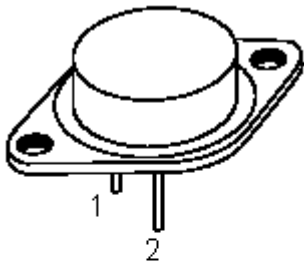
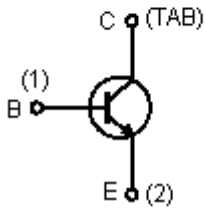




TO-3



Internal Schematic Diagram



For TO-3 Package

Features:

- NPN transistor
- High voltage capability
- High current capability
- Fast switching speed

Applications:

Switch mode power supplies
Fly back and forward single transistor low power converters

Description:

They are 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

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage ($R_{BE} = 10 \Omega$)	V_{CER}	1,000	V
Collector-Emitter Voltage ($V_{BE} = 0$)	V_{CES}		
Collector-Emitter Voltage ($I_B = 0$)	V_{CEO}		
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	$^\circ C / W$
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Electrical Characteristics ($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Test Conditions	Symbol	Minimum	Maximum	Unit
Collector Cut-off Current ($V_{\text{BE}} = 0$)	$V_{\text{CE}} = \text{rated } V_{\text{CES}}$ $V_{\text{CE}} = \text{rated } V_{\text{CES}}, T_{\text{C}} = 125^{\circ}\text{C}$	I_{CES}	-	200 2	μA mA
Collector Cut-off Current ($R_{\text{BE}} = 10$)	$V_{\text{CE}} = \text{rated } V_{\text{CER}}$ $V_{\text{CE}} = \text{rated } V_{\text{CER}}, T_{\text{C}} = 125^{\circ}\text{C}$	I_{CER}	-	500 4	μA mA
Emitter Cut-off Current ($I_{\text{C}} = 0$)	$V_{\text{EB}} = 5 \text{ V}$	I_{EBO}		1	mA
Collector-Emitter Sustaining Voltage ($I_{\text{B}} = 0$)	$I_{\text{C}} = 200 \text{ mA } L = 25 \text{ mH}$ BUX48A	$V_{\text{CEO (sus)}}$ *	450	-	V
Emitter-Base Voltage ($I_{\text{C}} = 0$)	$I_{\text{E}} = 50 \text{ mA}$	V_{EBO}	7	30	
Collector-Emitter Saturation Voltage	$I_{\text{C}} = 8 \text{ A } I_{\text{B}} = 1.6 \text{ A}$ BUX48A $I_{\text{C}} = 12 \text{ A } I_{\text{B}} = 2.4 \text{ A}$	$V_{\text{CE (sat)}}$ *	-	1.5 5	
Base-Emitter Saturation Voltage	$I_{\text{C}} = 8 \text{ A } I_{\text{B}} = 1.6 \text{ A}$ BUX48A	$V_{\text{BE (sat)}}$ *	-	1.6	

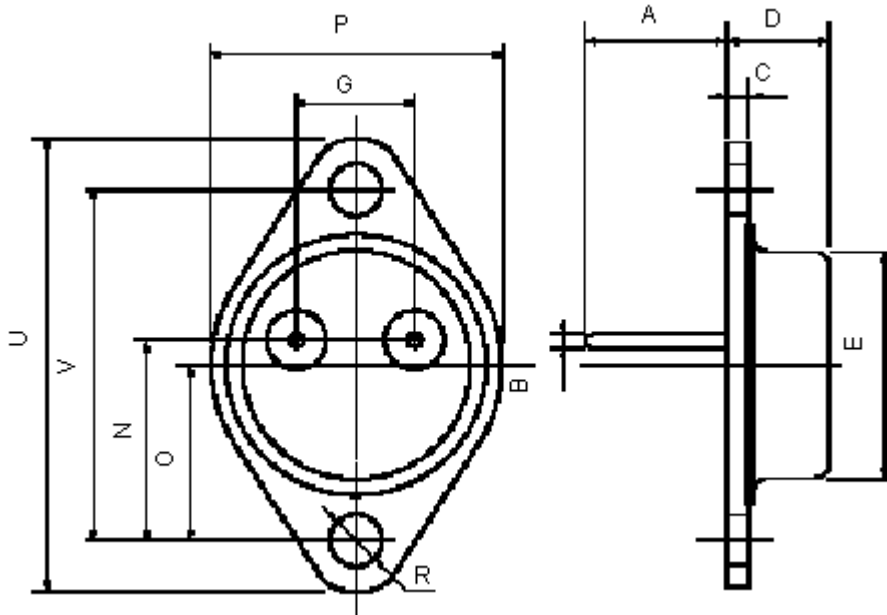
* Pulsed : Pulse duration = 300 μs , duty cycle $\leq 2\%$

Resistive Switching Times

Parameter	Test Conditions	Symbol	Minimum	Maximum	Unit
Turn-on Time	$V_{\text{CC}} = 150 \text{ V } I_{\text{C}} = 8 \text{ A}$ BUX48A $I_{\text{B1}} = 1.6 \text{ A}$	t_{on}	-	1	μs
Storage Time	$V_{\text{CC}} = 150 \text{ V } I_{\text{C}} = 8 \text{ A}$ BUX48A $I_{\text{B1}} = -I_{\text{B2}} = 1.6 \text{ A}$	t_{s}	-	3	
Fall Time	$V_{\text{CC}} = 150 \text{ V } I_{\text{C}} = 8 \text{ A}$ BUX48A $I_{\text{B1}} = -I_{\text{B2}} = 1.6 \text{ A}$	t_{f}	-	0.8	

Inductive Switching Times

Parameter	Test Conditions	Symbol	Minimum	Typical	Maximum	Unit
Storage Time	$V_{\text{CC}} = 300 \text{ V } I_{\text{C}} = 8 \text{ A}$ BUX48A $L_{\text{B}} = 3 \mu\text{H}$ $V_{\text{BE}} = -5 \text{ V } I_{\text{B1}} = 1.6 \text{ A}$ Same Conditions at $T_{\text{C}} = 125^{\circ}\text{C}$	t_{s}	-	3	5	μs
Fall Time	$V_{\text{CC}} = 300 \text{ V } I_{\text{C}} = 8 \text{ A}$ BUX48A $L_{\text{B}} = 3 \mu\text{H}$ $V_{\text{BE}} = -5 \text{ V } I_{\text{B1}} = 1.6 \text{ A}$ Same Conditions at $T_{\text{C}} = 125^{\circ}\text{C}$	t_{f}		0.13	0.4	



TO-3 Mechanical Data

Dimensions	Minimum	Maximum
A	11 (0.433)	13.1 (0.516)
B	0.97 (0.038)	1.15 (0.045)
C	1.5 (0.59)	1.65 (0.065)
D	8.32 (0.327)	8.92 (0.351)
E	19 (0.748)	20 (0.787)
G	10.7 (0.421)	11.1 (0.437)
N	16.5 (0.649)	17.2 (0.677)
P	25 (0.984)	26 (1.023)
R	4 (0.157)	4.09 (0.161)
U	38.5 (1.515)	39.3 (1.547)
V	30 (1.187)	30.3 (1.193)

Dimensions : Inches (Millimetres)

Part Number Table

Description	Part Number
Transistor, NPN, TO-3	BUX48A

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