

Transistor, NPN

TO-3

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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
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

Absolute Max. 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	$^\circ C$
Max. Operating Junction Temperature	T_j	200	

Thermal Data

Characteristic	Symbol	Max.	Unit
Max. 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	Min.	Max.	Unit
Collector Cut-off Current ($V_{\text{BE}} = 0$)	$V_{\text{CE}} = \text{rated}$ V_{CES} $V_{\text{CE}} = \text{rated}$ V_{CES} , $T_{\text{C}} = 125^{\circ}\text{C}$	I_{CES}	-	200 2	μA mA
Collector Cut-off Current ($R_{\text{BE}} = 10\Omega$)	$V_{\text{CE}} = \text{rated}$ V_{CER} $V_{\text{CE}} = \text{rated}$ V_{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 ($I_{\text{B}} = 0$)	$I_{\text{C}} = 200\text{mA}$ $L = 25\text{mH}$	$V_{\text{CEO (sus)}}$ *	400	-	V
Emitter-Base Voltage ($I_{\text{C}} = 0$)	$I_{\text{E}} = 50\text{mA}$	V_{EBO}	7	30	
Collector-Emitter Saturation Voltage	$I_{\text{C}} = 10\text{A}$ $I_{\text{B}} = 2\text{A}$ $I_{\text{C}} = 15\text{A}$ $I_{\text{B}} = 4\text{A}$ $I_{\text{C}} = 15\text{A}$ $I_{\text{B}} = 3\text{A}$	$V_{\text{CE (sat)}}$ *	-	1.5 3.5 5	
Base-Emitter Saturation Voltage	$I_{\text{C}} = 10\text{A}$ $I_{\text{B}} = 2\text{A}$	$V_{\text{BE (sat)}}$ *	-	1.6	

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

Resistive Switching Times

Parameter	Test Conditions	Symbol	Min.	Max.	Unit
Turn-on Time	$V_{\text{CC}} = 150\text{V}$ $I_{\text{C}} = 10\text{A}$ $I_{\text{B1}} = 2\text{A}$	t_{on}	-	1	μs
Storage Time	$V_{\text{CC}} = 150\text{V}$ $I_{\text{C}} = 10\text{A}$ $I_{\text{B1}} = -I_{\text{B2}} = 2\text{A}$	t_{s}	-	3	
Fall Time	$V_{\text{CC}} = 150\text{V}$ $I_{\text{C}} = 10\text{A}$ $I_{\text{B1}} = -I_{\text{B2}} = 1.6\text{A}$	t_{f}	-	0.8	

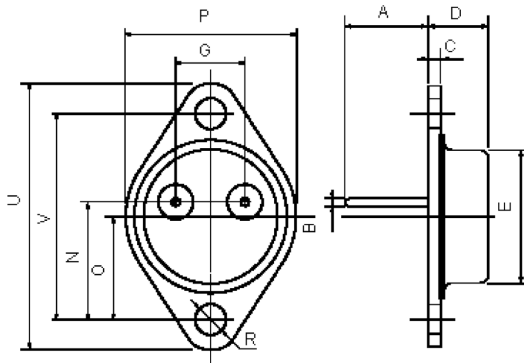
Inductive Switching Times

Parameter	Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Storage Time	$V_{\text{CC}} = 300\text{V}$ $I_{\text{C}} = 10\text{A}$ $L_{\text{B}} = 3\mu\text{H}$ $V_{\text{BE}} = -5\text{V}$ $I_{\text{B1}} = 2\text{A}$ same conditions at $T_{\text{C}} = 125^{\circ}\text{C}$	t_{s}	-	2.7	5	μs
Fall Time	$V_{\text{CC}} = 300\text{V}$ $I_{\text{C}} = 10\text{A}$ $L_{\text{B}} = 3\mu\text{H}$ $V_{\text{BE}} = -5\text{V}$ $I_{\text{B1}} = 2\text{A}$ same conditions at $T_{\text{C}} = 125^{\circ}\text{C}$	t_{f}	-	0.16	0.4	

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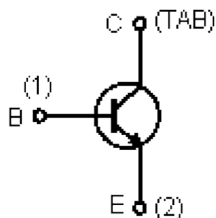
Dimensions



Dimensions	Min.	Max.
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)

Internal Schematic Diagram



For TO-3 Package

Part Number Table

Description	Part Number
Transistor, NPN, TO-3	BUX48

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