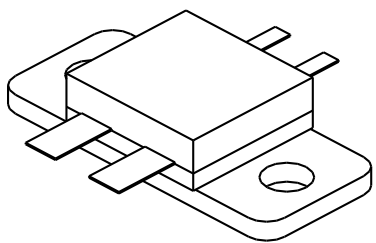


UTV200

20 Watts, 26.5 Volts, Class A
UHF Television - Band IV & V

<p>GENERAL DESCRIPTION</p> <p>The UTV 200 is a COMMON EMITTER transistor capable of providing 20 Watt Peak, Class A, RF Output Power over the band 470 - 860 MHz. The transistor includes double input prematching for full broadband capability. Gold Metalization and Diffused Ballasting are used to provide high reliability and supreme ruggedness.</p>	<p>CASE OUTLINE 55JV, STYLE 2</p> 
<p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Power Dissipation @ 25°C 80 Watts</p> <p>Maximum Voltage and Current</p> <p>BVces Collector to Emitter Voltage 50 Volts BVceo Collector to Emitter Voltage 28 Volts BVebo Emitter to Base Voltage 4.0 Volts Ic Collector Current 4.5 Amps</p> <p>Maximum Temperatures</p> <p>Storage Temperature - 65 to + 200°C Operating Junction Temperature + 200°C</p>	

ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout	Power Out - Pk Sync	F = 470 - 860 MHz	20			Watts
Pin	Power Input	Vcc = 26.5 Volts			2.8	Watts
Pg	Power Gain	Ic = 2.7 Amps	8.5	9.5		dB
IMD¹	Intermodulation Distortion	Pref = 20Watts		-48	-46	dB
VSWR₁	Load Mismatch Tolerance	F = 860 MHz			3:1	

LVceo²	Collector to Emitter Breakdown	Ic = 40 mA	28			Volts
BVces²	Collector to Base Breakdown	Ic = 20mA	50			Volts
BVebo²	Emitter to Base Breakdown	Ie = 10 mA	4			Volts
h_{FE}²	Current Gain	Vce = 5 V, 1 A	10		150	
Cob²	Output Capacitance	Vcb = 26 V, F = 1 MHz			36	pF
θjc	Thermal Resistance	Tc = 25°C			1.2	°C/W

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

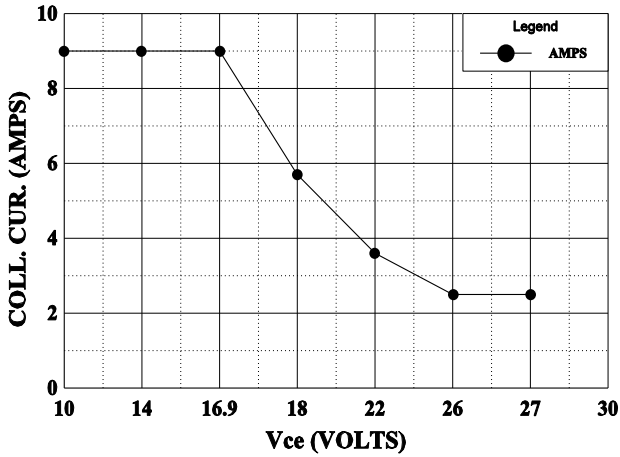
European test method, Vision = - 8dB, Sideband= - 16dB, Sound = -7 dB

Note 2: Per side

Initial Issue June, 1994

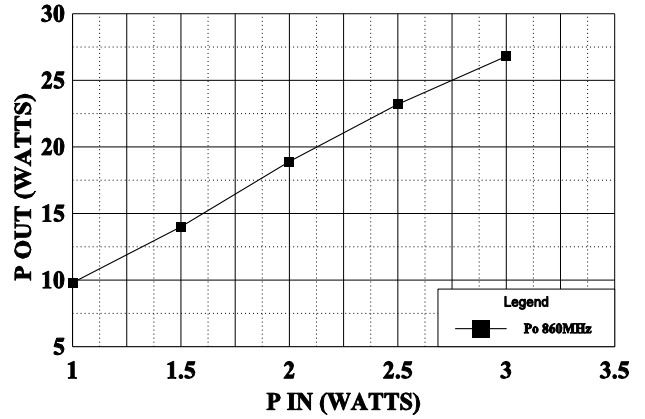
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DC SAFE OPERATING AREA

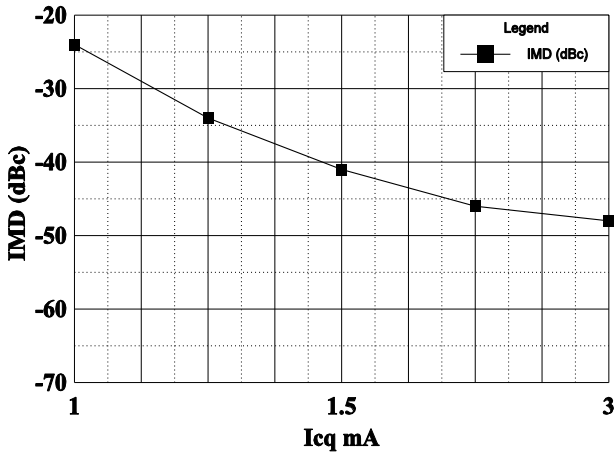


POWER OUTPUT vs POWER INPUT

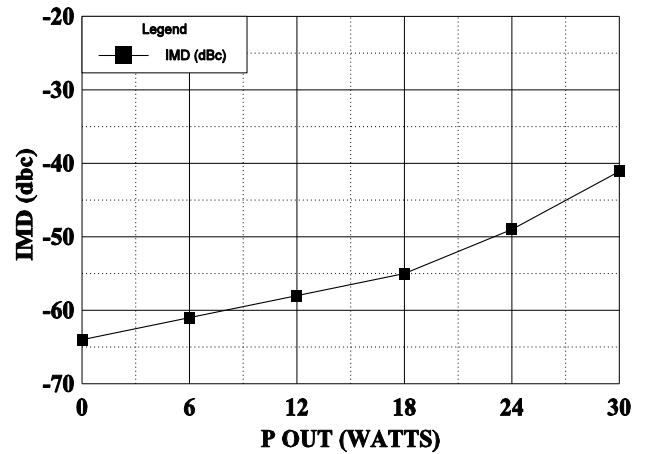
Vcc = 26.5V, Frequency 860MHz



IMD vs Icq

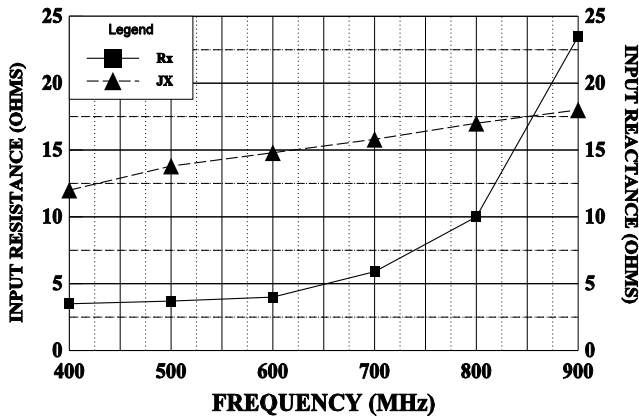


IMD vs P out



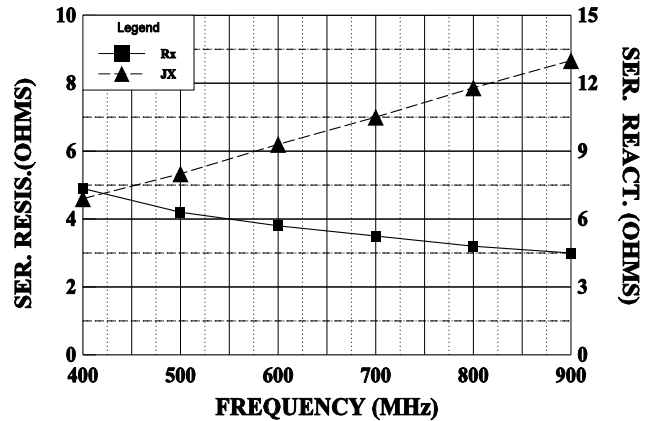
INPUT IMPEDANCE vs FREQUENCY

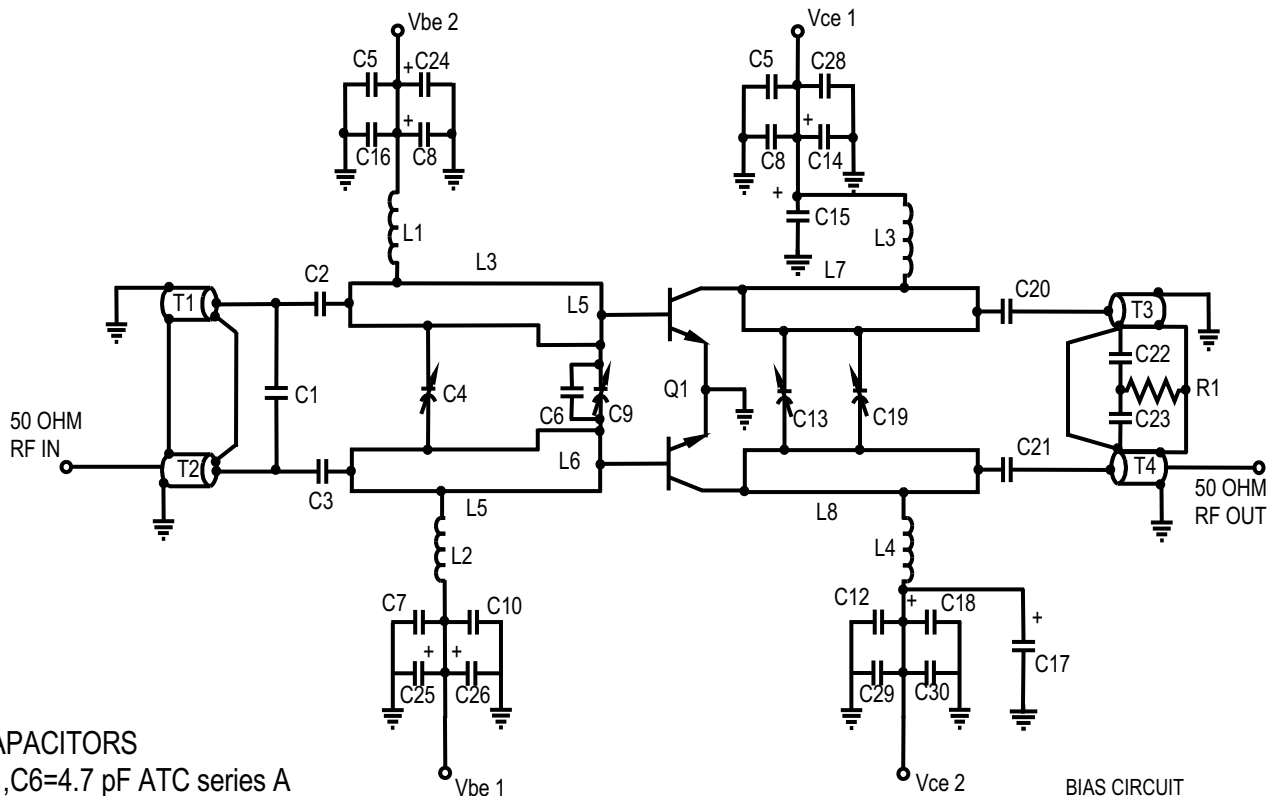
Vcc = 26.5V, Pin =



LOAD IMPEDANCE vs FREQUENCY

Vcc = 26.5V





CAPACITORS

- C1,C6=4.7 pF ATC series A
- C2,C3,C20,C21=33 pF ATC series A
- C4,C9=1.2-3.5 pF film diel. trimmer
- C5,C7,C11,C12=0.01 mF, 50V Tantalum
- C8,C15,C17,C25=1 mF, 50 V Tantalum
- C10,C16,C27,C12=0.1 mF 50 V disc ceramic
- C13=0.6-6 pF piston trimmer
- C19=0.35-3.5 pF piston trimmer
- C18,C24,C14,C26=10 mF, 50 V
- C28,C30=0.001 mF, 50 V disc ceramic
- C31=100 mF, 50 V electrolytic

INDUCTORS

- L1,L2=0.46 microHenry molded
- L3,L4=1 turn #18 magnet wire on a 0.325" form

TRANSISTORS

- Q1=GHz UTV-200
- Q2,Q3=MJE172

MICROSTRIPLINES

- L3,L4=0.075" X 0.65"
- L5,L6=0.120" X 0.31"
- L7,L8=0.120" X 1.33"

RESISTORS

- R1=10 Ohm, 1/2 W Carbon
- R2,R6=500 Ohm potentiometer
- R3,R7=4.7K Ohm, 3W, 1% Carbon
- R4,R8=1 Ohm, 3W, 1% Carbon film
- R5,R9=47 Ohm, 1/4W Carbon film

TRANSFORMERS

- T1,T2,T3,T4=50 Ohm semi-rigid coax cable (0.056" X 1.1") soldered to 0.035" X 1.1" microstrip

DIODES

- CR1,CR2=IN4148

