

# SILICON PLANAR EPITAXIAL NPN/PNP TRANSISTORS

## BUX77A / BUX78A

- High Power
- Hermetic TO-66 Metal Package
- Ideally suited for Driver Circuits, Switching and Amplifier Applications
- Screening Options Available



### ABSOLUTE MAXIMUM RATINGS

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

		BUX77A NPN	BUX78A PNP
$V_{CBO}$	Collector – Base Voltage	100V	-100V
$V_{CEO}$	Collector – Emitter Voltage	80V	-80V
$V_{EBO}$	Emitter – Base Voltage	6V	-6V
$I_C$	Continuous Collector Current	8A	
$I_B$	Base Current	2A	
$P_D$	Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	40W 0.23W/ $^\circ\text{C}$	
$T_J$	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			4.4	$^\circ\text{C/W}$

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## ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise stated)<sup>(1)</sup>

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CEO}^{(2)}$	Collector-Emitter Breakdown Voltage	$I_C = 50\text{mA}$ $I_B = 0$	80			V
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = 2\text{mA}$ $V_{BE} = 0$	100			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 1.0\text{mA}$ $I_C = 0$	6			
$I_{CEO}$	Collector Cut-Off Current	$V_{CE} = 60\text{V}$ $I_B = 0$			10	$\mu\text{A}$
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = 80\text{V}$ $I_E = 0$			0.5	
		$T_C = 150^\circ\text{C}$			150	
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 4\text{V}$ $I_C = 0$			0.5	
$h_{FE}^{(2)}$	Forward-current transfer ratio	$I_C = 0.5\text{A}$ $V_{CE} = 5\text{V}$	50			
		$I_C = 2\text{A}$ $V_{CE} = 5\text{V}$	50		250	
		$I_C = 5\text{A}$ $V_{CE} = 5\text{V}$	30			
		$I_C = 1.0\text{A}$ $V_{CE} = 5\text{V}$ $T_C = -40^\circ\text{C}$	25			
$V_{CE(sat)}^{(2)}$	Collector-Emitter Saturation Voltage	$I_C = 5\text{A}$ $I_B = 0.5\text{A}$			1.0	V
$V_{BE(sat)}^{(2)}$	Base-Emitter Saturation Voltage	$I_C = 5\text{A}$ $I_B = 0.5\text{A}$			1.3	

## DYNAMIC CHARACTERISTICS

$ h_{fel} $	Small signal forward-current transfer ratio	$I_C = 0.5\text{A}$ $V_{CE} = 5\text{V}$ $f = 20\text{MHz}$	1.5			
$t_{on}$	Turn-On Time	$I_C = 5\text{A}$ $V_{CC} = 40\text{V}$ $I_{B1} = 0.5\text{A}$		0.3	0.4	$\mu\text{s}$
$t_{off}$	Turn-Off Time	$I_C = 5\text{A}$ $V_{CC} = 40\text{V}$ $I_{B1} = -I_{B2} = 0.5\text{A}$		1.1	2.5	

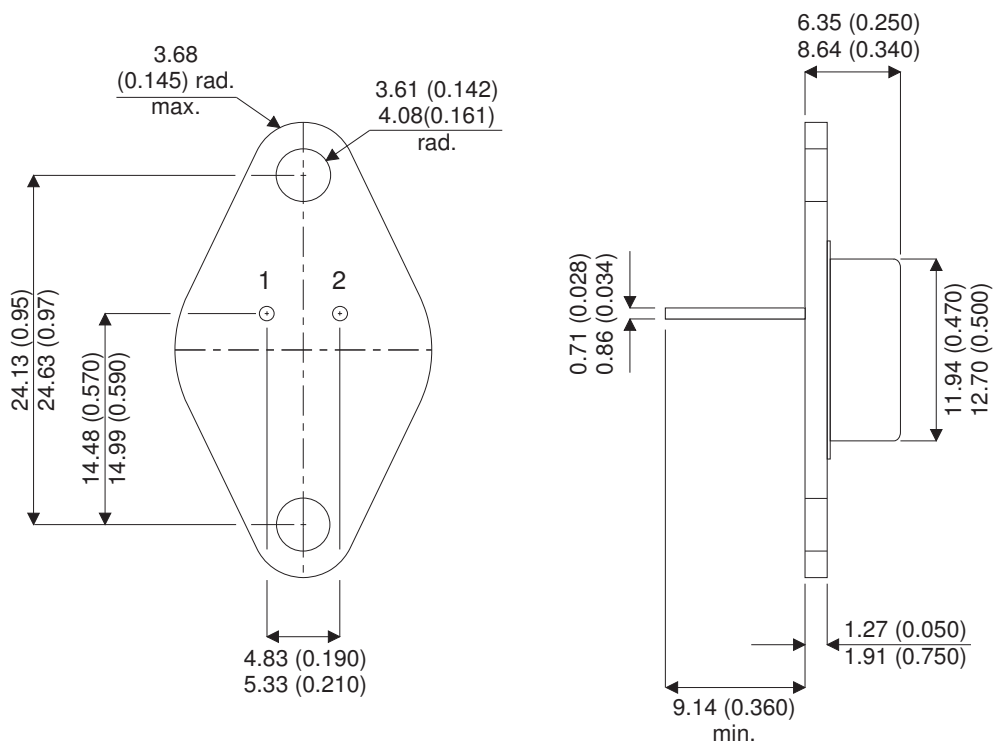
### Notes

- (1) For PNP (BUX78A) device, voltage and current values are negative  
(2) Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

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## MECHANICAL DATA

Dimensions in mm (inches)



## TO66 (TO-213AA)

Pin 1 - Base

Pin 2 - Emitter

Case - Collector