

TYPE 2N2356

I. General Description

2N2356 is a 5 terminal device containing two silicon NPN transistors and is intended for chopper applications in the inverted connection.

II. Case Dimensions

See attached Figure 1.

III. Absolute Maximum Ratings (25°C)

A. Maximum Temperatures

1. Storage	$T_{STG}$	-65 to 300°C
2. Operating Junction	$T_J$	-65 to 200°C
3. Lead Temperature (Soldering no time limit)		300°C

B. Maximum Power Dissipation (Both sides or one side only)

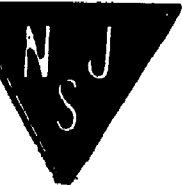
1. Total (Free Air at 25°C)	$P_T$	0.6 Watts
2. Free Air Derating Factor		3.43 mW/°C
3. Total (Case Temperature at 25°C)	$P_T$	2.0 Watts
4. Total (Case Temperature at 100°C)	$P_T$	1.14 Watts
5. Junction to Case Derating Factor		11.4 mW/°C

C. Voltages

1. Collector to Base Voltage	$V_{CBO}$	25 Volts
2. Emitter to Collector Voltage	$V_{ECO}$	20 Volts
3. Emitter to Base Voltage	$V_{EBO}$	7 Volts

D. Current

1. Collector Current	$I_C$	500 ma
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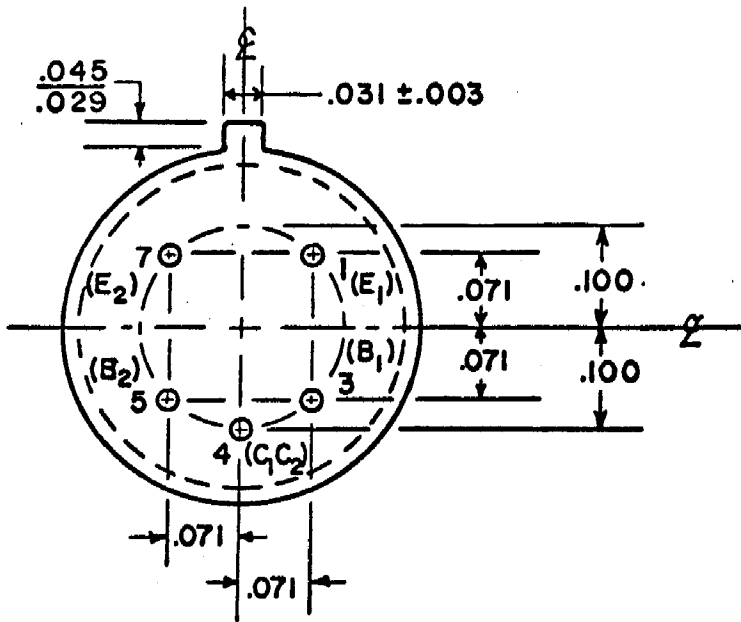
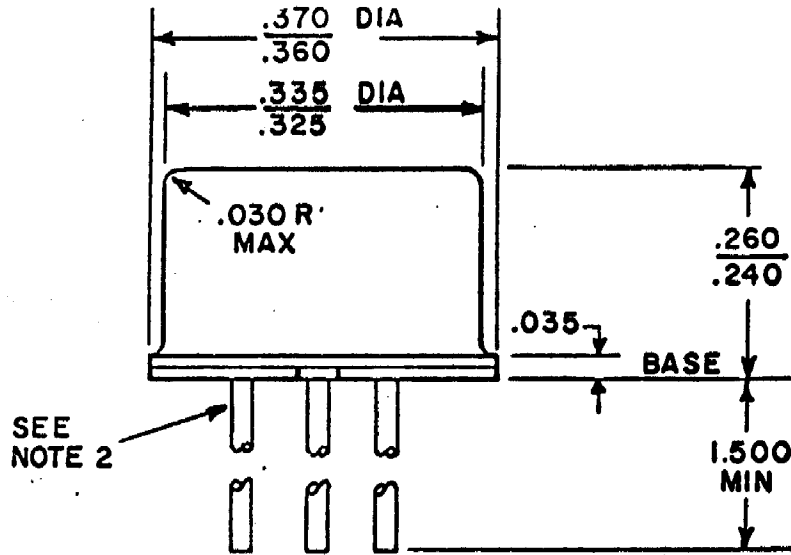


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IV. Electrical Characteristics (25°C unless otherwise specified)

A. DC Characteristics	<u>Symbol</u>	<u>Min.</u>	<u>Max.</u>	<u>Units</u>
1. Offset Voltage (Figure 2) ( $I_{B1}=I_{B2}=1\text{ma}$ , $I_{E1}=I_{E2}=0$ )	$V_o$		50	$\mu\text{volts}$
2. Offset Voltage (Figure 2) ( $I_{B1}=I_{B2}=1\text{ma}$ , $I_{E1}=I_{E2}=0$ , $T_A=-55 \text{ to } 25^\circ\text{C}$ )	$\Delta V_o$		100	$\mu\text{volts}$
3. Offset Voltage (Figure 2) ( $I_{B1}=I_{B2}=1\text{ma}$ , $I_{E1}=I_{E2}=0$ , $T_A=25 \text{ to } 125^\circ\text{C}$ )	$\Delta V_o$		100	$\mu\text{volts}$
4. Collector Leakage Current ( $V_{CB1}$ or $V_{CB2} = 25\text{V}$ )	$I_{CB1}$ or $I_{CB2}$		10	na
5. Emitter Leakage Current ( $V_{EB1}$ or $V_{EB2} = 5\text{V}$ )	$I_{EB1}$ or $I_{EB2}$		10	na
6. Collector Breakdown Voltage ( $I_{C1}$ or $I_{C2} = 100 \mu\text{a}$ )	$V_{CB1}$ or $V_{CB2}$	25		volt*
7. Emitter to Emitter Breakdown Voltage ( $I_{E1}I_{E2}=1\text{ma}$ , $I_{B1}=I_{B2}=0$ ) (Figure 3)	$V_{EE0}$	20		volts
8. Emitter to Emitter Breakdown Voltage ( $I_{E1}I_{E2}=100\mu\text{a}$ , $B_1, B_2$ & C common) (Figure 4)	$V_{EE5}$	7		volts
9. Series on Resistance ( $I_{B1}=I_{B2}=1\text{ma}$ )	$r_s$		40	ohms
10. Differential Offset Current ( $V_{CB1}=V_{CB2}=6\text{V}$ )	$\Delta I_{OFF}$		5	na
<b>B. High Frequency Characteristics</b>				
1. Current Transfer Ratio ( $I_C=50\text{ma}$ , $V_{CE}=10\text{V}$ , $f=20\text{mc}$ )	$h_{fe}$	2.5		
2. Collector Capacitance ( $V_{CB}=10\text{V}$ , $I_E=0$ , $f=1\text{mc}$ )	$C_{ob}$		20	pf
3. Input Capacitance ( $V_{BE}=0$ , $I_E=0$ )	$C_{ib}$		85	pf

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NOTES:

1. ALL DIMENSIONS ARE REFERENCE UNLESS TOLERANCED.
2. LEADS ARE  $.017 \begin{smallmatrix} +.002 \\ -.001 \end{smallmatrix}$  DIAMETER.
3. DIMENSIONS IN INCHES.
4. TAB IS MEASURED FROM MAXIMUM DIA. OF BASE.
5. LEADS HAVING MAXIMUM DIAMETER ( $.019$ ) MEASURED IN GAGING PLANE  $.054 \begin{smallmatrix} +.001 \\ -.000 \end{smallmatrix}$  BELOW THE BASE OF THE DEVICE SHALL BE WITHIN  $.007$  OF THEIR TRUE LOCATIONS RELATIVE TO A MAXIMUM WIDTH TAB.