



# SOLID STATE MICROWAVE

THOMSON-CSF COMPONENTS CORPORATION

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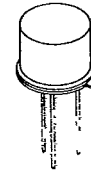
2N3375 2N3553  
2N3632 2N3733

## DESCRIPTION:

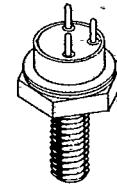
This line of silicon epitaxial NPN planar high frequency transistors employs a multi emitter electrode design. This feature together with a heavily diffused base matrix located between the individual emitters results in high RF current handling capability, high power gain, low base resistance and low output capacitance. These transistors are intended for Class A, B, or C amplifier, oscillator or frequency multiplier circuits and are specifically designed for operation in the VHF-UHF region.

## 2.5 W/3.0 W/10 W/13.5 W, 28 V, VHF-UHF POWER TRANSISTORS

FEATURES	HIGH POWER GAIN	PACKAGE
2N3375	400mHz - 3.0 W Min.	TO-60
2N3553	175mHz - 2.5 W Min.	TO-39
2N3632	175mHz - 13.5 W Min.	TO-60
2N3733	400mHz - 10.0 W Min.	TO-60



TO-39



TO-60

## ABSOLUTE MAX. RATINGS (TA = 25°C)

Symbol	Characteristic	2N3375	2N3553	2N3632	2N3733
V <sub>CBO</sub>	Collector to Base Voltage	65.0V	65.0V	65.0V	65.0V
V <sub>CEO</sub>	Collector to Emitter Voltage	40.0V	40.0V	40.0V	40.0V
V <sub>EBO</sub>	Emitter to Base Voltage	4.0V	4.0V	4.0V	4.0V
I <sub>C(max)</sub>	Continuous Collector Current	1.5A	1.0A	3.0A	3.0A
P <sub>D</sub>	Total Dissipation at 25°C Stud	11.6W	7.0W	23.0W	23.0W
θ <sub>JC</sub>	Thermal Resistance (Junction to Stud)	15.0°C/W	25.0°C/W	7.6°C/W	7.6°C/W
T <sub>stg</sub>	Storage Temperature	-65°C to 200°C	-65°C to 200°C	-65°C to 200°C	-65°C to 200°C
T <sub>j</sub>	Junction Temperature	-65°C to 200°C	-65°C to 200°C	-65°C to 200°C	-65°C to 200°C

## ELECTRICAL CHARACTERISTICS (TA = 25°C)

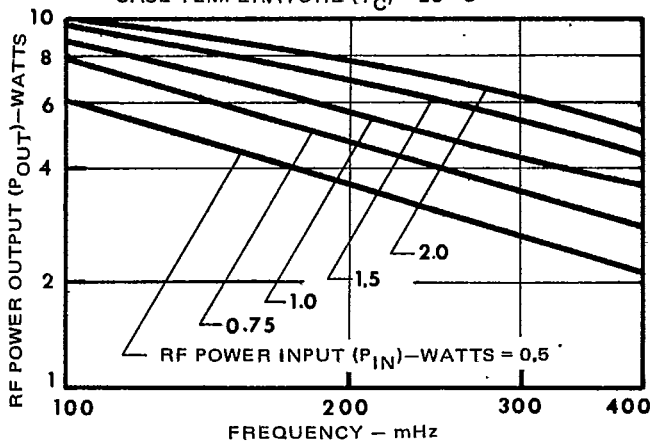
Symbol	Characteristic	Test Conditions	2N3375		2N3553		2N3632		2N3733	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
I <sub>CEO</sub>	Collector Cutoff Current	V <sub>CE</sub> = 30V, I <sub>B</sub> = 0	-	0.1mA	-	0.1mA	-	0.25mA	-	0.25mA
BV <sub>CBO</sub>	Collector to Base Breakdown Voltage	I <sub>C</sub> = 0.1mA, I <sub>E</sub> = 0 I <sub>C</sub> = 0.3mA, I <sub>E</sub> = 0 I <sub>C</sub> = 0.5mA, I <sub>E</sub> = 0	65.V	-	65.V	-	65.V	-	65.V	-
BV <sub>EBO</sub>	Emitter to Base Breakdown Voltage	I <sub>E</sub> = 0.1mA, I <sub>C</sub> = 0 I <sub>E</sub> = 0.25mA, I <sub>C</sub> = 0	4.V	-	4.V	-	4.V	-	4.V	-
BV <sub>CEO</sub>	Collector to Emitter Breakdown Voltage	I <sub>C</sub> = 0 to 200mA, I <sub>B</sub> = 0*	40.V	-	40.V	-	40.V	-	40.V	-
BV <sub>CEV</sub>	Collector to Emitter Breakdown Voltage	I <sub>C</sub> = 0 to 200mA, V <sub>BE</sub> = -1.5V*	65.V	-	65.V	-	65.V	-	65.V	-
C <sub>ob</sub>	Output Capacitance	V <sub>CB</sub> = 30V, I <sub>C</sub> = 0 f <sub>o</sub> = 1mHz	-	10. pF	-	10. pF	-	20. pF	-	20. pF
f <sub>T</sub>	Gain-Bandwidth Product	V <sub>CE</sub> = 28V, I <sub>C</sub> = 150mA f <sub>o</sub> = 100mHz	500. typ.	-	500. typ.	-	400. typ.	-	400. typ.	-
P <sub>out</sub>	R <sub>F</sub> Power Output, Class C Unneutralized	f <sub>o</sub> = 175mHz, V <sub>CE</sub> = 28V P <sub>IN</sub> = 0.25W P <sub>IN</sub> = 3.5W	-	-	2.5W	-	13.5W	-	-	-
P <sub>out</sub>	R <sub>F</sub> Power Output, Class C Unneutralized	f <sub>o</sub> = 400mHz, V <sub>CE</sub> = 28V P <sub>IN</sub> = 1.0W P <sub>IN</sub> = 4.0W	3.0W	-	-	-	-	-	10.0W	-

\*Pulsed through an Inductor (25mH); Duty Factor = 50%



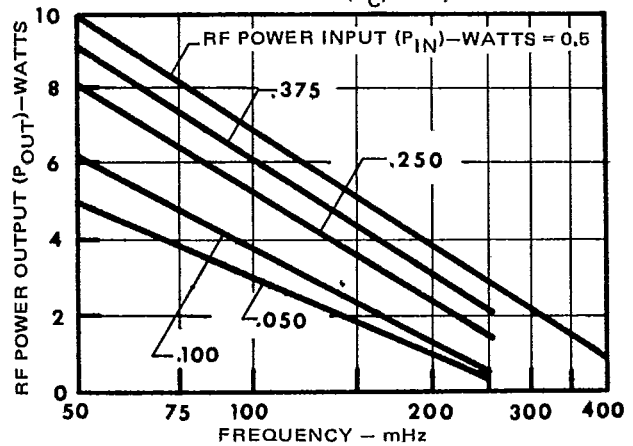
**2N3375 POWER OUTPUT VS FREQUENCY**

COLLECTOR-TO-EMITTER VOLTS ( $V_{CE}$ ) = 28  
CASE TEMPERATURE ( $T_C$ ) = 25° C

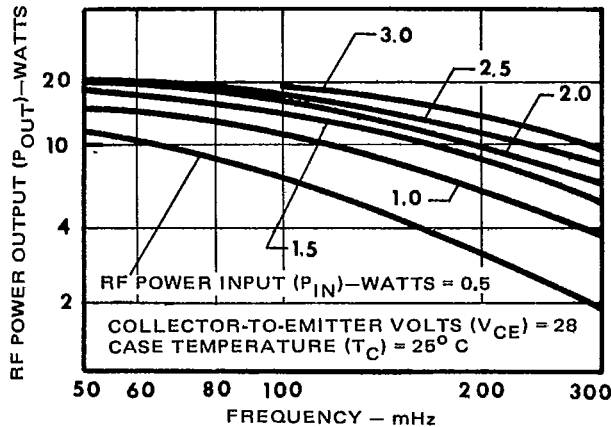


**2N3553 POWER OUTPUT VS FREQUENCY**

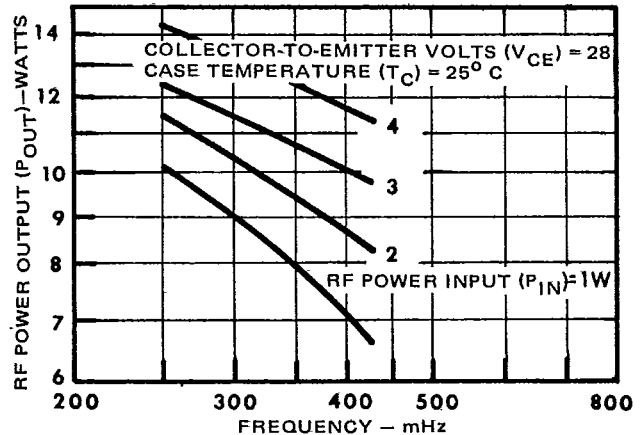
COLLECTOR-TO-EMITTER VOLTS ( $V_{CE}$ ) = 28  
CASE TEMPERATURE ( $T_C$ ) = 25° C



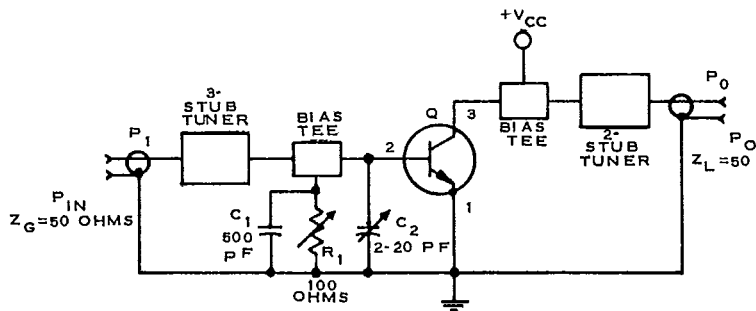
**2N3632 POWER OUTPUT VS FREQUENCY**



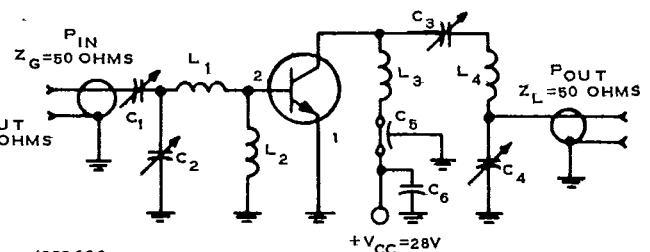
**2N3733 POWER OUTPUT VS FREQUENCY**



**2N3375 (400 mHz OPERATION)**



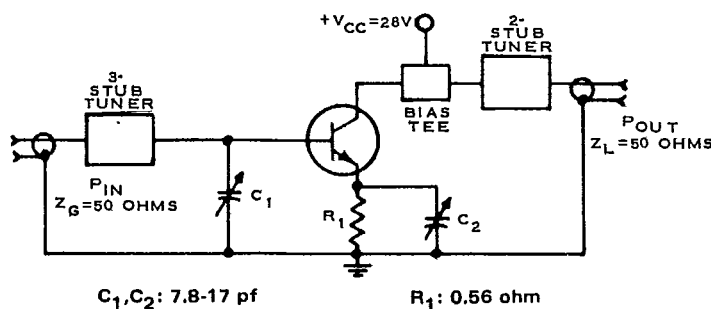
**2N3632 (175 mHz OPERATION)  
2N3553 (175 mHz OPERATION)**



**2N3632**

- $C_1, C_2, C_3, C_4$  : 7-100 pF
- $C_5$  : 100 pF
- $C_6$  : 0.01  $\mu$ F, disc ceramic
- $L_1$  : 1.5 turns No. 16 wire, 3/16" ID, 5/16" long
- $L_2$  : Ferrite choke, Z = 450 ohms
- $L_3$  : 1 turn No. 16 wire, 1/4" ID, 3/8" long
- $L_4$  : 2 turns No. 16 wire, 1/4" ID, 1/4" long

**2N3733 (400 mHz OPERATION)**



**2N3553**

- $C_1$  : 2-25 pF
- $C_2$  : 4-40 pF
- $C_3$  : 1.5-20 pF
- $C_4$  : 1.5-20 pF
- $C_5$  : 100 pF, disc ceramic
- $C_6$  : 2000 pF
- $C_7$  : 0.01  $\mu$ F, disc ceramic
- $L_1$  : 1-1/2 turns No. 16 wire, 5/16" ID, 1/2" long
- $L_2$  : Ferrite choke, Z = 750 ohms
- $L_3$  : 4 turns No. 16 wire, 5/16" ID, 1" long
- $L_4$  : 7 turns No. 16 wire, 5/16" ID, 1-1/8" long
- $R_1$  : 1.35 ohms, non-inductive

$C_1, C_2$ : 7.8-17 pf

$R_1$ : 0.56 ohm