

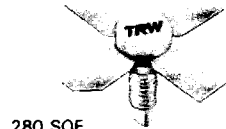
## PRELIMINARY DATA SHEET

# UHF Linear Transistor

The TPV 593 is a NPN gold metallized transistor using diffused emitter ballast resistors for super linearity.

Its characteristics make the TPV 593 the best device available for very efficient medium power stages in UHF transposers applications.

**TV TRANSPOSER  
BAND 4 & 5  
9 dB GAIN  
2 W**



280 SOE

### Electrical Characteristics ( $T_{case} = 25\text{ }^{\circ}\text{C}$ )

	SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC TEST	$BV_{CEO}$	Collector - Emitter Breakdown Voltage	$I_C = 80\text{ mA}$	25			V
	$BV_{CBO}$	Collector - Base Breakdown Voltage	$I_C = 10\text{ mA}$	45			V
	$BV_{EBO}$	Emitter - Base Breakdown Voltage	$I_E = 1\text{ mA}$	4			V
	$H_{FE}$	D.C. Current Gain	$V_{CE} = 20\text{ V}$ $I_C = 250\text{ mA}$	10			—
RF TEST	IMD	Intermodulation distortion vision = — 8 dB sound = — 7 dB Sideband = — 16 dB	$F = 860\text{ MHz}$ $P_{REF} = 2\text{ W}$ $V_{CE} = 25\text{ V}$ $I_C = 450\text{ mA}$			— 60	dB
	$P_G$	Power Gain		8.5	9		dB
	$C_{OB}$	Collector Base Capacitance	$V_{CB} = 25\text{ V}$ $F = 1\text{ MHz}$			10	pF
THERMAL	$\theta_{j-c}$	Thermal Resistance Junction Case	$T_{case} 70\text{ }^{\circ}\text{C}$			11	$^{\circ}\text{C/W}$
	$T_{STG}$	Storage Temperature		— 65		+ 200	$^{\circ}\text{C}$
	$T_J$	Junction Temperature		— 65		+ 200	$^{\circ}\text{C}$

POLAR « S » PARAMETERS IN 50 OHMS SYSTEM

F	S11		S21		S12		S22		S21	K
	MHz	MAGN	ANGL	MAGN	ANGL	MAGN	ANGL	MAGN	ANGL	dB
470	0.93	170°	1.5	63	0.04	50°	0.55	-166°	3.52	1.01
650	0.93	165°	1.06	50	0.05	54°	0.60	-169°	0.51	1.04
860	0.92	162°	0.79	38	0.06	54°	0.65	-169°	-2	1.15

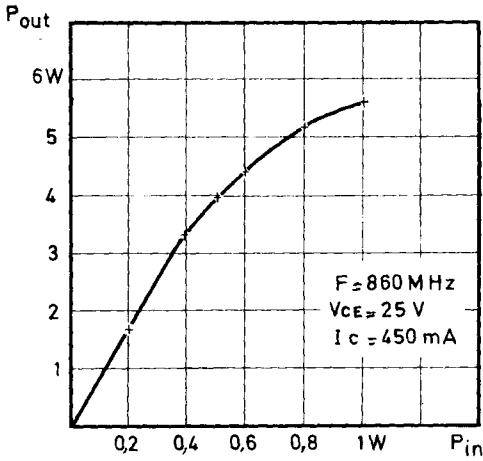
NOTE :  $V_{CE} = 25$  Volts —  $I_C = 450$  mA — Class A

POLAR COORDINATES OF SIMULTANEOUS CONJUGATE MATCH IN 50 OHMS SYSTEM

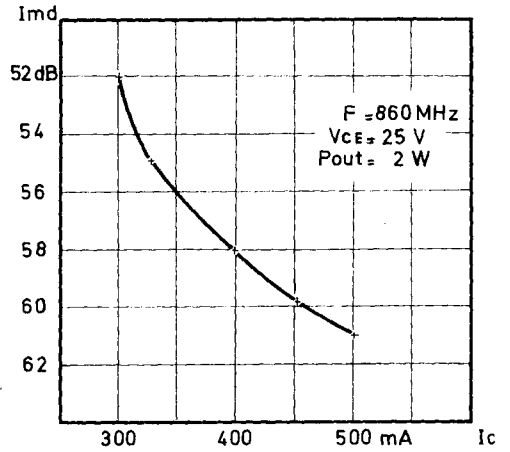
F	SOURCE REFL. COEFF.		LOAD REFL. COEFF.		G MAX
	MHz	MAGN	ANGLE	MAGN	ANGLE
470	0.99	-173°	0.91	124°	15.2
650	0.99	-168°	0.83	134°	12.0
860	0.95	-165°	0.79	146°	9.2

NOTE :  $V_{CE} = 25$  Volts —  $I_C = 450$  mA — Class A

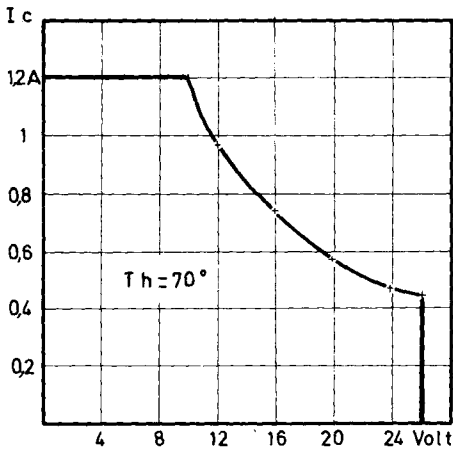
Output Power vs Input Power



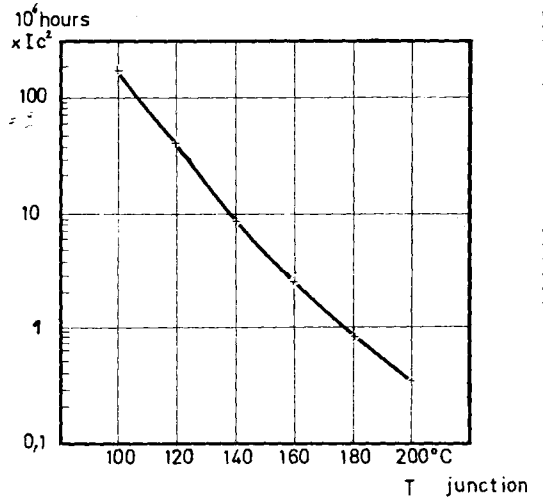
IMD vs Collector Current



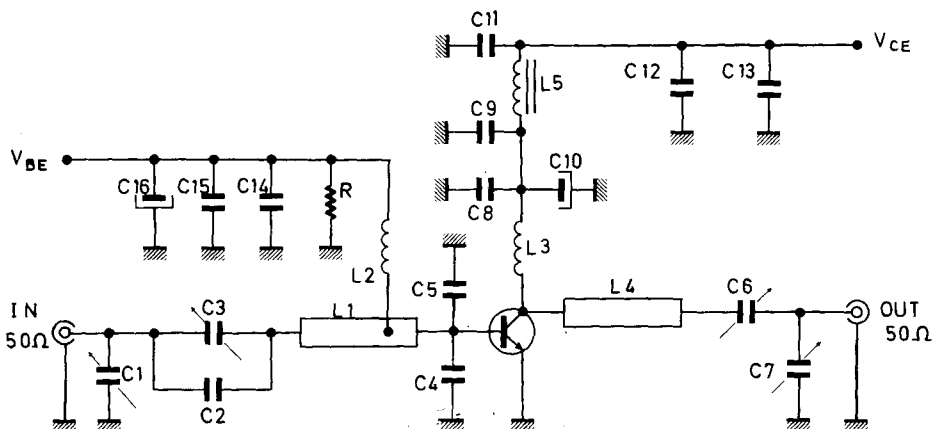
DC Safe Operating Area



MTTF vs Junction Temperature



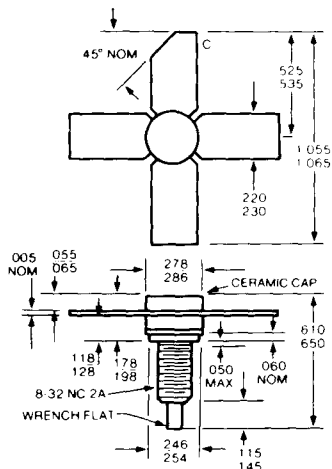
TEST CIRCUIT AT 860 MHz



Components Part List

- |   |   |
|---|---|
| $C_1$ = AIR TRIMMER AT 5201 0.8 - 10 pF TEKELEC     | $L_1$ = 30 $\Omega$ line 1 = 6.5 % $\lambda g$                |
| $C_2$ = CHIP ATC 4.7 pF                             | $L_2$ = choke 0.47 $\mu H$                                    |
| $C_3$ = AIR TRIMMER AT 5751 0.6 - 6 pF TEKELEC      | $L_3$ = 1 turn - ID 6 mm - wire 10/10                         |
| $C_4 = C_5$ = CHIP ATC 3.3 pF                       | $L_4$ = 30 $\Omega$ line 1 = 19 % $\lambda g$                 |
| $C_6 = C_7$ = AIR TRIMMER AT 5501 1 - 20 pF TEKELEC | $L_5$ = 8 turns on a CN 20 FERRITE BEAD - CERAMIC - MAGNETICS |
| $C_8 = C_{13} = C_{14}$ = 1 nF CHIP CAPACITOR       | $R$ = 43 $\Omega$ 1/4 Watt                                    |
| $C_9 = C_{11} = C_{15}$ = 10 nF RTC                 |   |
| $C_{12}$ = 0.1 $\mu F$ RTC                          |   |
| $C_{10} = C_{16}$ = 10 $\mu F$ 63 V electrolytic    |   |

Package Outline



To convert inches to millimeters multiply by 2.54

Class A Bias Circuit

