New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

2N2201
2N2202
2N2203
2N2204

TRANSISTOR, POWER AMPLIFIER

I. General Description

This device is an NPN, silicon, triode power transistor designed primarily for amplifier applications.

II. Mechanical Data

A. Outline

Per outline drawing

B. Terminal Designations

Terminal	Element
1	Emitter
2	Base
3	Collector
Case	Connected to collector

C. Handling Precautions

None

D. Mounting Positions

Any

III. Maximum Ratings

A. Temperature

1. Storage temperature range, T_{stg}	-65 to 175°C
2. Operating case temperature range, T_C	-65 to 175°C
3. Lead temperature 1/16" ± 1/32" from case for 10 sec.	260°C

B. Voltage, 25°C Case Temperature

1. Collector-base voltage, V_{CBO}	120 V
2. Emitter-base voltage, V_{EBO}	10 V
3. Collector-emitter voltage, V_{CEO}	100 V

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C. Current

1. Continuous collector current — 1 a
2. Continuous base current — 500 ma

D. Power

		2N2201	2N2202, 2203 2N2204
Continuous power dissipation at or below	25°C case temp.	15 w	15 w
	100°C case	10 w	10 w
	25°C ambient	2 w	1 w
Derating factor	Above 25°C case	66.7	66.7mw/°C
	Above 100°C case	133	133 mw/°C
	Above 25°C ambient	13.3	6.67mw/°C

IV. Electrical Characteristics, 25°C Case Temperature

	Min.	Max.	
1. Collector cutoff current, I_{CEX} V_{CE}=120V, V_{BE}=-1.5V, T_C=150°C		250	μa
2. Collector cutoff current, I_{CEX} V_{CE}=120V, V_{BE}=1.5V		10	μa
3. Collector cutoff current, I_{CBO} V_{CB} = 120V		50	μa
4. Collector cutoff current, I_{CBO} V_{CB}=30V, T_C=150°C		200	μa
5. Emitter cutoff current, I_{EBO} V_{EB} = 10V		250	μa
6. Collector cutoff current, I_{CEO} I_B=0, V_{CE}=60V		10	μa
7. Collector-emitter open base sustain voltage, $V_{CEO(SUS)}$ * I_B=0, I_C=16ma	100		V
8. Collector-emitter breakdown voltage, base open, BV_{CEO} * I_B=0, I_C=250 μa	100		V
9. DC forward current transfer ratio, h_{FE} * I_C=200ma, V_{CE}= 6.8V	25	90	
10. DC forward current transfer ratio, h_{FE} * I_C=10ma, V_{CE}=6.8V	10		
11. DC forward current transfer ratio, h_{FE} * I_C=1 amp, V_{CE}=10V	10		

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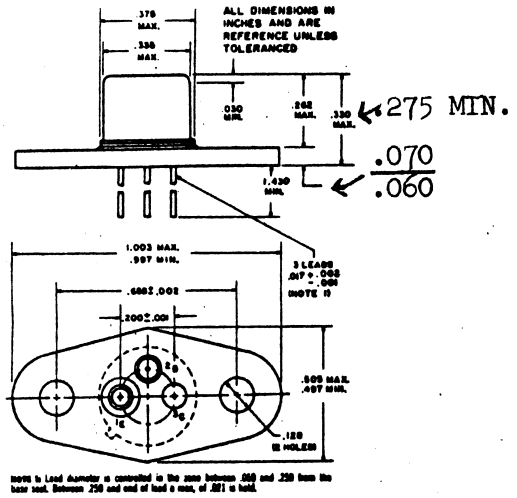
		Min.	Max.	
12.	DC forward current transfer ratio, h_{FE} * I_C=200ma, V_{CE}=10V	30	90	
13.	Collector-emitter saturation voltage, $V_{CE\ (SAT)}$* I_C=200ma, I_B=40ma		1.7	V
14.	Base-emitter voltage, V_{BE} * I_C=200ma, V_{CE}=6.8V		2.0	V
15.	Base-emitter voltage, V_{BE} * I_C=200ma, V_{CE}=10V		1.5	V
16.	DC Input impedance, h_{IE} * V_{CE}=10V, I_B=8ma		200	Ω

B. Dynamic

1.	Magnitude of common emitter forward current transfer ratio, $\lvert h_{fe} \rvert$ f=1mc, I_C=30ma, V_{CE}=30V	10		
2.	Common base output capacitance, C_{ob} f=1mc, I_C=30ma, V_{CB}=30V		75	pf
3.	Common emitter small-signal short-circuit forward current transfer ratio, h_{fe} I_C=30ma, V_{CE}=30V, f=1kc	30		

* Pulsed measurement at 2% duty cycle, 300 μsec pulse width.



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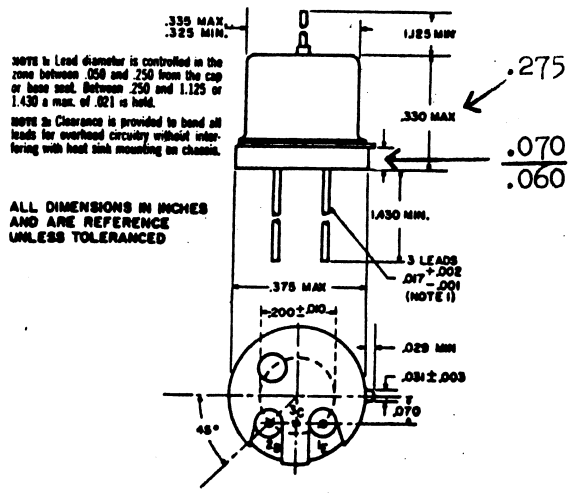
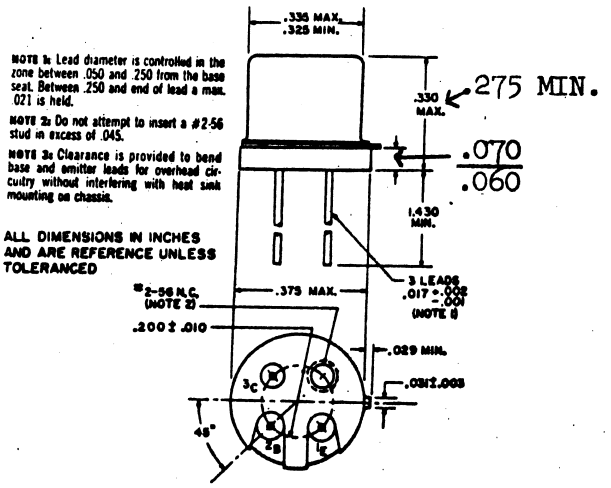


2N2202



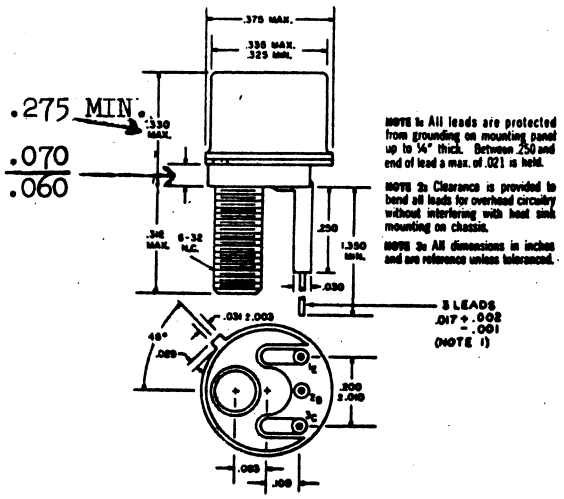
NOTE 1: Lead diameter is controlled in the zone between .050 and .250 from the base seat. Between .250 and end of lead a max. .021 is held.

NOTE 2: Do not attempt to insert a #2-56 stud in excess of .045.

NOTE 3: Clearance is provided to bend base and emitter leads for overhead circuitry without interfering with heat sink mounting on chassis.

ALL DIMENSIONS IN INCHES AND ARE REFERENCE UNLESS TOLERANCED

2N2203



NOTE 1: All leads are protected from grounding on mounting panel up to 1/4" thick. Between .250 and end of lead a max. of .021 is held.

NOTE 2: Clearance is provided to bend all leads for overhead circuitry without interfering with heat sink mounting on chassis.

NOTE 3: All dimensions in inches and are reference unless toleranced.

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