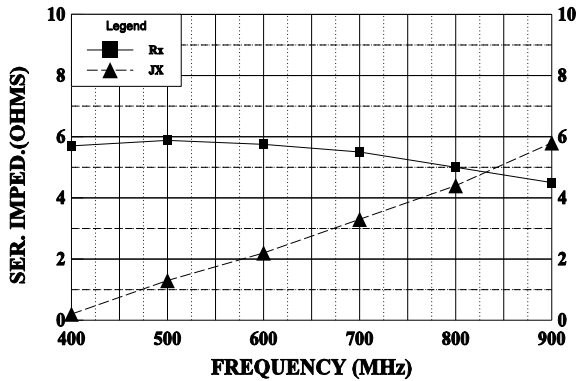
**IMD vs Ic**

Vcc = 20V, Ic = 220 mA



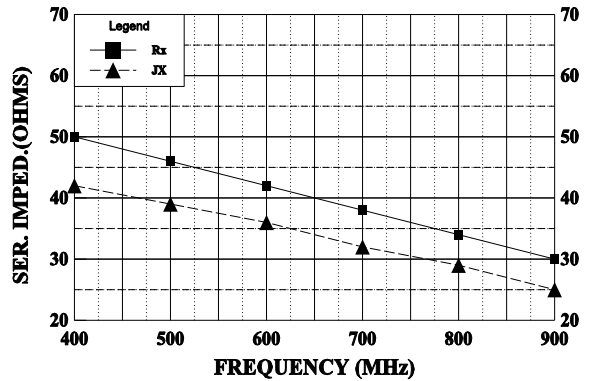
**SERIES INPUT IMPEDANCE vs FREQUENCY**

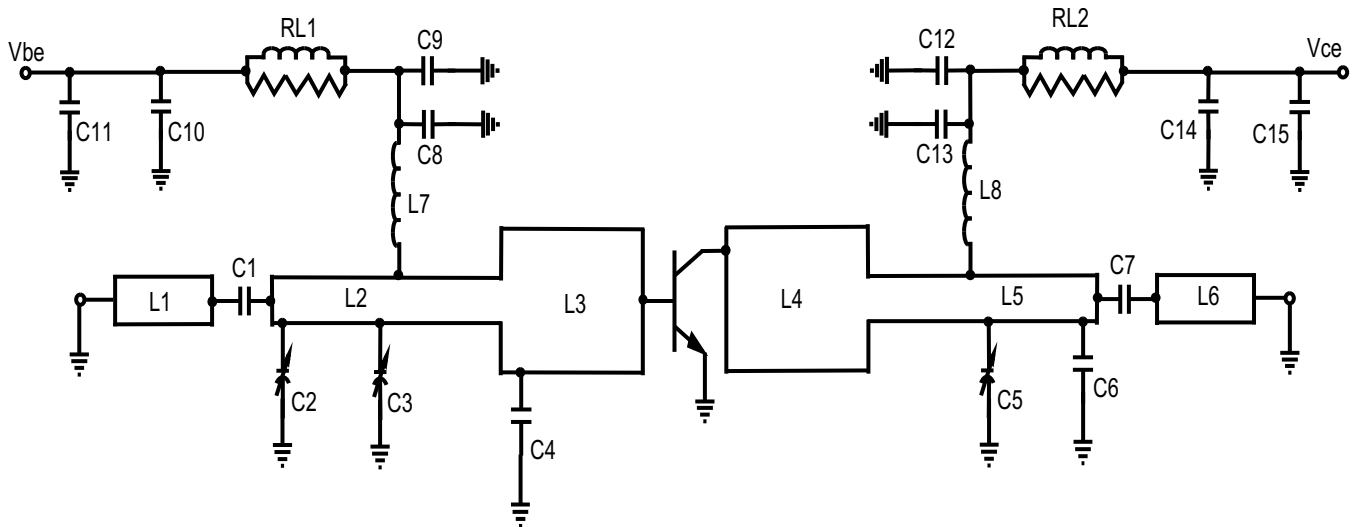
Vcc = 20V, Ic = 220 mA



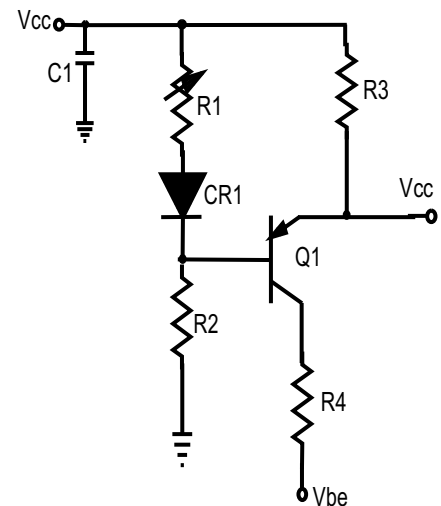
**SERIES LOAD IMPEDANCE vs FREQUENCY**

Vcc = 20V, Ic = 220 mA





### BIAS CIRCUIT



L1=.435" X .150"  
L2=.435" X 1.1480"  
L3=.270" X .300"  
L4=.300" X .310"  
L5=1.525" X .150"  
L6=.365" X .150"  
L7=.4 mH Molded Inc.  
L8=4T, .91" 1D 24 AWG.

C1=8.2 pF ATC  
C2,C3=.8-8 pF adj  
C4=6.2 pF ATC  
C5=.6-6pF adj  
C6=1pF ATC  
C7=22pF ATC  
C8,C13=220 pF ATC  
C9,C12=390 pF ATC  
C10,C14=1 mF Tantalum  
C11,C15=10 MF, 50V Electro  
RL1,RL2=5 turns #2 gauge wire  
on a 0.125" toroid in parallel  
with a 1W, 15 OHM resistor.

C1=100 MF, 50 V Electrolytic  
R1=500 OHM Pot  
R2=4.7 KOHM, 1/4 W  
R3= 47 OHM 1/4 W  
R4=1 OHM, 3 Watt, 1%  
CR1=IN4148  
Q1=MJE172