

# 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	$^\circ\text{C/W}$

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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	

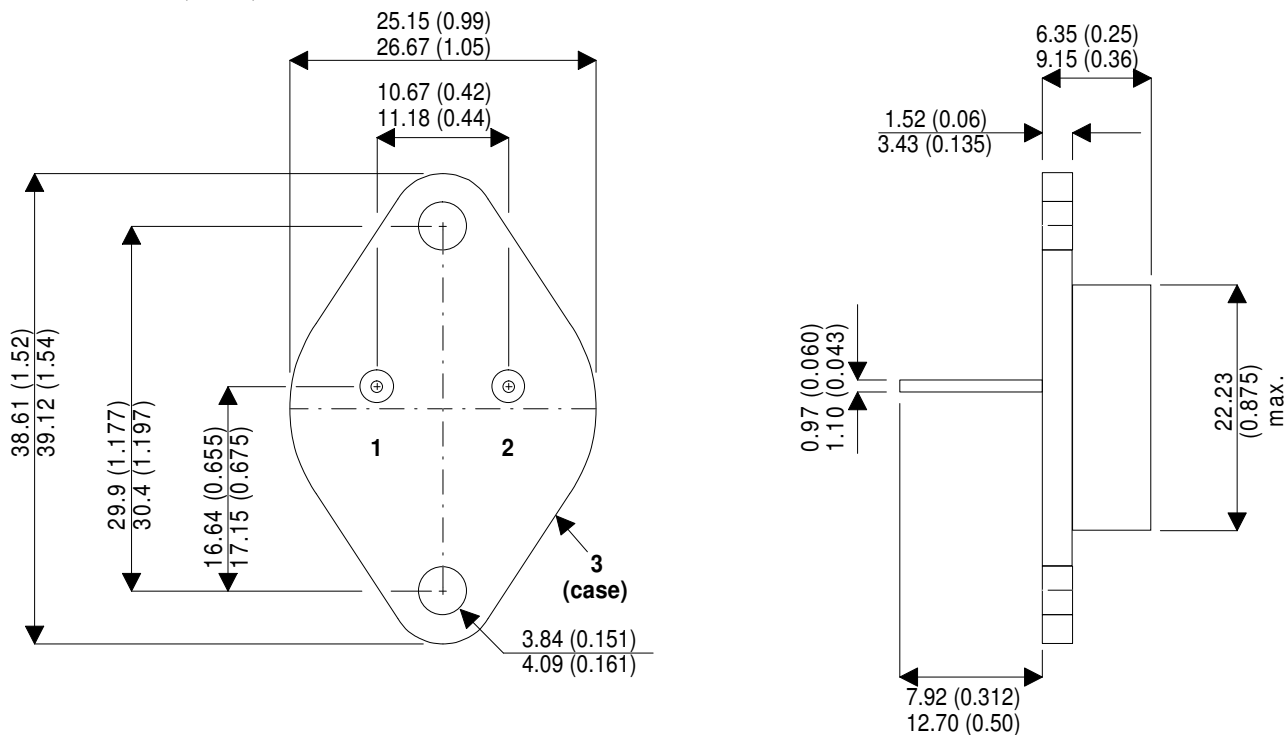
### Notes

(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