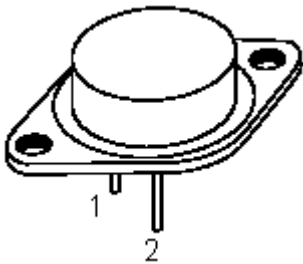




**TO-3**



High power NPN silicon transistors.

**Features:**

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

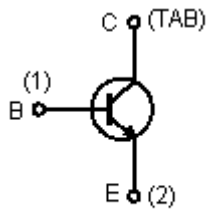
**Applications:**

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

**Description:**

The BUX48/A silicon multiepitaxial 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	°C/W
--	----------------	---	------

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

Parameter	Test Conditions	Symbol	Minimum	Maximum	Unit
Collector Cut-off Current ( $V_{BE} = 0$ )	$V_{CE} = \text{rated}$ $V_{CES}$ $V_{CE} = \text{rated}$ $V_{CES}$ , $T_C = 125^{\circ}C$	$I_{CES}$	-	200 2	$\mu A$ mA
Collector Cut-off Current ( $R_{BE} = 10\Omega$ )	$V_{CE} = \text{rated}$ $V_{CER}$ $V_{CE} = \text{rated}$ $V_{CER}$ , $T_C = 125^{\circ}C$	$I_{CER}$	-	500 4	$\mu A$ 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> $I_C = 15A$ $I_B = 4A$ $I_C = 15A$ $I_B = 3A$	$V_{CE(sat)*}$	-	1.5 3.5 5	
Base-Emitter Saturation Voltage	$I_C = 10A$ $I_B = 2A$ <b>BUX48</b>	$V_{BE(sat)*}$	-	1.6	

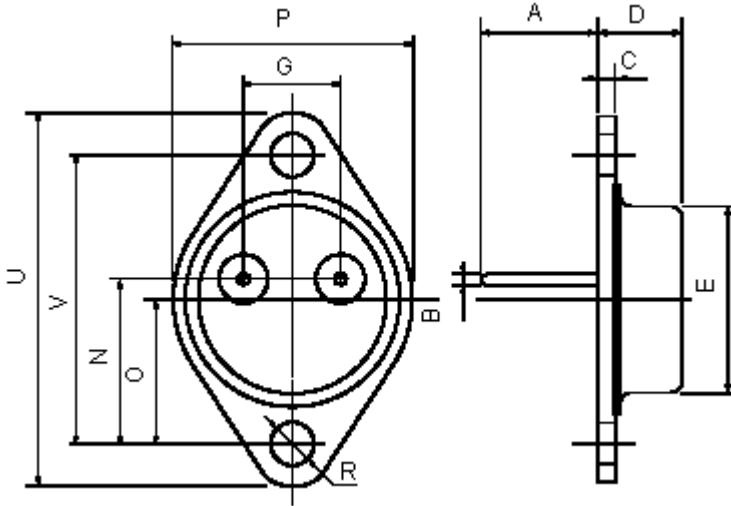
\*Pulsed: Pulse Duration = 300 $\mu s$ , Duty Cycle  $\leq 2\%$

## Resistive Switching Times

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

## Inductive Switching Times

Parameter	Test Conditions	Symbol	Minimum	Typical	Maximum	Unit
Storage Time	$V_{CC} = 300V$ $I_C = 10A$ <b>BUX48</b> $L_B = 3\mu H$ $V_{BE} = -5V$ $I_{B1} = 2A$ 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> $L_B = 3\mu H$ $V_{BE} = -5V$ $I_{B1} = 2A$ 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

**Disclaimer** This data sheet and its contents (the "Information") belong to the Premier Farnell Group (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. SPC Multicomp is the registered trademark of the Group. © Premier Farnell plc 2008.