# isc Silicon NPN Power Transistor — BUX48

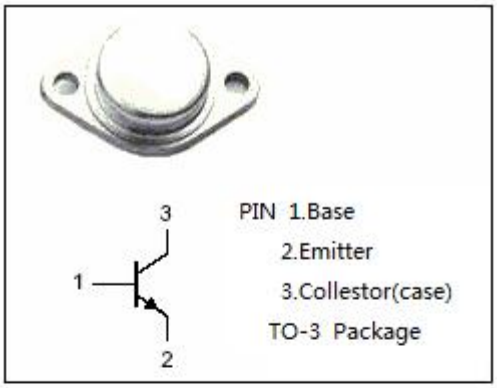
## DESCRIPTION

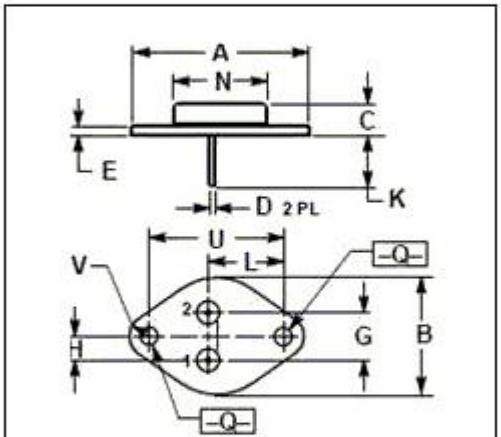
- High Voltage Capability
- High Current Capability
- Fast Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

Designed for high-voltage,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line-operated swtchmode applications such as:

- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits




| DIM | mm MIN | MAX |
|---|---|---|
| A | 39.00 | |
| B | 25.30 | 26.67 |
| C | 7.80 | 8.50 |
| D | 0.90 | 1.10 |
| E | 1.40 | 1.60 |
| G | 10.92 | |
| H | 5.46 | |
| K | 11.30 | 13.50 |
| L | 16.75 | 17.05 |
| N | 19.40 | 19.62 |
| Q | 4.00 | 4.20 |
| U | 30.00 | 30.20 |
| V | 4.30 | 4.50 |

### Absolute maximum ratings(Ta=25℃)

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CEX}$ | Collector-Emitter Voltage ($V_{BE}$= -1.5V) | 850 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 400 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 7 | V |
| $I_C$ | Collector Current-Continuous | 15 | A |
| $I_{CM}$ | Collector Current-Peak | 30 | A |
| $I_B$ | Base Current-Continuous | 4 | A |
| $I_{BM}$ | Base Current-peak | 20 | A |
| $P_C$ | Collector Power Dissipation @$T_C$=25℃ | 175 | W |
| $T_j$ | Junction Temperature | 200 | ℃ |
| $T_{stg}$ | Storage Temperature Range | -65~200 | ℃ |

### THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal Resistance,Junction to Case | 1.0 | ℃/W |

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## ELECTRICAL CHARACTERISTICS

**$T_C$=25℃ unless otherwise specified**

| SYMBOL | PARAMETER | CONDITIONS | MIN | MAX | UNIT |
|---|---|---|---|---|---|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C$= 50mA ; $I_B$= 0 | 400 | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$= 50mA; $I_C$= 0 | 7 | | V |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C$= 10A; $I_B$= 2A<br>$I_C$= 10A; $I_B$= 2A;$T_C$= 100℃ | | 1.5<br>2.0 | V |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C$= 15A ;$I_B$= 3A | | 5.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$= 10A; $I_B$= 2A<br>$I_C$= 10A; $I_B$= 2A;$T_C$= 100℃ | | 1.6<br>1.6 | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$=850V; $I_E$= 0<br>$V_{CB}$=850V; $I_E$= 0;$T_C$=125℃ | | 0.2<br>2 | mA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= 5V; $I_C$= 0 | | 0.1 | mA |
| $h_{FE}$ | DC Current Gain | $I_C$= 10A ; $V_{CE}$= 5V | 8 | | |
| $C_{OB}$ | Output Capacitance | $I_E$= 0 ; $V_{CB}$= 10V,$f_{test}$= 1MHz | | 350 | pF |
| Switching times Resistive Load | | | | | |
| $t_{on}$ | Turn-on Time | $I_C$= 10A ;$I_{B1}$=-$I_{B2}$= 2A; $V_{CC}$= 300V<br>$V_{BE(off)}$= 5V,Duty Cycle≤2% | | 0.9 | μs |
| $t_s$ | Storage Time | | | 2.0 | μs |
| $t_f$ | Fall Time | | | 0.4 | μs |

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