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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" \pm 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

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D. Power

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

IV. Electrical Characteristics, 25°C Case Temperature

		Min.	Max.
1. Collector cutoff current, I_{CEX} $V_{CE}=120V$, $V_{BE}=-1.5V$, $T_C=150^{\circ}C$		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} $V_{CB}=30V$, $T_C=150^{\circ}C$		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} *	$I_B=0$, $I_C=250 \mu A$	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	

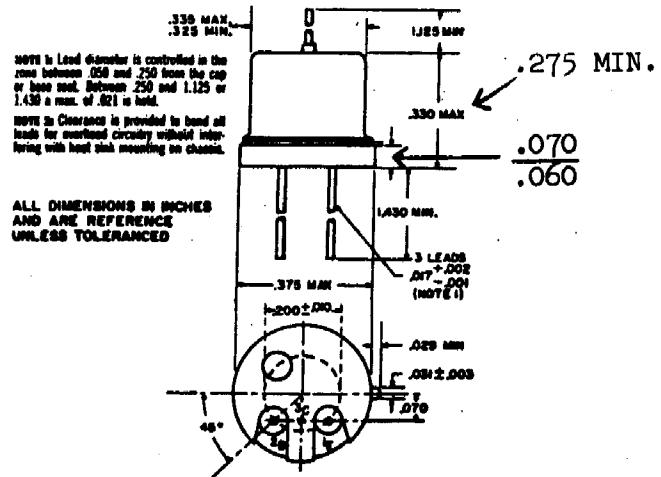
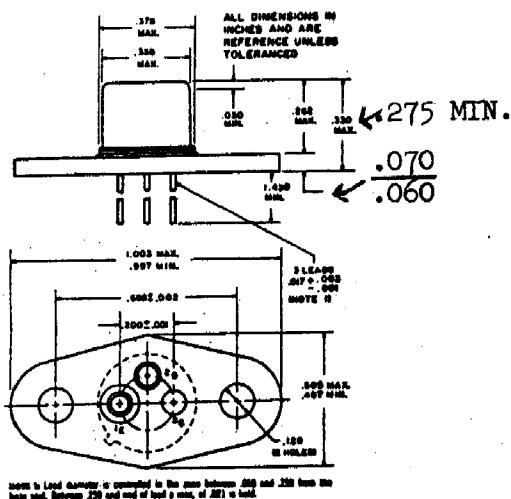
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	<u>Min.</u>	<u>Max.</u>
12. DC forward current transfer ratio, h_{FE} * $I_C=200\text{ma}, V_{CE}=10\text{V}$	30	90
13. Collector-emitter saturation voltage, $V_{CE} (\text{SAT})^*$ $I_C=200\text{ma}, I_B=40\text{ma}$	1.7	V
14. Base-emitter voltage,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

B. Dynamic

1. Magnitude of common emitter forward current transfer ratio, $ h_{fe} $ $f=1\text{mc}, I_C=30\text{ma}, V_{CE}=30\text{V}$	10
2. Common base output capacitance, C_{ob} $f=1\text{mc}, I_C=30\text{ma}, V_{CB}=30\text{V}$	75 pf
3. Common emitter small-signal short-circuit forward current transfer ratio, h_{fe} $I_C=50\text{ma}, V_{CE}=30\text{V}, f=1\text{kfc}$	30

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



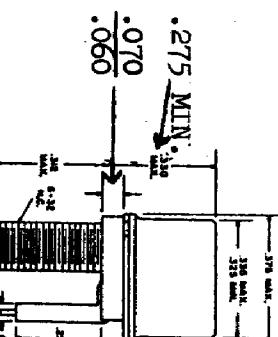
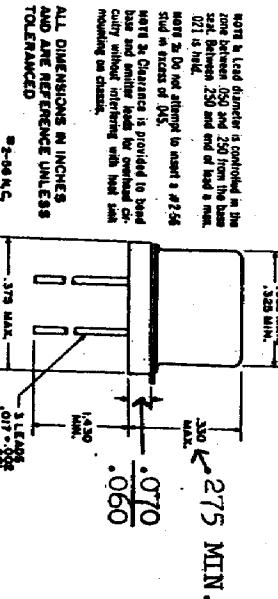
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NOTE 1: Lead diameter is controlled in the zone between .050 and .250 from the base axis. Between .250 and end of lead a min. 021 is held.

NOTE 2: Do not attempt to insert a #256 stud in excess of .043.

NOTE 3: Clearance is provided to bend base and emitter leads for optimum circuitarity without interfering with heat sink mounting hardware.



NOTE 1: All leads are protected from grounding on mounting plane up to $\frac{1}{4}$ " thick. Between $\frac{1}{4}$ " and end of lead a max. of .021 is held.

NOTE 2: Clearance is provided to bend base and emitter leads for optimum circuitarity without interfering with heat sink mounting hardware.

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

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