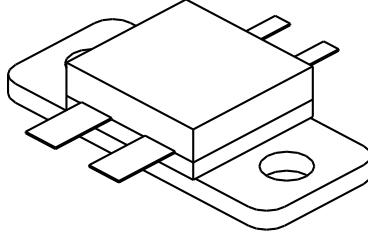




# UTV200

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

<b>GENERAL DESCRIPTION</b> 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.	<b>CASE OUTLINE 55JV, STYLE 2</b> 
<b>ABSOLUTE MAXIMUM RATINGS</b>	
Maximum Power Dissipation @ 25°C	80 Watts
<b>Maximum Voltage and Current</b>	
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
<b>Maximum Temperatures</b>	
Storage Temperature	- 65 to + 200°C
Operating Junction Temperature	+ 200°C

## ELECTRICAL CHARACTERISTICS @ 25 °C

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

<b>LVceo<sup>2</sup></b>	Collector to Emitter Breakdown	Ic = 40 mA	28			Volts
<b>BVces<sup>2</sup></b>	Collector to Base Breakdown	Ic = 20mA	50			Volts
<b>BVebo<sup>2</sup></b>	Emitter to Base Breakdown	Ie = 10 mA	4			Volts
<b>h<sub>FE</sub><sup>2</sup></b>	Current Gain	Vce = 5 V, 1 A	10		150	
<b>Cob<sup>2</sup></b>	Output Capacitance	Vcb = 26 V, F = 1 MHz			36	pF
<b>θjc</b>	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

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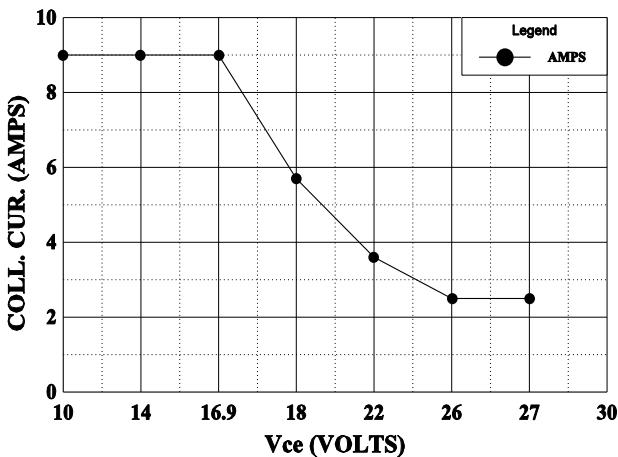
GHZ Technology Inc. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 Tel. 408 / 986-8031 Fax 408 / 986-8120



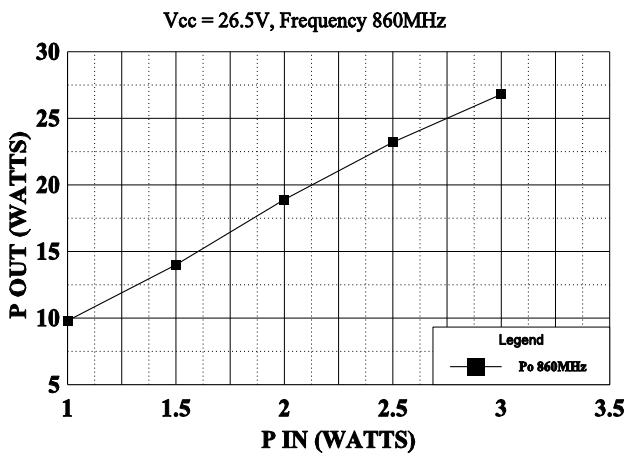
**CHz TECHNOLOGY**  
RF-MICROWAVE SILICON POWER TRANSISTORS

**UTV200**

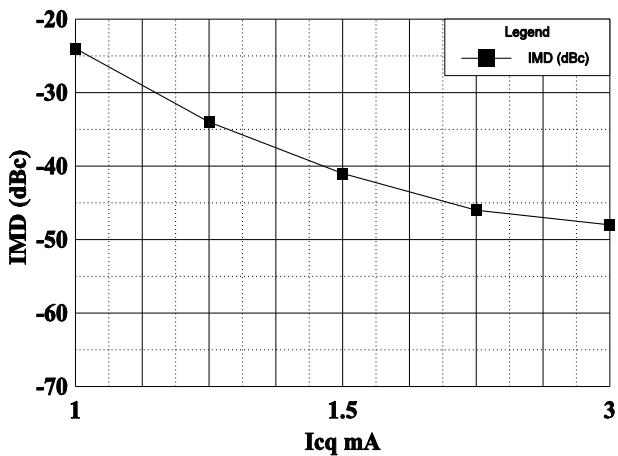
#### DC SAFE OPERATING AREA



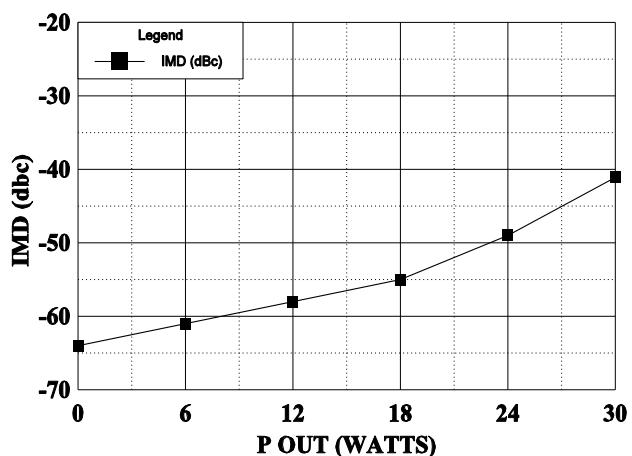
#### POWER OUTPUT vs POWER INPUT



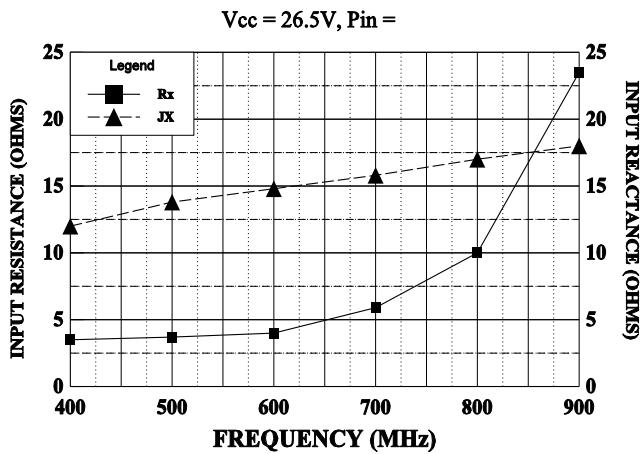
#### IMD vs Icq



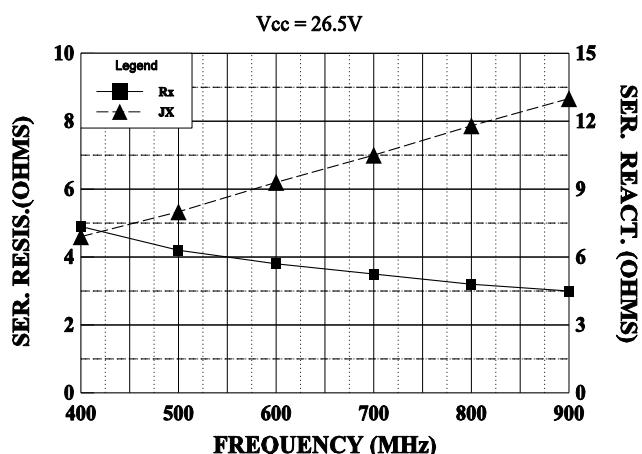
#### IMD vs P out



#### INPUT IMPEDANCE vs FREQUENCY



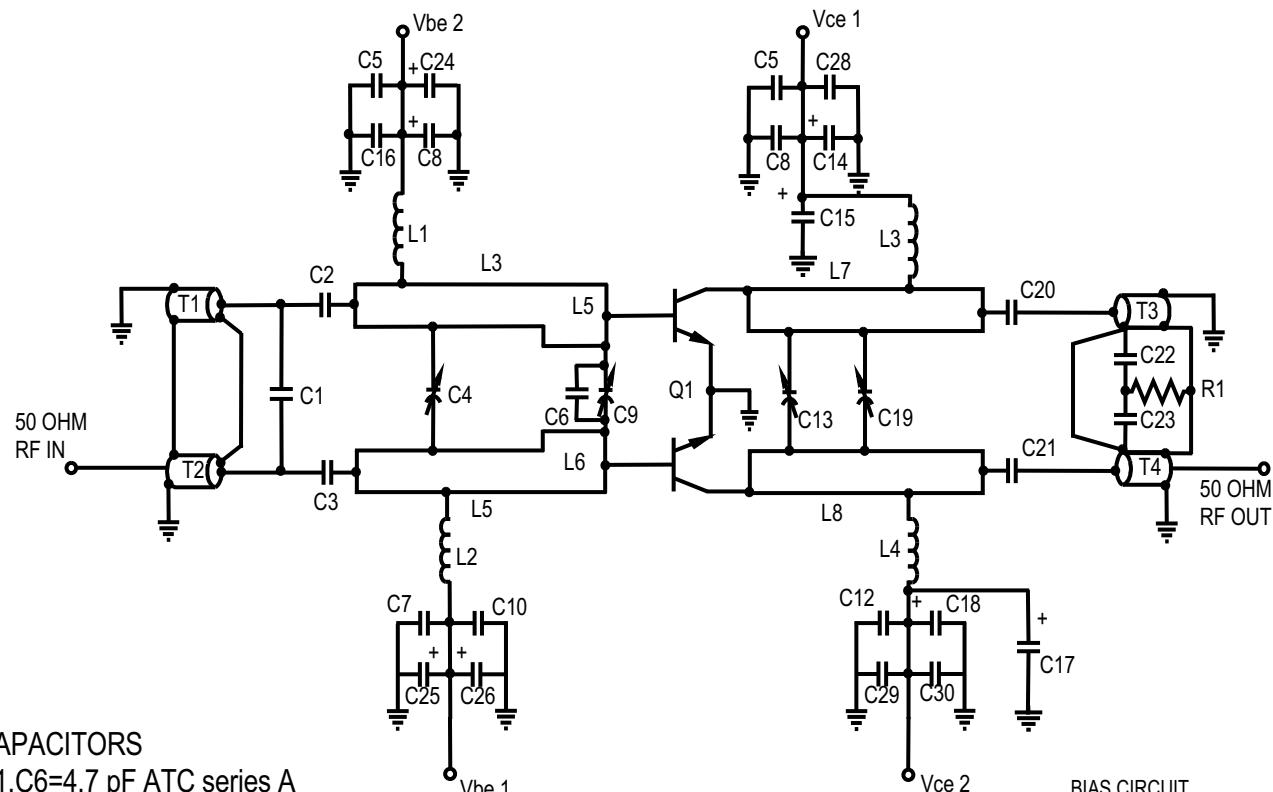
#### LOAD IMPEDANCE vs FREQUENCY





**GHz TECHNOLOGY**  
RF·MICROWAVE SILICON POWER TRANSISTORS

# UTV-200



#### 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

#### 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

#### 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

#### TRANSFORMERS

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

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

DIODES  
 CR1,CR2=IN4148

