



## HIGH POWER NPN SILICON TRANSISTOR

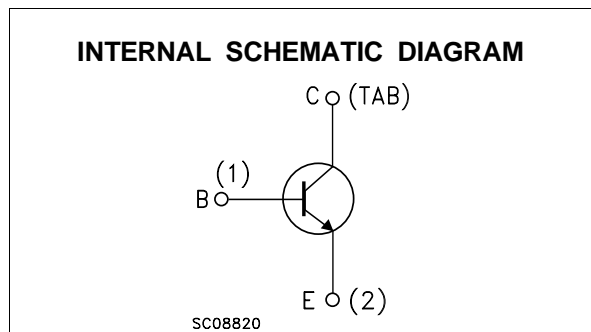
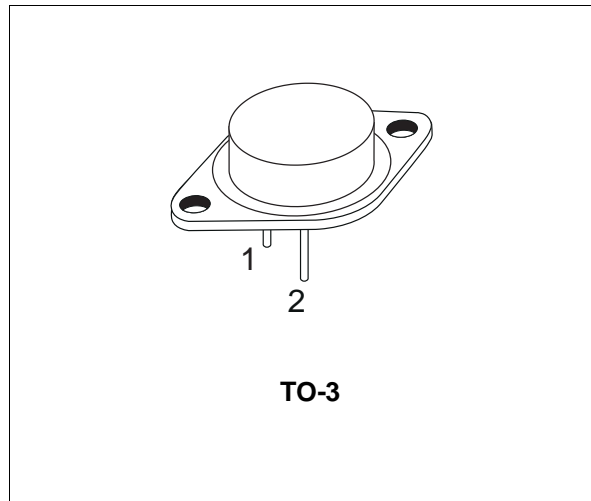
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

### APPLICATIONS

- MOTOR CONTROL
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

### DESCRIPTION

The BUX10 is a silicon Multi-Epitaxial Planar NPN transistor in Jedec TO-3 metal case, intended for use in switching and linear applications in military and industrial equipment.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	160	V
$V_{CEX}$	Collector-emitter Voltage ( $V_{BE} = -1.5V$ )	160	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	125	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	7	V
$I_C$	Collector Current	25	A
$I_{CM}$	Collector Peak Current ( $t_P < 10$ ms)	30	A
$I_B$	Base Current	5	A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25$ °C	150	W
$T_{stg}$	Storage Temperature	-65 to 200	°C
$T_j$	Max Operating Junction Temperature	200	°C

## BUX10

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	1.17	°C/W
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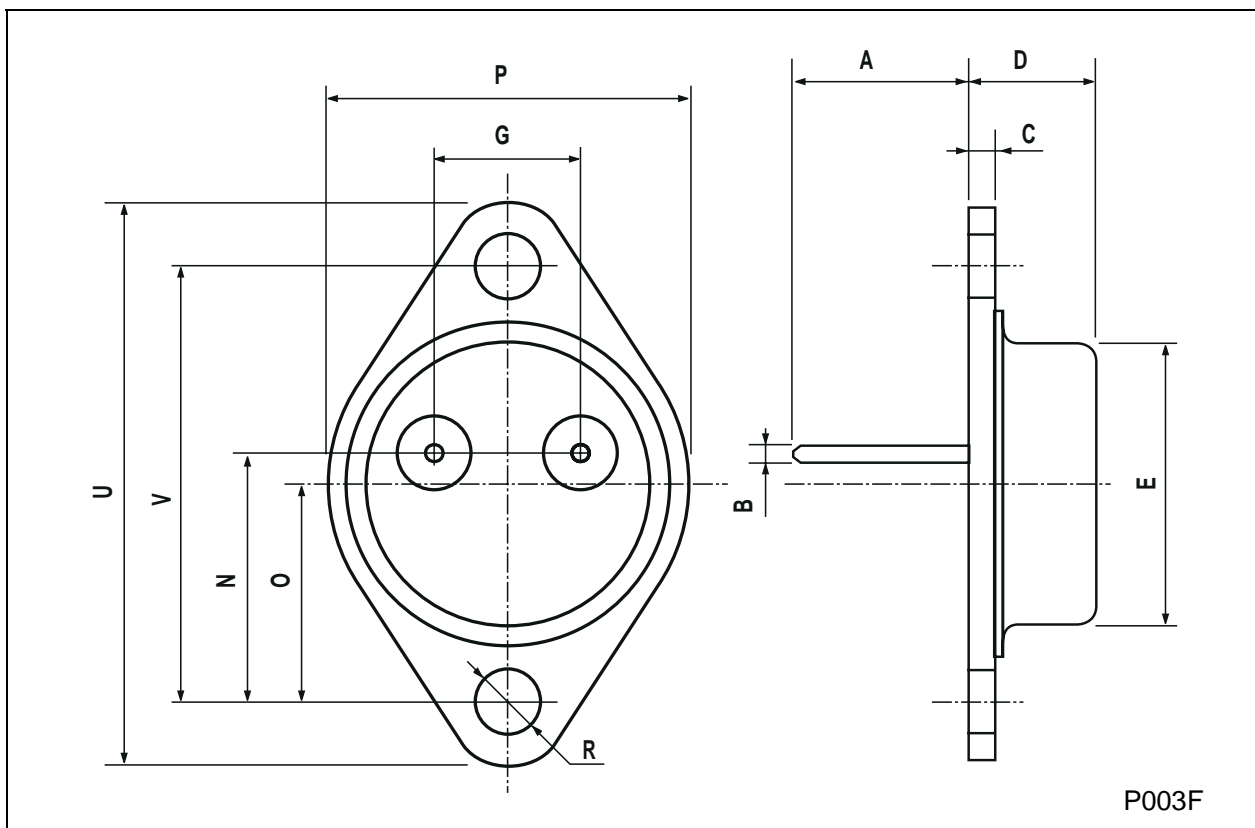
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = 100 V			1.5	mA	
I <sub>CEX</sub>	Collector Cut-off Current	V <sub>CE</sub> = 160 V			1.5	mA	
		T <sub>case</sub> = 125 °C V <sub>CE</sub> = 160 V	V <sub>BE</sub> = -1.5V		6	mA	
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			1	mA	
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 200 mA	125			V	
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 50 mA	7			V	
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 10 A	I <sub>B</sub> = 1 A	0.3	0.6	V	
		I <sub>C</sub> = 20 A	I <sub>B</sub> = 2 A	0.7	1.2	V	
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 20 A	I <sub>B</sub> = 2 A	1.6	2	V	
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 10 A	V <sub>CE</sub> = 2 V	20		60	
		I <sub>C</sub> = 20 A	V <sub>CE</sub> = 4 V	10			
I <sub>S/b</sub>	Second Breakdown Collector Current	V <sub>CE</sub> = 30 V	t = 1 s	5		A	
		V <sub>CE</sub> = 48 V	t = 1 s	1		A	
f <sub>T</sub>	Transistor Frequency	I <sub>C</sub> = 1 A f = 10MHz	V <sub>CE</sub> = 15 V	8		MHz	
t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 20 A V <sub>CC</sub> = 30V	I <sub>B1</sub> = 2 A		0.5	1.5	μs
t <sub>s</sub>	Storage Time	I <sub>C</sub> = 20 A V <sub>CC</sub> = 30V	I <sub>B1</sub> = - I <sub>B2</sub> = 2A		0.6	1.2	μs
t <sub>f</sub>	Fall Time				0.15	0.3	μs
	Clamped E <sub>s/b</sub> Collector Current	V <sub>clamp</sub> = 125 V L = 500 μH		20		A	

\* Pulsed: Pulse duration = 300μs, duty cycle ≤ 2 %

**TO-3 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193



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