

RF Power Transistor



Island Labs

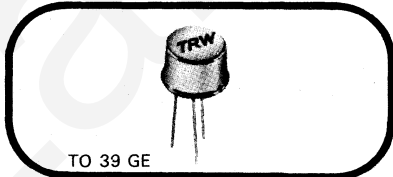
The TP 2312 is designed for 6 V to 12 V VHF applications and is intended for class A, B or C medium power amplifiers, frequency multipliers or oscillator circuits.

Its grounded emitter construction gives excellent thermal dissipation and the ability of providing further heatsinking where necessary the case also acts as a good RF screen.

This device features high gain and an infinite VSWR rating at all phase angles at rated power output.

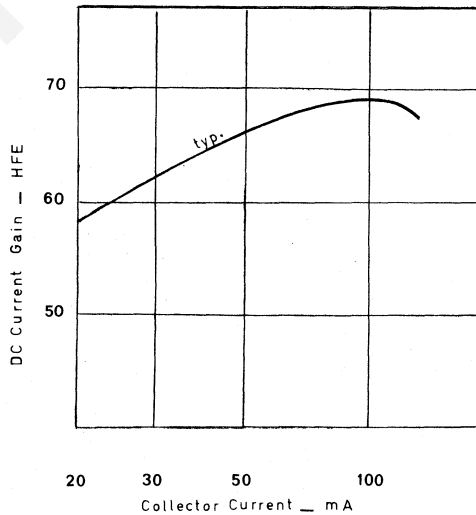
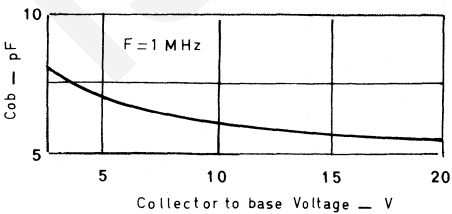
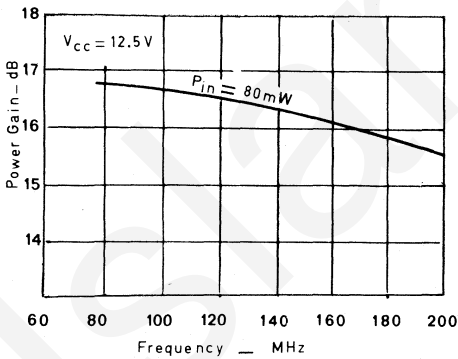
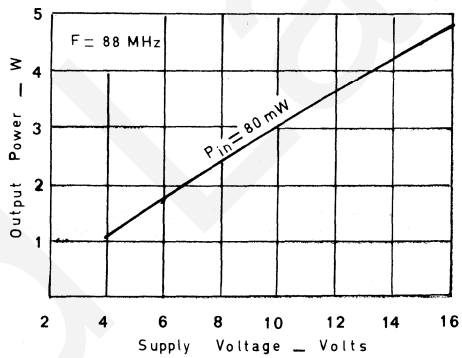
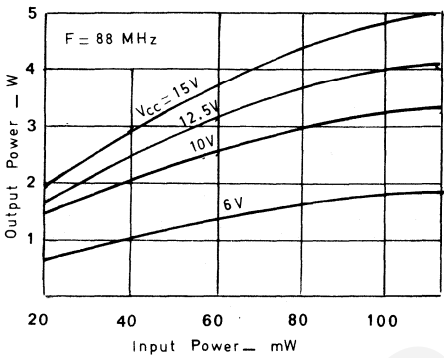
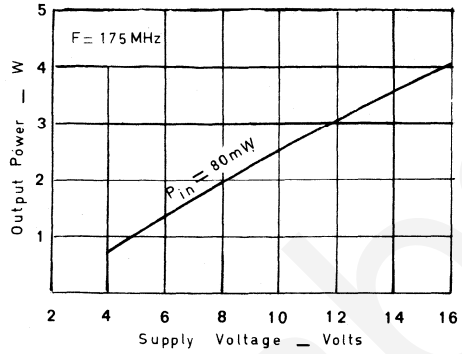
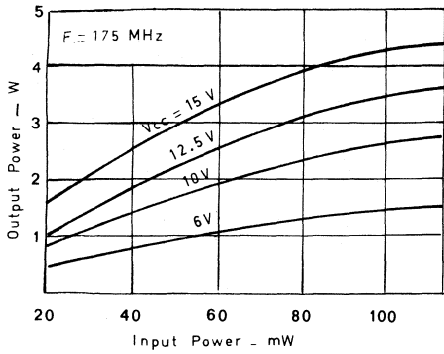
3 W - 175 MHz

12.5 V



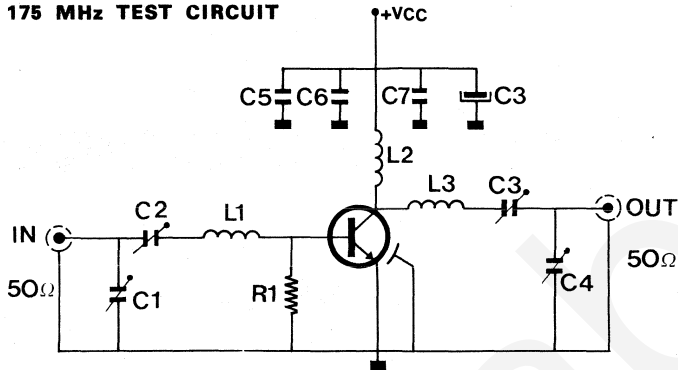
Electrical Characteristics (T_{case} = 25 °C)

	SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC Test	BV _{EBO}	Emitter - Base Breakdown Voltage	I _E = 1 mA I _C = 0	4			V
	BV _{CEO}	Collector - Emitter Breakdown Voltage	I _C = 25 mA I _B = 0	16			V
	BV _{CBO}	Collector - Base Breakdown Voltage	I _C = 5 mA I _E = 0	35			V
	I _{CBO}	Collector Cutoff Current	V _{CB} = 15 V I _E = 0			1	mA
	H _{FE}	D.C Current Gain	V _{CE} = 5 V I _C = 100 mA	20	70		—
RF Test	P _{GAIN}	Power Gain	V _{CE} = 12.5 V F = 175 MHz P _{in} = 80 mW V _{CE} = 6 V F = 175 MHz P _{in} = 80 mW V _{CE} = 12.5 V F = 88 MHz P _{in} = 80 mW	2.75 1 3	3 1.3 3.5		W
	η	Efficiency	V _{CE} = 12.5 V F = 175 MHz P _{out} = 3 W	60	68		%
	Load VSWR	Mismatch Tolerance	All Phase Angles V _{CE} = 12.5 V F = 175 MHz P _{out} = 2.75 W		∞ : 1		
	Z _{in}	Common Emitter Amplifier Input Impedance	V _{CE} = 12.5 V F = 175 MHz P _{in} = 80 mW F = 88 MHz		2.9 + j 4.36 2.94 - j 7.67		Ω
	Z _{Load}	Common Emitter Amplifier Load Impedance	V _{CE} = 12.5 V F = 175 MHz P _{out} = 3 W F = 88 MHz		25.1 + j 10.2 29 + j 18.4		Ω
	C _{OB}	Collector - Base Capacitance	V _{CB} = 20 V F = 1 MHz		5.5	7	pF
Operating	I _C	Continuous Collector Current				0.7	A
	θ _{j-c}	Thermal Resistance	T _C = 25 °C			25	°C/W
	T _{STG}	Storage Temperature and Junction Temperature	—	- 65°		200°	°C
	P _D	Power Dissipation	T _C = 25 °C			7	W



NOTA : TYPICAL CHARACTERISTICS

175 MHz TEST CIRCUIT



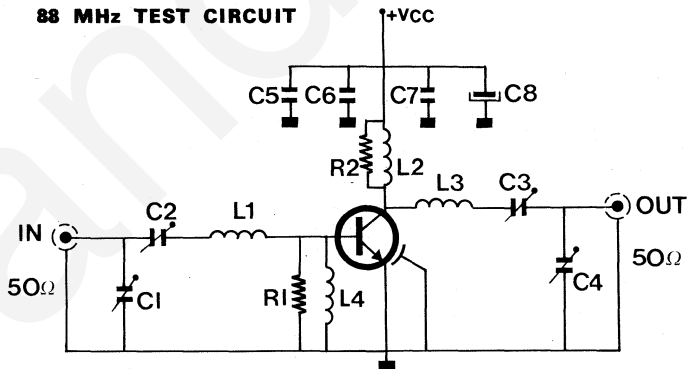
- $C_1 = C_2 = C_3 = C_4 =$ ARCO 404 7-60 pF trimmer capacitor
- $C_5 =$ 1000 pF mica capacitor
- $C_6 =$ 10 nF ceramic disc
- $C_7 =$ 0.1 μ F ceramic disc
- $C_8 =$ 47 μ F electrolytic

- $L_1 = L_3 =$ 2.5 turns - silvered wire \varnothing 1.5 mm - 10 mm I.D.
- $L_2 =$ 3 turns - silvered wire \varnothing 1.5 mm - 10 mm I.D.

$R_1 =$ 47 ohms - 1/2 W - carbon composition

NOTA : CASE MUST BE GROUNDED

88 MHz TEST CIRCUIT



- $C_1 = C_2 = C_3 = C_4 =$ ARCO 404 7-60 pF trimmer capacitor
- $C_5 =$ 1000 pF mica capacitor
- $C_6 =$ 10 nF ceramic disc
- $C_7 =$ 0.1 μ F ceramic disc
- $C_8 =$ 47 μ F electrolytic

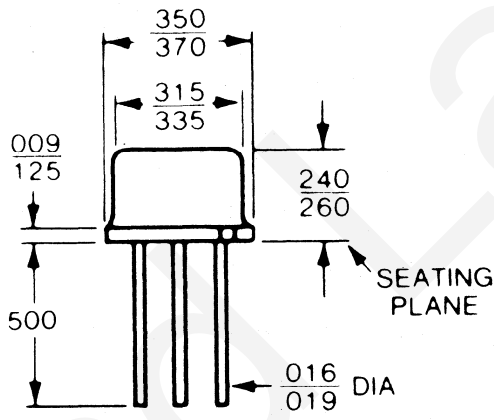
- $L_1 = L_3 =$ 2.5 turns - silvered wire \varnothing 1.5 mm - 10 mm I.D.
- $L_2 =$ 3 turns - silvered wire \varnothing 1.5 mm - 10 mm I.D.
- $L_4 =$ 0.45 μ H - molded coil
- $R_1 =$ 47 ohms - 1/2 W

$R_2 =$ 220 ohms - 1/2 W

NOTA : CASE MUST BE GROUNDED

PACKAGE OUTLINE

TO-39 GE



PIN 3 EMITTER
 2 BASE
 1 COLLECTOR

