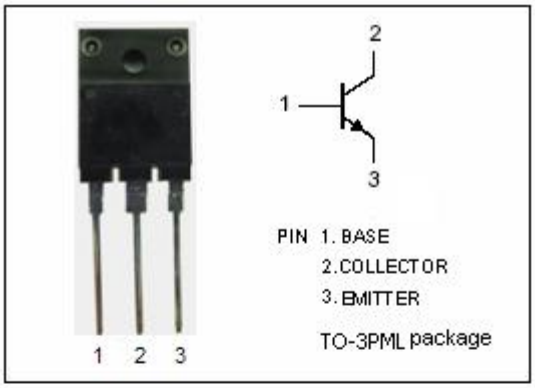
# isc Silicon NPN Power Transistor — BUV48AFI

## DESCRIPTION

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




## APPLICATIONS

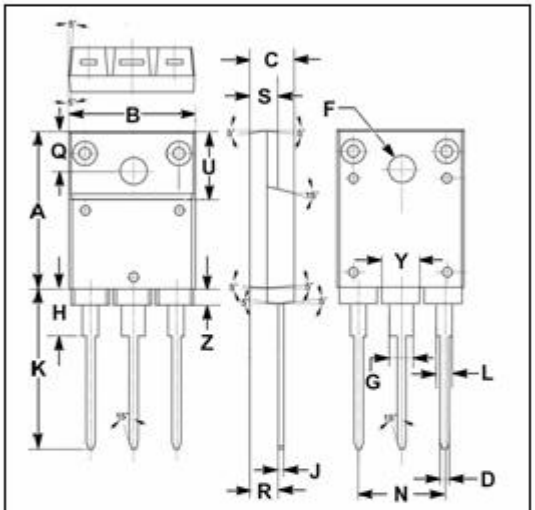
- Designed for high-voltage,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line-operated switch mode applications.

## ABSOLUTE MAXIMUM RATINGS($T_a$=25℃)

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CES}$ | Collector-Emitter Voltage ($V_{BE}$= 0) | 1000 | V |
| $V_{CER}$ | Collector-Emitter Voltage ($R_{BE}$= 10Ω) | 1000 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 450 | 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℃ | 55 | W |
| $T_j$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature Range | -65~150 | ℃ |

## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal Resistance,Junction to Case | 2.2 | ℃/W |




| DIM | mm MIN | mm MAX |
|---|---|---|
| A | 19.90 | 20.10 |
| B | 15.75 | 16.10 |
| C | 5.50 | 5.70 |
| D | 0.90 | 1.10 |
| F | 3.30 | 3.50 |
| G | 2.90 | 3.20 |
| H | 5.90 | 6.10 |
| J | 0.595 | 0.70 |
| K | 21.10 | 22.50 |
| L | 1.90 | 2.25 |
| N | 10.80 | 11.00 |
| Q | 4.90 | 5.10 |
| R | 3.75 | 3.95 |
| S | 3.20 | 3.60 |
| U | 9.90 | 10.10 |
| Y | 4.20 | 4.90 |
| Z | 1.90 | 2.10 |

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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 | $I_C$= 30mA ; $I_B$= 0 | 450 | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$= 50mA; $I_C$= 0 | 7 | | V |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C$= 8A; $I_B$= 1.6A | | 1.5 | V |
| $V_{CE\ (sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C$= 12A ;$I_B$= 2.4A | | 5.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$= 8A; $I_B$= 1.6A | | 1.6 | V |
| $I_{CER}$ | Collector Cutoff Current | $V_{CE}$=rated $V_{CER}$; $R_{BE}$= 10Ω<br>$V_{CE}$=rated $V_{CER}$; $R_{BE}$= 10Ω ;$T_C$=125℃ | | 0.5<br>4.0 | mA |
| $I_{CES}$ | Collector Cutoff Current | $V_{CE}$=rated $V_{CES}$; $V_{BE(off)}$= 1.5V<br>$V_{CE}$=rated $V_{CES}$; $V_{BE(off)}$= 1.5V;$T_C$=125℃ | | 0.2<br>2.0 | mA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= 5V; $I_C$= 0 | | 1.0 | mA |
| $h_{FE}$ | DC Current Gain | $I_C$= 10A ; $V_{CE}$= 5V | 8 | | |
| Switching times Resistive Load | | | | | |
| $t_{on}$ | Turn-on Time | $I_C$= 8A ;$I_{B1}$= 1.6A; $V_{CC}$= 150V | | 1.0 | μs |
| $t_s$ | Storage Time | | | 3.0 | μs |
| $t_f$ | Fall Time | | | 0.8 | μs |

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