SILICON NPN POWER SWITCHING TRANSISTOR

TT electronics
Semelab Limited

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°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°C	120W
		Derate Above 25°C	0.959W/°C
T_J	Junction Temperature Range		-65 to +150°C
T_{stg}	Storage Temperature Range		-65 to +150°C

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	1.04	°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.

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

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

DYNAMIC CHARACTERISTICS

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

Notes

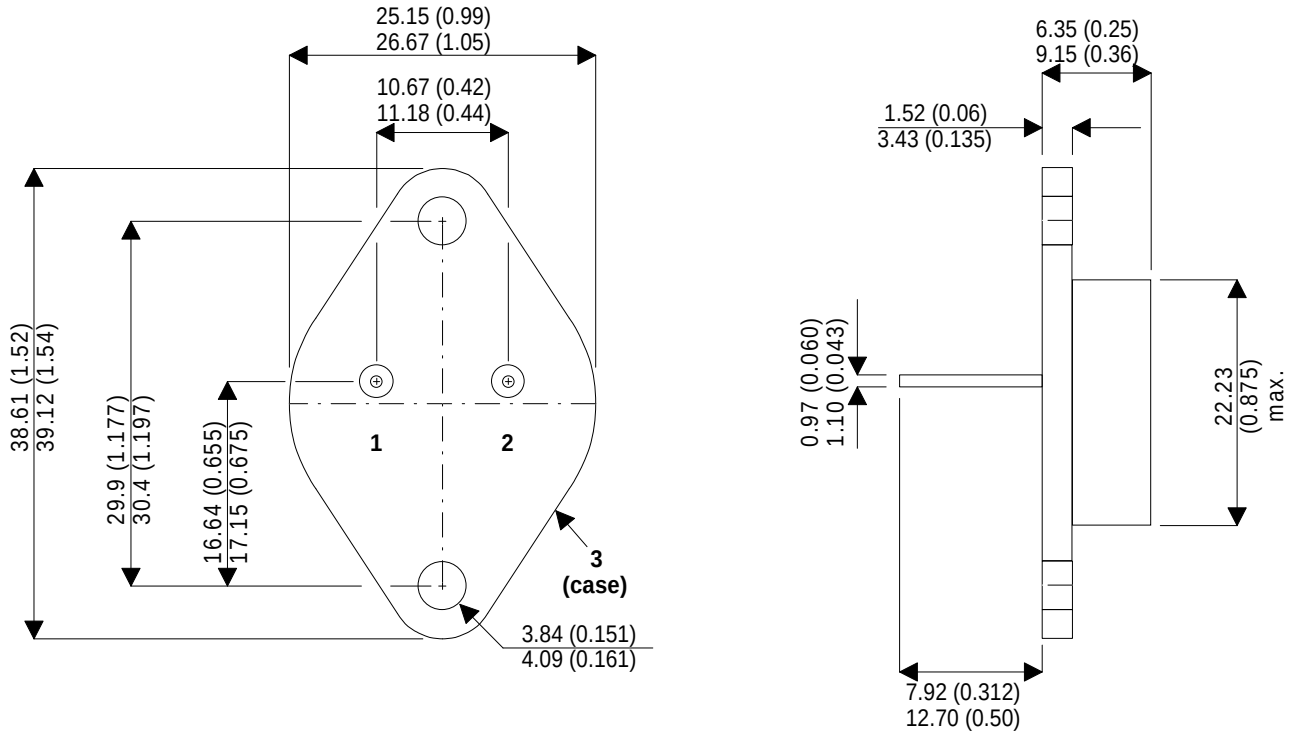
(1) Pulse Width ≤ 380us, δ ≤ 2%

(2) Not a production test. Design only.

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MECHANICAL DATA

Dimensions in mm (inches)



TO3 (TO-204AA)

Pin 1 - Base Pin 2 - Emitter Case - Collector