

2N3375 2N3632/2N3733

RF & MICROWAVE TRANSISTORS VHF-UHF CLASS C WIDE BAND

- FREQUENCY 130 TO 400MHz
- VOLTAGE 28V
- POWER OUT 2.5 TO 13.5W
- HIGH POWER GAIN
- HIGH EFFICIENCY
- CLASS C TRANSISTORS
- COMMON EMITTER



TO 60 (M137)

ORDER CODE

SD1050
SD1070
SD1075

BRANDING

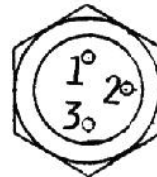
2N3375
2N3632
2N3733

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.

Device	Package
2N3375	TO 60
2N3632	TO 60
2N3733	TO 60

PIN CONNECTION



S882N3375-01

1 emitter
2 base

3 collector

ABSOLUTE MAXIMUM RATINGS ($T_{\text{case}} = 25^{\circ}\text{C}$)

Symbol	Parameter	2N3375	2N3632	2N3733	Unit
V_{CBO}	Collector to Base Voltage	65	65	65	V
V_{CEO}	Collector to Emitter Voltage	40	40	40	V
V_{EBO}	Emitter to Base Voltage	4.0	4.0	4.0	V
$I_{\text{C(max)}}$	Continuous Collector Current	1.5	3.0	3.0	A
P_{D}	Total Dissipation at 25°C Stud	11.6	23.0	23.0	V
T_{j}	Junction Temperature	200	200	200	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	- 65 to 150	- 65 to 150	- 65 to 150	$^{\circ}\text{C}$

		2N3375	2N3632	2N3733	
$R_{\text{th(j-c)}}$	Junction-case Thermal Resistance	15.0	7.6	7.6	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

Symbol	Test Conditions		2N3375			2N3632			2N3733			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 0.5\text{mA}$	$V_{\text{BE}} = 0$	65			65			65			V
BV_{CEO}	$I_{\text{C}} = 200\text{mA}$	$I_{\text{B}} = 0$	40			40			40			V
BV_{EBO}	$I_{\text{E}} = 0.25\text{mA}$	$I_{\text{C}} = 0$	4	($I_{\text{E}} = 0.1\text{mA}$)		4			4			V
I_{CEO}	$V_{\text{CB}} = 30\text{V}$	$I_{\text{E}} = 0$			0.1			0.25			0.25	mA
H_{FE}	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 250\text{mA}$	10			5	($I_{\text{C}} = 1\text{A}$)		10			

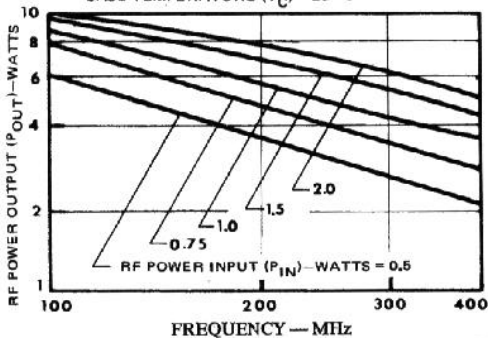
DYNAMIC

Symbol	Test Conditions		2N3375			2N3632			2N3733			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
P_{O}	$F = 175\text{MHz}$ Class C	$V_{\text{CE}} = 28\text{V}$				13.5						W
P_{O}	$F = 400\text{MHz}$	$V_{\text{CC}} = 28\text{V}$	3						10			W
G_{P}	$F = 175\text{MHz}$	$V_{\text{CC}} = 28\text{V}$				5.8						dB
G_{P}	$F = 400\text{MHz}$	$V_{\text{CC}} = 28\text{V}$	4.8						4.0			dB
η_{C}	$F = 175\text{MHz}$	$V_{\text{CC}} = 28\text{V}$				70						%
η_{C}	$F = 400\text{MHz}$	$V_{\text{CC}} = 28\text{V}$	40						45			%
C_{OB}	$F = 1\text{MHz}$	$V_{\text{CB}} = 30\text{V}$			10			20			20	pF

APPLICATION INFORMATION (typical curves)

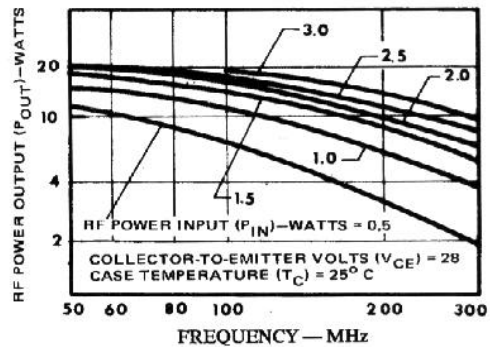
2N3375 POWER OUTPUT VS FREQUENCY

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



S882N3375-02

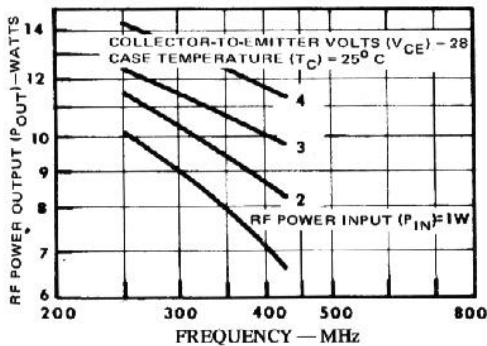
2N3632 POWER OUTPUT VS FREQUENCY



S882N3632-04

2N3733 POWER OUTPUT VS FREQUENCY

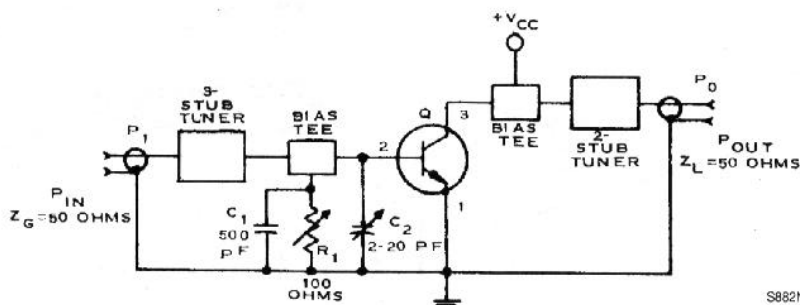
COLLECTOR-TO-EMITTER VOLTS (V_{CE}) = 28
 CASE TEMPERATURE (T_C) = 25° C



S882N3733-05

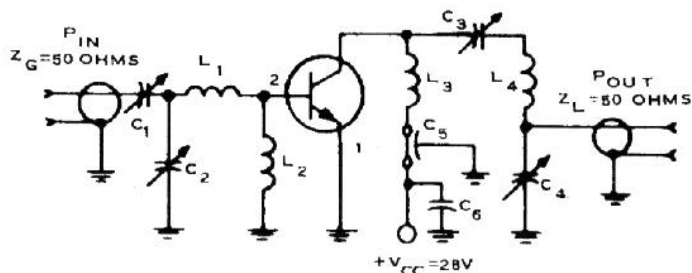
TEST CIRCUITS

2N3375 (400 MHz OPERATION)



S882N3375-02

2N3632 (175MHz OPERATION)

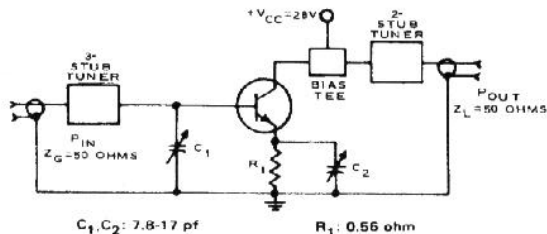


S882N3632-02

2N3632

C₁, C₂, C₃, C₄: 7 - 100pFC₅: 100pFC₆: 0.01F, disc ceramicL₁: 1.5 turns No. 16 wire, 3/16" ID, 5/16" longL₂: Ferrite choke, Z = 450L₃: 1 turn No. 16 wire, 1/4" ID, 3/8" longL₄: 2 turns No. 16 wire, 1/4" ID, 1/4" long

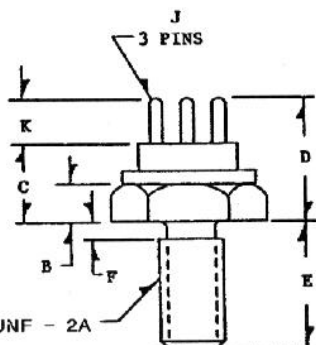
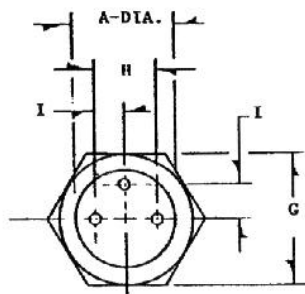
2N3733(400MHz OPERATION)

C₁, C₂: 7.8-17 pfR₁: 0.55 ohm

S882N3733-02

PACKAGE MECHANICAL DATA

TO 60



NO. 10 - 32 UNF - 2A

S882N3375-05

	Minimum Inches	Maximum Inches
A	.320	.340
B	.110	.135
C	.245	.300
D	.400	.450
E	.420	.455
E	.140	.160

	Minimum Inches	Maximum Inches
F		.078
G	.420	.440
H	.190	.210
I	.095	.105
J	.030	.048
K	.140	.160