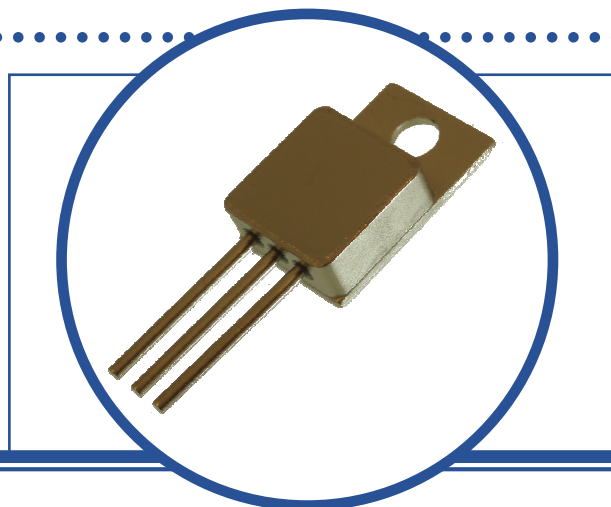


SILICON PLANAR EPITAXIAL NPN/PNP TRANSISTORS

BUX77A-220M BUX78A-220M

- High Power
- Hermetic TO220 Isolated 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°C	50W 0.29W/ $^\circ\text{C}$	
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			3.5	$^\circ\text{C/W}$

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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Document Number 5339

Issue 4

Page 1 of 3

SILICON PLANAR EPITAXIAL NPN/PNP TRANSISTORS BUX77A-220M / BUX78A-220M

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)⁽¹⁾

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	μA
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_{fe} $	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	μs
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	

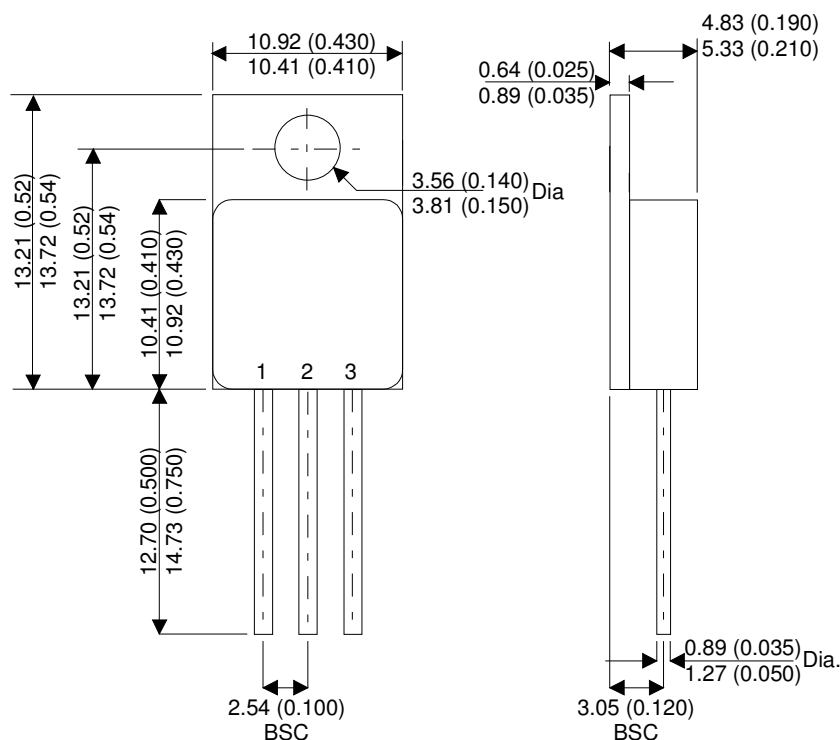
Notes

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

SILICON PLANAR EPITAXIAL NPN/PNP TRANSISTORS BUX77A-220M / BUX78A-220M

MECHANICAL DATA

Dimensions in mm (inches)



TO220M (TO-257AB)

Pin 1 - Base

Pin 2 - Collector

Pin 3 - Emitter