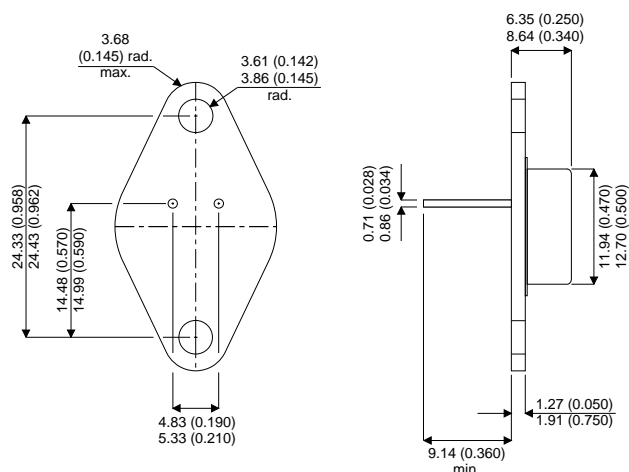


MECHANICAL DATA
Dimensions in mm

**MEDIUM POWER
NPN SILICON
TRANSISTOR**



**Designed for switching and
wide - band amplifier
applications**

TO66 Package.

ABSOLUTE MAXIMUM RATINGS ($T_{case}=25^{\circ}C$ unless otherwise stated)

| | | |
|-----------------|--|-----------------------|
| V_{CEO} | Collector - emitter voltage | 80 V |
| V_{CB} | Collector - base voltage | 80 V |
| V_{EB} | Emitter - base voltage | 6 V |
| I_C | Collector current - continuous | 7 A |
| I_B | Base current | 1 A |
| P_D | Total device dissipation at $T_{case} = 25^{\circ}C$ | 40 W |
| | Derate above $25^{\circ}C$ | 228 mW / $^{\circ}C$ |
| T_j | Operating and | -65 to $200^{\circ}C$ |
| T_{stj} | storage junction temperature range | |
| $R_{\theta JC}$ | Thermal resistance, junction to case. | 4.37 $^{\circ}C / W$ |

OFF CHARACTERISTICS

| Parameter | Test Conditions | Min | Max | Unit |
|--|---|-----|-----|---------|
| $BV_{CEO(sus)}$ Collector - Emitter sustaining voltage | $I_C = 50mA, I_B = 0$ | 80 | - | V |
| I_{CBO} Collector cutoff current | $V_{CE} = 75V, I_B = 0$ | - | 100 | μA |
| I_{CEX} Collector cutoff current | $V_{CE} = 75V, V_{EB(off)} = 1.5V$ | - | 10 | μA |
| | $V_{CE} = 75V, V_{EB(off)} = 1.5V, T_C = 150^\circ C$ | - | 1.0 | mA |
| I_{CBO} Collector cutoff current | $V_{CB} = \text{Rated } V_{CB}, I_E = 0$ | | 10 | μA |
| I_{EBO} Emitter cutoff current | $V_{BE} = 6V, I_C = 0$ | | 100 | μA |

ON CHARACTERISTICS

| Parameter | Test Conditions | Min | Max | Unit |
|--|----------------------------|-----|-----|------|
| h_{FE} DC Current gain (1) | $I_C = 500mA, V_{CE} = 2V$ | 60 | - | — |
| | $I_C = 2A, V_{CE} = 2V$ | 30 | 120 | |
| | $I_C = 5A, V_{CE} = 2V$ | 30 | | |
| $V_{CE(sat)}$ Collector - Emitter saturation voltage | $I_C = 2A, I_B = 0.2A$ | | 0.7 | V |
| | $I_C = 7A, I_B = 0.7A$ | | 1.2 | |
| $V_{BE(sat)}$ Base - Emitter saturation voltage | $I_C = 2A, I_B = 0.2A$ | | 1.2 | V |
| | $I_C = 7A, I_B = 0.7A$ | | 2.0 | |

DYNAMIC CHARACTERISTICS

| Parameter | Test Conditions | Min | Max | Unit |
|--------------------------------------|--|-----|------|------|
| f_T Current gain bandwidth product | $(I_C = 500 mA, V_{CE} = 10V, f = 10 MHz)$ | 30 | - | MHz |
| C_{ob} Output capacitance | $(V_{CB} = 10V, I_E = 0, f = 100 kHz)$ | - | 250 | pF |
| C_{ib} Input capacitance | $(V_{BE} = 2V, I_C = 0, f = 100 kHz)$ | - | 1000 | pF |

SWITCHING CHARACTERISTICS

| Parameter | Test Conditions | Min | Max | Unit |
|--------------------|------------------------------------|-----|-----|---------|
| t_d Delay time | $(V_{CC} = 40V, V_{EB(off)} = 3V)$ | - | 100 | ns |
| t_r Rise time | $I_C = 2A, I_{B1} = 200mA)$ | - | 100 | ns |
| t_s Storage time | $(V_{CC} = 40V, I_C = 2A)$ | - | 2.0 | μs |
| t_f Fall time | $I_{B1} = I_{B2} = 200mA)$ | - | 200 | ns |

(1) Pulse Test: Pulse width = 300 μs , Duty Cycle = 2.0 %