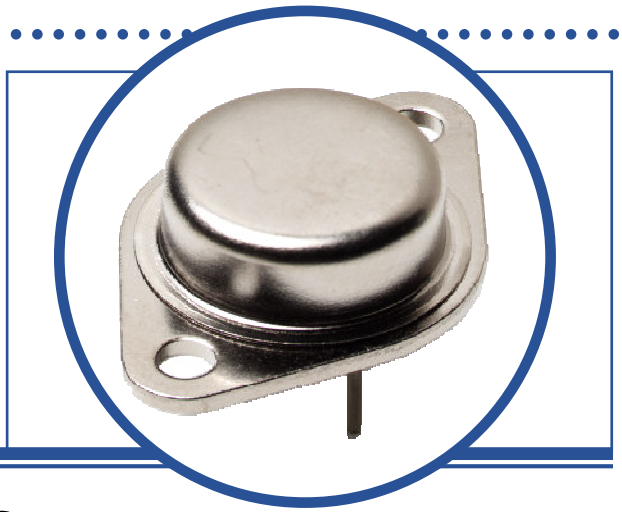
# NPN SILICON SWITCHING TRANSISTOR

TT electronics
Semelab Limited

# BUV18X

- High Current, Fast Switching, Low $V_{CE(sat)}$.
- Hermetic Metal TO3 Package.
- Ideally suited for Motor Drive Control and Power Switching Circuits
- Screening Options Available



## ABSOLUTE MAXIMUM RATINGS ($T_C$ = 25°C unless otherwise stated)

| | | | |
|---|---|---|---|
| $V_{CBO}$ | Collector – Base Voltage | | 120V |
| $V_{CEO}$ | Collector – Emitter Voltage | | 60V |
| $V_{EBO}$ | Emitter – Base Voltage | | 7V |
| $I_C$ | Continuous Collector Current | | 50A |
| $I_{CM}$ | Peak Collector Current | | 90A |
| $I_B$ | Base Current | | 16A |
| $I_{BM}$ | Peak Base Current | | 40A |
| $P_D$ | Total Power Dissipation at | $T_C$ = 25°C | 250W |
| | | Derate Above 25°C | 1.43W/°C |
| $T_J$ | Junction Temperature Range | | -65 to +200°C |
| $T_{stg}$ | Storage Temperature Range | | -65 to +200°C |

## THERMAL PROPERTIES

| Symbols | Parameters | Max. | Units |
|---|---|---|---|
| $R_{\theta JC}$ | Thermal Resistance, Junction To Case | 0.7 | °C/W |



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

| Symbols | Parameters | Test Conditions | | Min. | Typ | Max. | Units |
|---|---|---|---|---|---|---|---|
| $V_{(BR)CEO}$ [1] | Collector-Emitter Breakdown Voltage | $I_C$ = 10mA | | 60 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$ = 1.0mA | | 7 | | | |
| $I_{CEX}$ | Collector Cut-Off Current | $V_{CE}$ = 120V | $V_{BE}$ = -1.5V | | | 1.0 | mA |
| | | | $T_C$ = 100°C | | | 3.0 | |
| $I_{EBO}$ | Emitter Cut-Off Current | $V_{EB}$ = 5V | $I_C$ = 0 | | | 1.0 | |
| $V_{CE(sat)}$ [1] | Collector-Emitter Saturation Voltage | $I_C$ = 20A | $I_B$ = 1A | | | 1.0 | V |
| | | $I_C$ = 40A | $I_B$ = 4A | | | 0.6 | |
| | | $I_C$ = 80A | $I_B$ = 8A | | | 1.5 | |
| $V_{BE(sat)}$ [1] | Base-Emitter Saturation Voltage | $I_C$ = 80A | $I_B$ = 8A | | | 2.2 | |

## DYNAMIC CHARACTERISTICS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $f_T$ | Transition Frequency | $I_C$ = 2.0A<br>f = 5MHz | $V_{CE}$ = 15V | 8 | | | MHz |
| $t_{on}$ | Turn-On Time | $I_C$ = 80A<br>$I_{B1}$ = 8A | $V_{CC}$ = 60V | | | 1.5 | µs |
| $t_s$ | Storage Time | $I_C$ = 80A | $V_{CC}$ = 60V | | | 1.1 | |
| $t_f$ | Fall Time | $I_{B1}$ = $-I_{B2}$ = 8A | | | | 0.25 | |

**Notes**
(1) Pulse Width ≤ 300us, δ ≤ 2%

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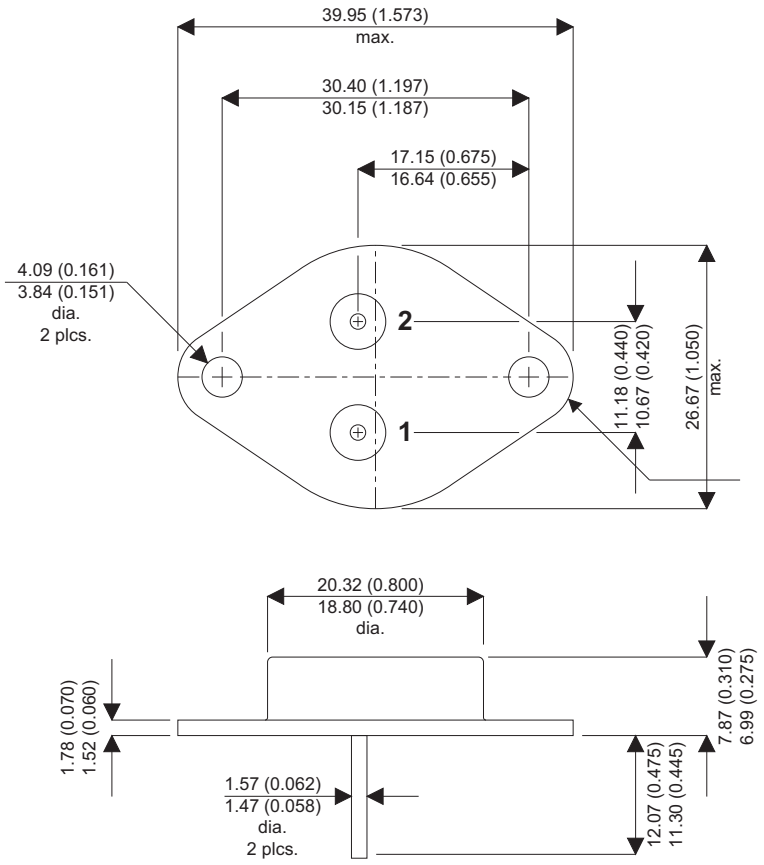
## MECHANICAL DATA

Dimensions in mm (inches)




**TO3 (TO-204AE)**

Pin 1 - Base  Pin 2 - Emitter  Case - Collector