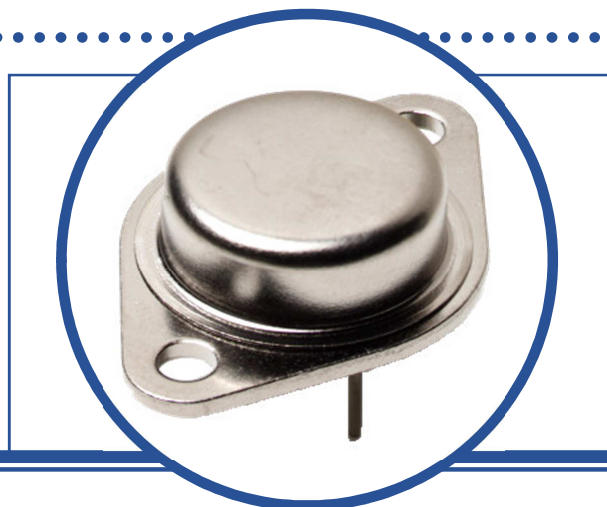


SILICON NPN POWER SWITCHING TRANSISTOR

BUX45X

- High Voltage, High Power, Fast Switching.
- Hermetic Metal TO3 Package.
- Ideally suited for Motor Control and Power Switching Circuits
- Screening Options Available



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

V_{CBO}	Collector – Base Voltage		500V
V_{CEX}	Collector – Emitter Voltage	$V_{BE} = -1.5V$	500V
V_{CEO}	Collector – Emitter Voltage		500V
V_{EBO}	Emitter – Base Voltage		7V
I_C	Continuous Collector Current		5A
I_{CM}	Peak Collector Current		7A
I_B	Base Current		1.0A
P_D	Total Power Dissipation at	$T_C = 25^\circ\text{C}$	120W
		Derate Above 25°C	0.959W/ $^\circ\text{C}$
T_J	Junction Temperature Range		-65 to +150 $^\circ\text{C}$
T_{stg}	Storage Temperature Range		-65 to +150 $^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	1.04	$^\circ\text{C/W}$

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.



SILICON NPN POWER SWITCHING TRANSISTOR

BUX45X

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 20\text{mA}$ $I_B = 0$	500			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 50\text{mA}$ $I_C = 0$	7.0			
I_{CEO}	Collector Cut-Off Current	$V_{CE} = 400\text{V}$ $I_B = 0$			1.0	mA
I_{CEX}	Collector Cut-Off Current	$V_{CE} = 500\text{V}$ $V_{BE} = -1.5\text{V}$			1.0	
		$T_C = 125^\circ\text{C}$			5.0	
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = -5\text{V}$ $I_C = 0$			1.0	
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 1.0\text{A}$ $I_B = 0.125\text{A}$			1.0	V
		$I_C = 2.0\text{A}$ $I_B = 0.4\text{A}$			2.0	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 2.0\text{A}$ $I_B = 0.4\text{A}$			2.0	
$I_{S/b}^{(2)}$	Secondary Breakdown $t = 1\text{s}$, non-repetitive	$V_{CE} = 135\text{V}$	0.15			A
		$V_{CE} = 30\text{V}$	4			
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 1.0\text{A}$ $V_{CE} = 4\text{V}$	15		45	
		$I_C = 2.0\text{A}$ $V_{CE} = 4\text{V}$	8			

DYNAMIC CHARACTERISTICS

f_T	Transition Frequency	$I_C = 1.0\text{A}$ $V_{CE} = 15\text{V}$	8			MHz
t_{on}	Turn-On Time	$I_C = 2.0\text{A}$ $V_{CC} = 100\text{V}$ $I_{B1} = 0.4\text{A}$			1.0	μs
t_s	Storage Time	$I_C = 2.0\text{A}$ $V_{CC} = 100\text{V}$			5.0	
t_f	Fall Time	$I_{B1} = -I_{B2} = 0.4\text{A}$			1.2	

Notes

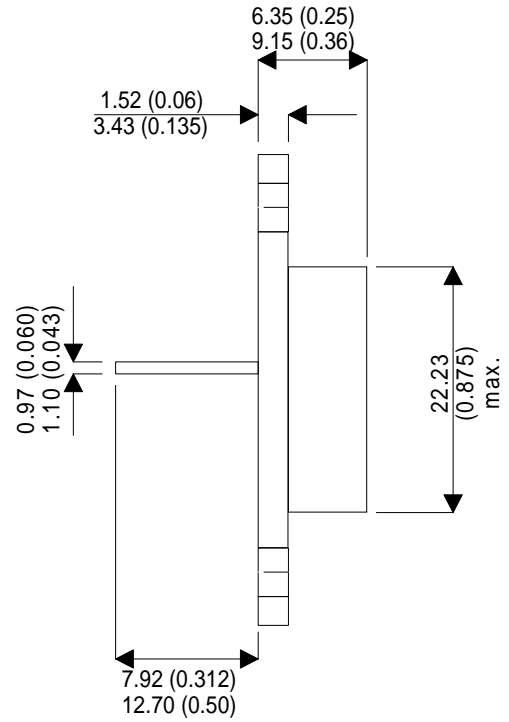
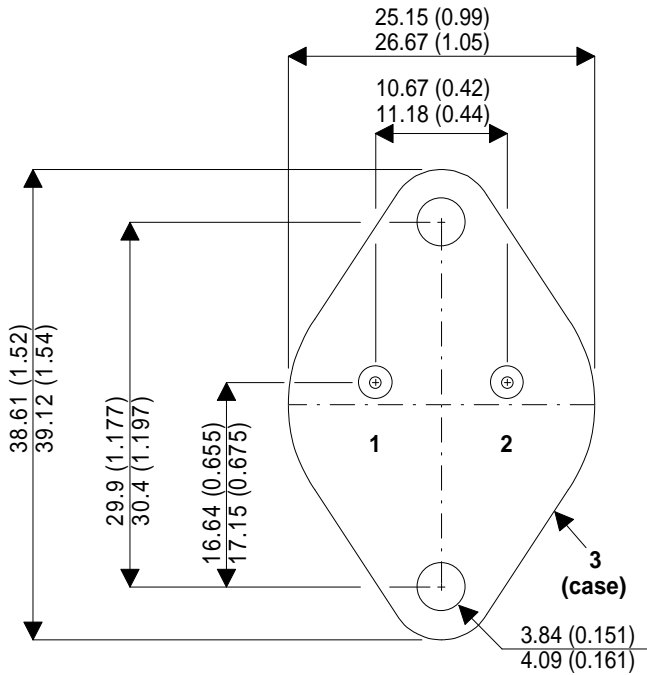
- (1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$
- (2) Not a production test. Design only.

SILICON NPN POWER SWITCHING TRANSISTOR

BUX45X

MECHANICAL DATA

Dimensions in mm (inches)



TO3 (TO-204AA)

Pin 1 - Base

Pin 2 - Emitter

Case - Collector