

2N3442

High Power Industrial Transistor

NPN silicon power transistor designed for applications in industrial and commercial equipment including high fidelity audio amplifiers, series and shunt regulators and power switches.

Features

- Collector–Emitter Sustaining Voltage – $V_{CEO(sus)} = 140$ Vdc (Min)
- Excellent Second Breakdown Capability
- Pb–Free Package is Available*

MAXIMUM RATINGS (Note 1)

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	140	Vdc
Collector–Base Voltage	V_{CB}	160	Vdc
Emitter–Base Voltage	V_{EB}	7.0	Vdc
Collector Current – Continuous – Peak	I_C	10 15	Adc
Base Current – Continuous – Peak	I_B	7.0 –	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C (Note 2)	P_D		

2N3442

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Sustaining Voltage ($I_C = 200\text{ mA dc}$, $I_B = 0$)	$V_{CEO(sus)}$	140	–	Vdc
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ACTIVE REGION SAFE OPERATING AREA INFORMATION

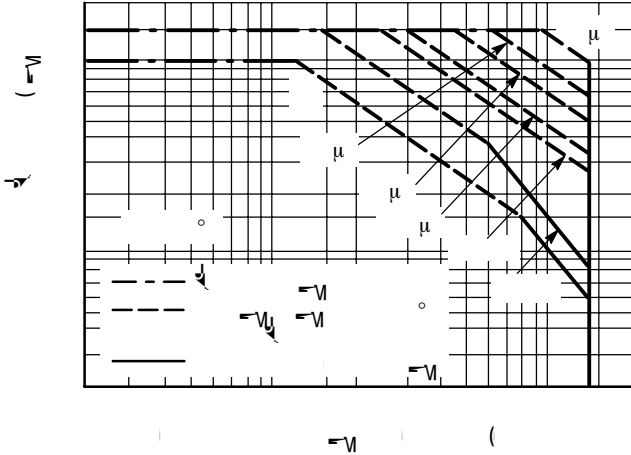


Figure 2. 2N3442

There are two limitations on the power-handling ability of a transistor: average junction temperature and second breakdown. Safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation, i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 2 is based on $T_{J(pk)} = 200^\circ\text{C}$; T_C is variable depending on conditions. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

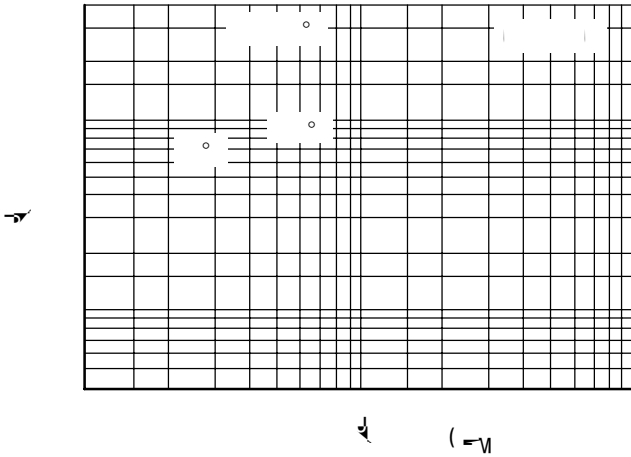


Figure 3. DC Current Gain

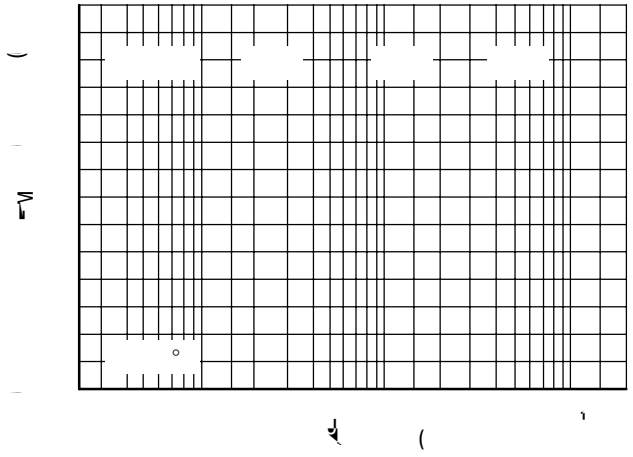
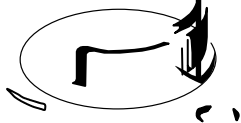


Figure 4. Collector-Saturation Region

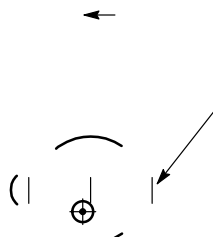
E6: 1. A E 2. E E CASE: C EC	E7: 1. A DE 2. E CASE: CA DE	E8: 1. CA DE #1 2. CA DE #2 CASE: A DE	E9: 1. A DE #1 2. A DE #2 CASE: CA DE
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TO-204 (TO-3)



S A 1:1

E8
 1. D E A D E A C E A
 14.5, 1982.
 2. C D E : C
 3. A E A D E A CA ED
 EFE E CED -204AA E A



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