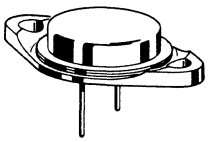
# 2N3232 (SILICON)
# 2N3235



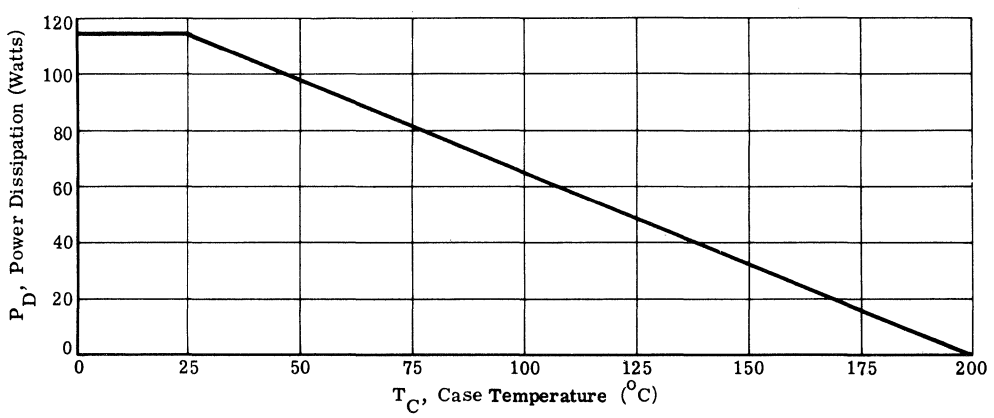
NPN silicon power transistors designed for switching and amplifier applications.

**CASE 11**
(TO-3)

## MAXIMUM RATINGS

| Rating | Symbol | 2N3232 | 2N3235 | Units |
|---|---|---|---|---|
| Collector-Base Voltage | $V_{CB}$ | 60 | 55 | Vdc |
| Collector-Emitter Voltage | $V_{CEO}$ | 60 | 55 | Vdc |
| Emitter-Base Voltage | $V_{EB}$ | 6.0 | 7.0 | Vdc |
| Collector Current (Continuous) | $I_C$ | 7.5 | 15 | Adc |
| Base Current (Continuous) | $I_B$ | 3.0 | 7.0 | Adc |
| Power Dissipation | $P_D$ | 117 | | Watts |
| Thermal Resistance, Junction to Case | $\theta_{JC}$ | 1.5 | | $^oC/W$ |
| Junction Operating Temperature Range | $T_J$ | -65 to +200 | | $^oC$ |

**FIGURE 1 — POWER-TEMPERATURE DERATING CURVE**



## ELECTRICAL CHARACTERISTICS ($T_C$ = 25°C unless otherwise noted)

| Characteristic | | Symbol | Min | Max | Unit |
|---|---|---|---|---|---|
| Emitter-Base Cutoff Current | | $I_{EBO}$ | | | mAdc |
| ($V_{EB}$ = 6.0 Vdc) | 2N3232 | | - | 1.0 | |
| ($V_{EB}$ = 7.0 Vdc) | 2N3235 | | - | 5.0 | |
| Collector-Emitter Cutoff Current | | $I_{CEX}$ | | | mAdc |
| ($V_{CE}$ = 60 Vdc, $V_{BE}$ = -1.5 Vdc) | 2N3232 | | - | 1.0 | |
| | 2N3235 | | - | 1.0 | |
| ($V_{CE}$ = 30 Vdc, $V_{BE}$ = -1.5 Vdc, $T_C$ = 150°C) | 2N3232 | | - | 5.0 | |
| | 2N3235 | | - | 5.0 | |
| Collector-Emitter Sustaining Voltage* | | $V_{CEO(sus)}$* | | | Vdc |
| ($I_C$ = 100 mAdc, $I_B$ = 0) | 2N3232 | | 60 | - | |
| | 2N3235 | | 55 | - | |
| Collector Current | | $I_{CEO}$ | | | mAdc |
| ($V_{CE}$ = 60 Vdc, $I_B$ = 0) | 2N3232 | | - | 10 | |
| ($V_{CE}$ = 55 Vdc, $I_B$ = 0) | 2N3235 | | - | 10 | |
| DC Current Gain* | | $h_{FE}$ | | | - |
| ($I_C$ = 1.5 Adc, $V_{CE}$ = 10 Vdc) | 2N3232 | | 18 | - | |
| ($I_C$ = 3.0 Adc, $V_{CE}$ = 10 Vdc) | 2N3232 | | 18 | 55 | |
| ($I_C$ = 2 Adc, $V_{CE}$ = 4 Vdc) | 2N3235 | | 20 | - | |
| ($I_C$ = 4 Adc, $V_{CE}$ = 4 Vdc) | 2N3235 | | 20 | 70 | |
| Collector-Emitter Saturation Voltage | | $V_{CE(sat)}$ | | | Vdc |
| ($I_C$ = 3.0 Adc, $I_B$ = 0.2 Adc) | 2N3232 | | - | 2.5 | |
| ($I_C$ = 4.0 Adc, $I_B$ = 0.4 Adc) | 2N3235 | | - | 1.1 | |
| Base-Emitter Voltage* | | $V_{BE}$ | | | Vdc |
| ($I_C$ = 3.0 Adc, $V_{CE}$ = 10 Vdc) | 2N3232 | | - | 3.5 | |
| ($I_C$ = 4.0 Adc, $V_{CE}$ = 4 Vdc) | 2N3235 | | - | 1.8 | |
| Small Signal Current Gain | | $h_{fe}$ | | | - |
| ($V_{CE}$ = 10 Vdc, $I_C$ = 3.0 Adc, f = 1.0 MHz) | 2N3232 | | 1.0 | - | |
| ($V_{CE}$ = 4 Vdc, $I_C$ = 4.0 Adc, f = 1.0 MHz) | 2N3235 | | 1.0 | - | |

*Use sweep test to prevent overheating.