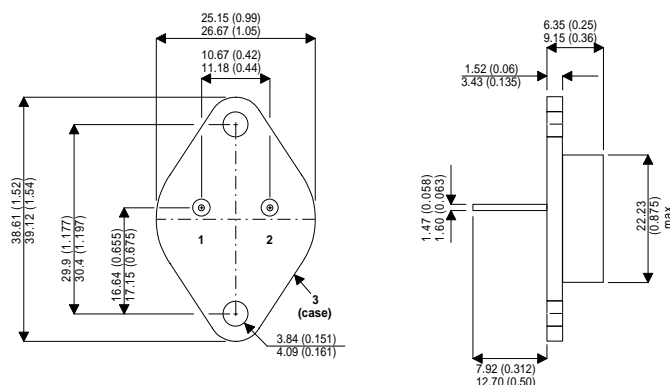


## **HIGH CURRENT HIGH SPEED HIGH POWER TRANSISTOR**

### MECHANICAL DATA

Dimensions in mm(inches)



### DESCRIPTION

The BUX20 is a silicon multi-epitaxial planar NPN transistor in modified Jedec TO-3 metal case, intended for use in switching and linear applications in military and industrial equipment.

### TO-3 PACKAGE (TO-204AE)

**PIN 1 — Base    PIN 2 — Emitter    Case is Collector.**

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

$V_{CBO}$	Collector – Base Voltage ( $I_E = 0$ )	160V
$V_{CEX}$	Collector – Emitter Voltage ( $V_{BE} = -1.5V$ )	160V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0$ )	125V
$V_{EBO}$	Emitter – Base Voltage ( $I_C = 0$ )	7V
$I_C$	Collector Current	50A
$I_{CM}$	Collector Peak Current ( $t_p = 10$ ms)	60A
$I_B$	Base Current	10A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^{\circ}\text{C}$	350W
$T_{stg}$	Storage Temperature	$-65$ to $200^{\circ}\text{C}$
$T_J$	Junction Temperature	$200^{\circ}\text{C}$

Semelab Plc 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 3246

Issue 2

## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25°C unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>CEO(sus)</sub> * Collector - Emitter Sustaining Voltage	I <sub>C</sub> = 200mA	125			V
V <sub>EBO</sub> Emitter – Base Voltage	I <sub>E</sub> = 50mA      I <sub>C</sub> = 0	7			V
I <sub>CEO</sub> Collector Cut-off Current	V <sub>CE</sub> = 100V      I <sub>B</sub> = 0			3	mA
I <sub>CEX</sub> Collector Cut-off Current	V <sub>CE</sub> = 160V      V <sub>BE</sub> = -1.5V T <sub>C</sub> = 125°C			3	mA
				12	
I <sub>EBO</sub> Emitter Cut-off Current	I <sub>C</sub> = 0      V <sub>EB</sub> = 5V			1	mA
V <sub>CE(sat)</sub> * Collector – Emitter Saturation Voltage	I <sub>C</sub> = 25A      I <sub>B</sub> = 2.5A		0.3	0.6	V
	I <sub>C</sub> = 50A      I <sub>B</sub> = 5A		0.55	1.2	
V <sub>BE(sat)</sub> * Base – Emitter Saturation Voltage	I <sub>C</sub> = 50A      I <sub>B</sub> = 5A		1.35	2	V
h <sub>FE</sub> * DC Current Gain	I <sub>C</sub> = 25A      V <sub>CE</sub> = 2V	20		60	—
	I <sub>C</sub> = 50A      V <sub>CE</sub> = 4V	10			
I <sub>S/b</sub> Second Breakdown Collector Current	V <sub>CE</sub> = 40V      t = 1s	0.15			A
	V <sub>CE</sub> = 20V      t = 1s	17.5			
f <sub>T</sub> Transition Frequency	I <sub>C</sub> = 2A      V <sub>CE</sub> = 15V f = 10MHz	8			MHz
t <sub>on</sub> Turn-On Time	I <sub>C</sub> = 50A      I <sub>B1</sub> = 5A V <sub>CC</sub> = 60V		0.4	1.5	μs
t <sub>s</sub> Storage Time	I <sub>C</sub> = 50A      I <sub>B1</sub> = 5A		0.85	1.2	
t <sub>f</sub> Fall Time	I <sub>B2</sub> = -5A      V <sub>CC</sub> = 60V		0.1	0.3	

\* Pulsed: pulse duration = 300ms, duty cycle ≤ 2%

## THERMAL CHARACTERISTICS

R <sub>θJC</sub> Thermal Resistance Junction to Case		0.5		°C/W
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