

SILICON MULTI-EPITAXIAL NPN TRANSISTOR

BUX20

- High Current, Fast Switching.
- Hermetic Metal TO3 Package.
- Ideally suited for Motor Control and Power Switching Circuits
- Screening Options Available



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

V_{CBO}	Collector – Base Voltage		160V
V_{CEX}	Collector – Emitter Voltage	$V_{BE} = -1.5V$	160V
V_{CEO}	Collector – Emitter Voltage		125V
V_{EBO}	Emitter – Base Voltage		7V
I_C	Continuous Collector Current		50A
I_{CM}	Peak Collector Current	$t_p = 10ms$	60A
I_B	Base Current		10A
P_D	Total Power Dissipation at	$T_C = 25^\circ\text{C}$	350W
		Derate Above 25°C	2W/ $^\circ\text{C}$
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			0.5	$^\circ\text{C/W}$

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

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 50\text{mA}$	125			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 1.0\text{mA}$	7			
I_{CEO}	Collector Cut-Off Current	$V_{CE} = 100\text{V}$ $I_B = 0$			3	mA
I_{CEX}	Collector Cut-Off Current	$V_{CE} = 160\text{V}$ $V_{BE} = -1.5\text{V}$			3	
		$T_C = 125^\circ\text{C}$			12	
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 5\text{V}$ $I_C = 0$			1.0	
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 25\text{A}$ $I_B = 2.5\text{A}$		0.3	0.6	V
		$I_C = 50\text{A}$ $I_B = 5\text{A}$		0.55	1.2	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 50\text{A}$ $I_B = 5\text{A}$		1.35	2	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 25\text{A}$ $V_{CE} = 2\text{V}$	20		60	
		$I_C = 50\text{A}$ $V_{CE} = 4\text{V}$	10			

DYNAMIC CHARACTERISTICS

f_T	Transition Frequency	$I_C = 2\text{A}$ $V_{CE} = 15\text{V}$ $f = 5\text{MHz}$	8			MHz
t_{on}	Turn-On Time	$I_C = 50\text{A}$ $V_{CC} = 60\text{V}$ $I_{B1} = 5\text{A}$		0.4	1.5	μs
t_s	Storage Time	$I_C = 50\text{A}$ $V_{CC} = 60\text{V}$		0.85	1.2	
t_f	Fall Time	$I_{B1} = -I_{B2} = 5\text{A}$		0.1	0.3	

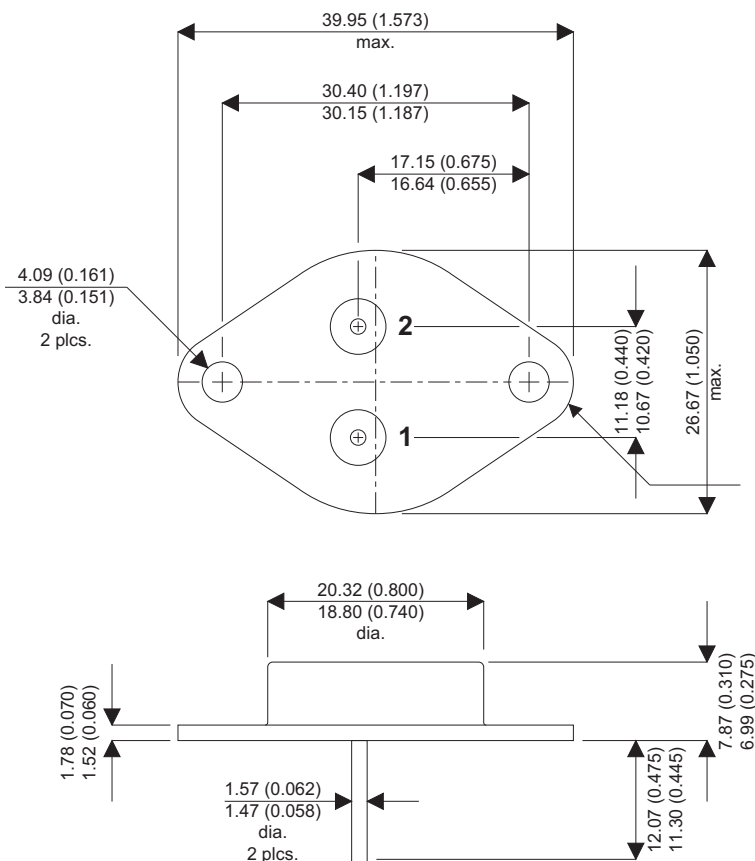
Notes

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

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MECHANICAL DATA

Dimensions in mm (inches)



TO3 (TO-204AE)

Pin 1 - Base

Pin 2 - Emitter

Case - Collector