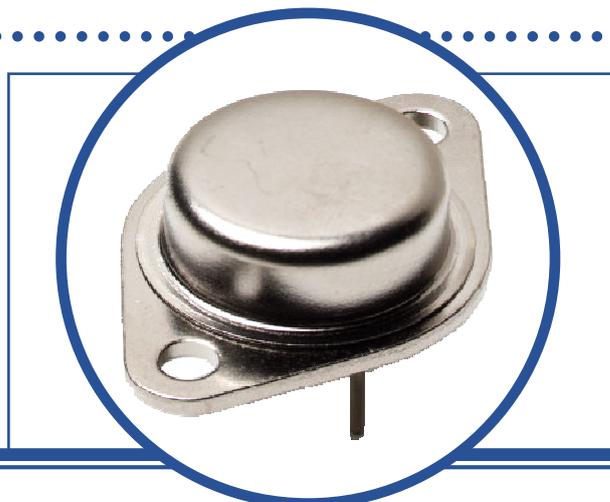


# SILICON MULTI-EPITAXIAL NPN TRANSISTOR

## BUX12

- High Current Capability.
- Hermetic TO3 Metal package.
- Ideally suited for Motor Control, Switching and Linear Applications
- Screening Options Available



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

$V_{CBO}$	Collector – Base Voltage		300V
$V_{CEX}$	Collector – Emitter Voltage	$V_{BE} = -1.5V$	300V
$V_{CEO}$	Collector – Emitter Voltage		250V
$V_{EBO}$	Emitter – Base Voltage		7V
$I_C$	Continuous Collector Current		20A
$I_{CM}$	Peak Collector Current	$t_p = 10ms$	25A
$I_B$	Base Current		4A
$P_D$	Total Power Dissipation at	$T_C = 25^\circ\text{C}$	110W
		Derate Above $25^\circ\text{C}$	$0.63W/^\circ\text{C}$
$T_J$	Junction Temperature Range		-65 to $+200^\circ\text{C}$
$T_{stg}$	Storage Temperature Range		-65 to $+200^\circ\text{C}$

### THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case			1.59	$^\circ\text{C/W}$

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.



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

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$I_{CEO}$	Collector Cut-Off Current	$V_{CE} = 200\text{V}$ $I_B = 0$			1.5	mA
$I_{CEX}$	Collector Cut-Off Current	$V_{CE} = 300\text{V}$ $V_{BE} = -1.5\text{V}$			1.5	
		$T_C = 125^\circ\text{C}$			6	
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 5\text{V}$ $I_C = 0$			1.0	
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$	250			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 1.0\text{mA}$	7			
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 5\text{A}$ $I_B = 0.5\text{A}$			1.0	
		$I_C = 10\text{A}$ $I_B = 1.25\text{A}$			1.5	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 10\text{A}$ $I_B = 1.25\text{A}$			1.5	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 5\text{A}$ $V_{CE} = 4\text{V}$	20		60	
		$I_C = 10\text{A}$ $V_{CE} = 4\text{V}$	10			

## DYNAMIC CHARACTERISTICS

$f_T$	Transition Frequency	$I_C = 1.0\text{A}$ $V_{CE} = 15\text{V}$ $f = 10\text{MHz}$	8			MHz
$t_{on}$	Turn-On Time	$I_C = 10\text{A}$ $V_{CC} = 150\text{V}$ $I_{B1} = 1.25\text{A}$			1.0	$\mu\text{s}$
$t_s$	Storage Time	$I_C = 10\text{A}$ $V_{CC} = 150\text{V}$			2	
$t_f$	Fall Time	$I_{B1} = -I_{B2} = 1.25\text{A}$			0.5	

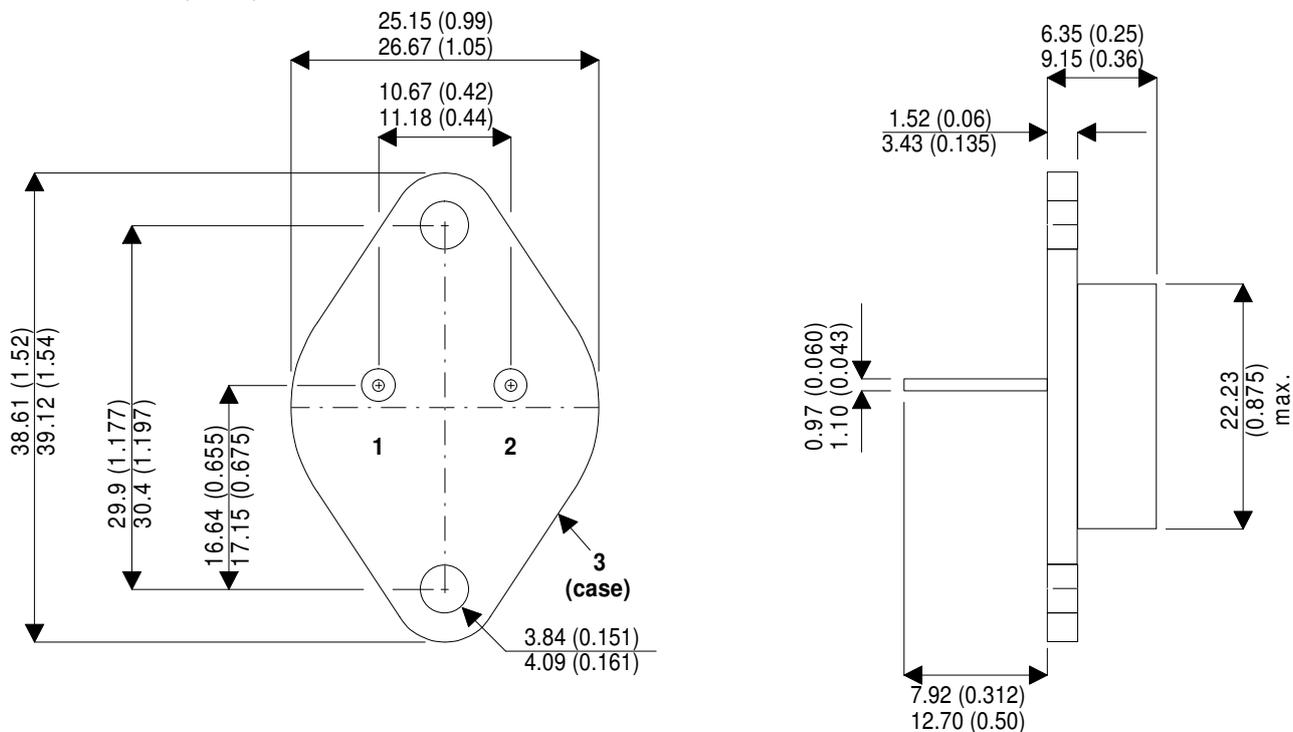
### Notes

(1) Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

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## MECHANICAL DATA

Dimensions in mm (inches)



## TO3 (TO-204AA) METAL PACKAGE Underside View

Pin 1 - Base

Pin 2 - Emitter

Case - Collector