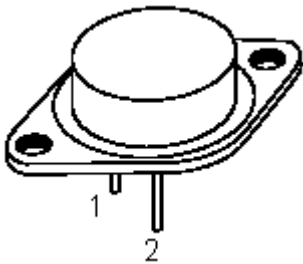




TO-3



High power NPN silicon transistors.

**Features:**

- High voltage capability.
- High current capability.
- Fast switching speed.

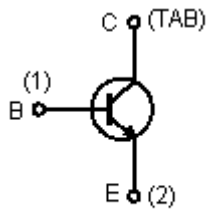
**Applications:**

Switch mode power supplies.  
Flyback and forward single transistor low power converters.

**Description:**

The BUX48/A silicon multi-epitaxial mesa NPN transistors mounted respectively in TO-3 fully isolated package. They are particularly intended for switching and industrial applications from single and three-phase mains.

**Internal Schematic Diagram**



For TO-3 Package

**Absolute Maximum Ratings**

| Parameter   | Symbol    | Value      | Unit       |
|---|-----------|------------|------------|
| Collector-Emitter Voltage ( $R_{BE} = 10\Omega$ )         | $V_{CER}$ | 850        | V          |
| Collector-Emitter Voltage ( $V_{BE} = 0$ )                | $V_{CES}$ |            |            |
| Collector-Emitter Voltage ( $I_B = 0$ )                   | $V_{CEO}$ | 400        |            |
| Emitter-Base Voltage ( $I_C = 0$ )                        | $V_{EBO}$ | 7          |            |
| Collector Current   | $I_C$     | 15         | A          |
| Collector Peak Current                                    | $I_{CM}$  | 30         |            |
| Collector Peak Current Non Repetitive ( $t_p < 20\mu s$ ) | $I_{CP}$  | 55         |            |
| Base Current  | $I_B$     | 4          |            |
| Base Peak Current   | $I_{BM}$  | 20         |            |
| Total Dissipation at $T_C = 25^\circ C$                   | $P_{tot}$ | 175        | W          |
| Storage Temperature                                       | $T_{stg}$ | -65 to 200 | $^\circ C$ |
| Maximum Operating Junction Temperature                    | $T_j$     | 200        |            |

## Thermal Data

|  |                |   |               |
|--|----------------|---|---------------|
| Maximum Thermal Resistance Junction-case | $R_{thj-case}$ | 1 | $^{\circ}C/W$ |
|--|----------------|---|---------------|

## Electrical Characteristics ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

| Parameter  | Test Conditions   | Symbol          | Minimum | Maximum         | Unit          |
|--|---|-----------------|---------|-----------------|---------------|
| Collector Cut-off Current ( $V_{BE} = 0$ )         | $V_{CE} = \text{rated}$ $V_{CES}$<br>$V_{CE} = \text{rated}$ $V_{CES}$ , $T_C = 125^{\circ}C$ | $I_{CES}$       | -       | 200<br>2        | $\mu A$<br>mA |
| Collector Cut-off Current ( $R_{BE} = 10\Omega$ )  | $V_{CE} = \text{rated}$ $V_{CER}$<br>$V_{CE} = \text{rated}$ $V_{CER}$ , $T_C = 125^{\circ}C$ | $I_{CER}$       | -       | 500<br>4        | $\mu A$<br>mA |
| Emitter Cut-off Current ( $I_C = 0$ )              | $V_{EB} = 5V$   | $I_{EBO}$       | -       | 1               | mA            |
| Collector-Emitter Sustaining Voltage ( $I_B = 0$ ) | $I_C = 200mA$ $L = 25mH$ <b>BUX48</b>   | $V_{CEO(sus)*}$ | 400     | -               | V             |
| Emitter-Base Voltage ( $I_C = 0$ )                 | $I_E = 50mA$  | $V_{EBO}$       | 7       | 30              |               |
| Collector-Emitter Saturation Voltage               | $I_C = 10A$ $I_B = 2A$ <b>BUX48</b><br>$I_C = 15A$ $I_B = 4A$<br>$I_C = 15A$ $I_B = 3A$       | $V_{CE(sat)*}$  | -       | 1.5<br>3.5<br>5 |               |
| Base-Emitter Saturation Voltage                    | $I_C = 10A$ $I_B = 2A$ <b>BUX48</b>   | $V_{BE(sat)*}$  | -       | 1.6             |               |

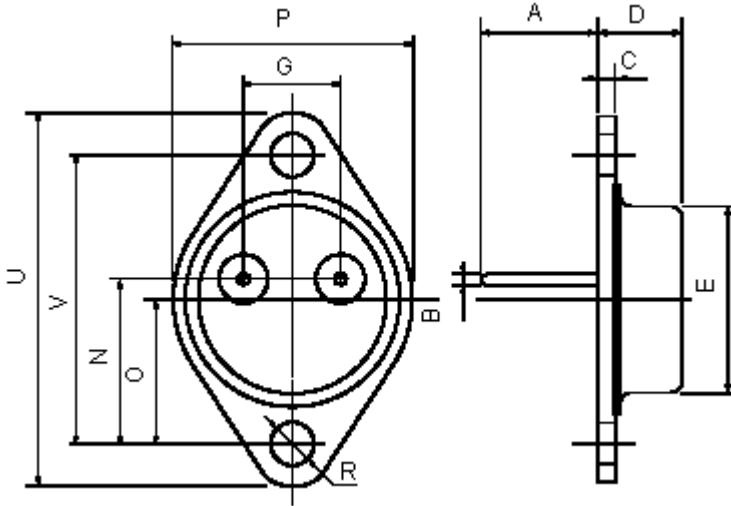
\*Pulsed: Pulse Duration = 300 $\mu s$ , Duty Cycle  $\leq 2\%$

## Resistive Switching Times

| Parameter    | Test Conditions   | Symbol   | Minimum | Maximum | Unit    |
|--------------|---|----------|---------|---------|---------|
| Turn-on Time | $V_{CC} = 150V$ $I_C = 10A$ <b>BUX48</b><br>$I_{B1} = 2A$             | $t_{on}$ | -       | 1       | $\mu s$ |
| Storage Time | $V_{CC} = 150V$ $I_C = 10A$ <b>BUX48</b><br>$I_{B1} = -I_{B2} = 2A$   | $t_s$    | -       | 3       |         |
| Fall Time    | $V_{CC} = 150V$ $I_C = 10A$ <b>BUX48</b><br>$I_{B1} = -I_{B2} = 1.6A$ | $t_f$    | -       | 0.8     |         |

## Inductive Switching Times

| Parameter    | Test Conditions   | Symbol | Minimum | Typical | Maximum | Unit    |
|--------------|---|--------|---------|---------|---------|---------|
| Storage Time | $V_{CC} = 300V$ $I_C = 10A$ <b>BUX48</b><br>$L_B = 3\mu H$<br>$V_{BE} = -5V$ $I_{B1} = 2A$<br>same conditions at $T_C = 125^{\circ}C$ | $t_s$  | -       | 2.7     | 5       | $\mu s$ |
| Fall Time    | $V_{CC} = 300V$ $I_C = 10A$ <b>BUX48</b><br>$L_B = 3\mu H$<br>$V_{BE} = -5V$ $I_{B1} = 2A$<br>same conditions at $T_C = 125^{\circ}C$ | $t_f$  | -       | 0.16    | 0.4     |         |



## TO-3 Mechanical Data

| Dimensions | Minimum       | Maximum       |
|------------|---------------|---------------|
| A          | 11.00 (0.433) | 13.10 (0.516) |
| B          | 0.97 (0.038)  | 1.15 (0.045)  |
| C          | 1.50 (0.59)   | 1.65 (0.065)  |
| D          | 8.32 (0.327)  | 8.92 (0.351)  |
| E          | 19.00 (0.748) | 20.00 (0.787) |
| G          | 10.70 (0.421) | 11.10 (0.437) |
| N          | 16.50 (0.649) | 17.20 (0.677) |
| P          | 25.00 (0.984) | 26.00 (1.023) |
| R          | 4.00 (0.157)  | 4.09 (0.161)  |
| U          | 38.50 (1.515) | 39.30 (1.547) |
| V          | 30.00 (1.187) | 30.30 (1.193) |

Dimensions : Inches (Millimetres)

## Part Number Table

| Description           | Part Number |
|-----------------------|-------------|
| Transistor, NPN, TO-3 | BUX48       |

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