High power NPN silicon transistors.

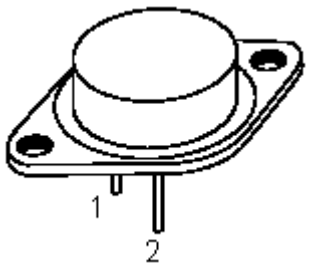
Features:

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

Applications:

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

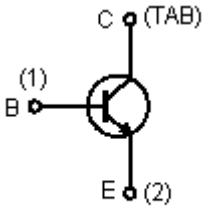
TO-3



Description:

The BUX48/A silicon multiepitaxial mesa NPN transistors mounted respectively in TO-3 fully isolated package. They are particulary 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} = 10Ω)	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 <20µs)	I_{CP}	55	
Base Current	I_B	4	
Base Peak Current	I_{BM}	20	
Total Dissipation at T_C = 25°C	P_{tot}	175	W
Storage Temperature	T_{stg}	-65 to 200	°C
Maximum Operating Junction Temperature	T_j	200	

Thermal Data

Maximum Thermal Resistance Junction-case	$R_{thj\text{-}case}$	1	°C/W

Electrical Characteristics (T_{case} = 25°C unless otherwise specified)

Parameter	Test Conditions	Symbol	Minimum	Maximum	Unit
Collector Cut-off Current (V_{BE} = 0)	V_{CE} = rated V_{CES} V_{CE} = rated $V_{CES,}$ T_C = 125°C	I_{CES}	-	200 2	µA mA
Collector Cut-off Current (R_{BE} = 10Ω)	V_{CE} = rated V_{CER} V_{CE} = rated $V_{CER,}$ T_C = 125°C	I_{CER}	-	500 4	µA 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 **BUX48**	$V_{CEO\ (sus)}$*	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 **BUX48** 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 **BUX48**	$V_{BE\ (sat)}$*	-	1.6	

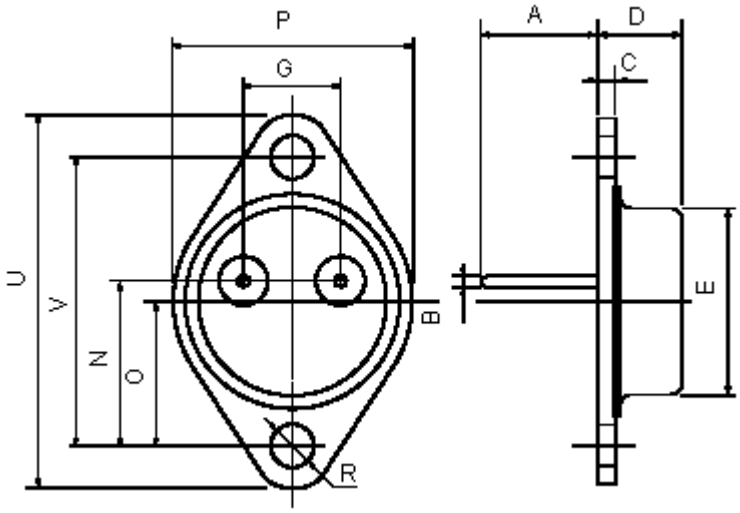
*Pulsed: Pulse Duration = 300µs, Duty Cycle ≤2%

Resistive Switching Times

Parameter	Test Conditions	Symbol	Minimum	Maximum	Unit
Turn-on Time	V_{CC} = 150V I_C = 10A **BUX48** I_{B1} = 2A	t_{on}	-	1	µs
Storage Time	V_{CC} = 150V I_C = 10A **BUX48** I_{B1} = -I_{B2} = 2A	t_s	-	3	
Fall Time	V_{CC} = 150V I_C = 10A **BUX48** 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 **BUX48** L_B = 3µH V_{BE} = -5V I_{B1} = 2A same conditions at T_C = 125°C	t_s	-	2.7	5	µs
Fall Time	V_{CC} = 300V I_C = 10A **BUX48** L_B = 3µH V_{BE} = -5V I_{B1} = 2A same conditions at T_C = 125°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