

HIGH POWER NPN SILICON TRANSISTOR

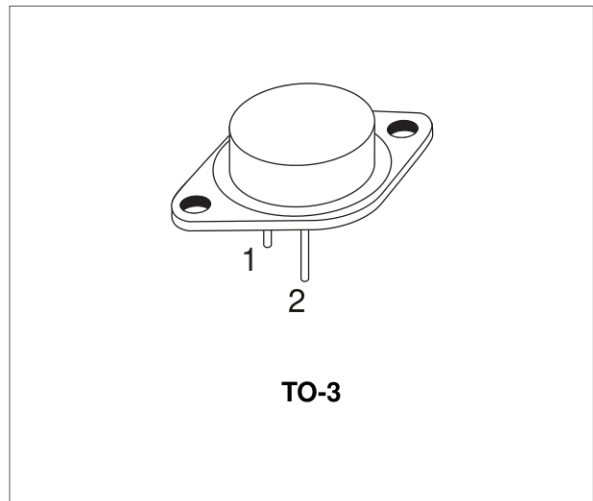
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

APPLICATIONS

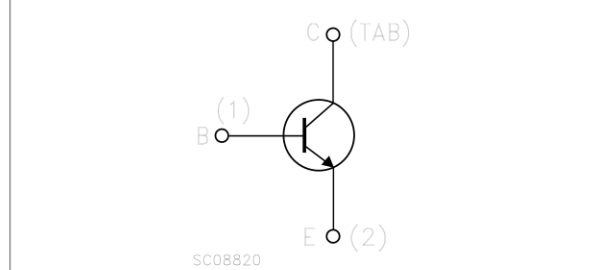
- MOTOR CONTROL
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

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.



INTERNAL SCHEMATIC DIAGRAM



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

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.17	$^{\circ}C/W$
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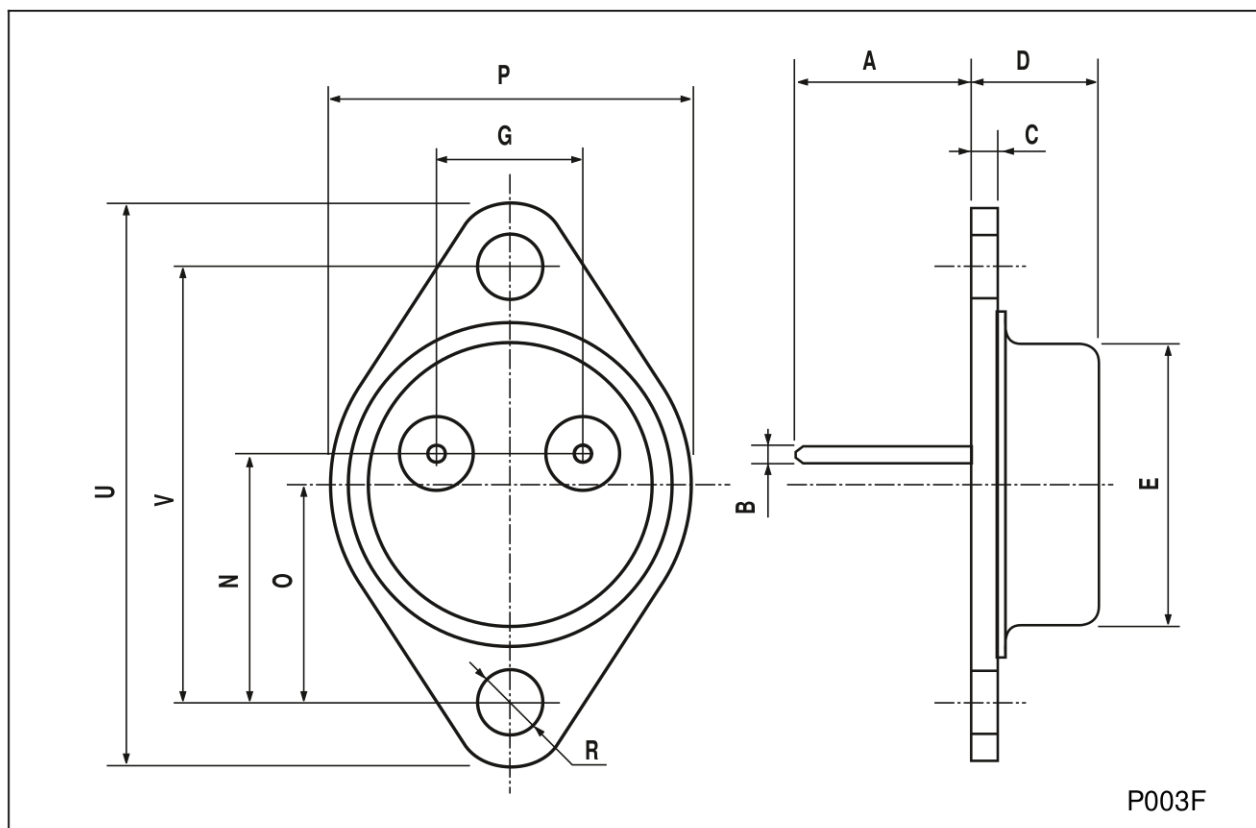
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 100 V$			1.5	mA	
I_{CEX}	Collector Cut-off Current	$V_{CE} = 160 V$ $T_{case} = 125^{\circ}C$			1.5	mA	
		$V_{CE} = 160 V$	$V_{BE} = -1.5V$		6	mA	
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			1	mA	
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 200 mA$	125			V	
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	$I_E = 50 mA$	7			V	
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 10 A$		0.3	0.6	V	
		$I_C = 20 A$	$I_B = 1 A$ $I_B = 2 A$	0.7	1.2	V	
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 20 A$		1.6	2	V	
h_{FE}	DC Current Gain	$I_C = 10 A$	$V_{CE} = 2 V$	20		60	
		$I_C = 20 A$	$V_{CE} = 4 V$	10			
$I_{S/b}$	Second Breakdown Collector Current	$V_{CE} = 30 V$	$t = 1 s$	5		A	
		$V_{CE} = 48 V$	$t = 1 s$	1		A	
f_T	Transistor Frequency	$I_C = 1 A$ $f = 10MHz$	$V_{CE} = 15 V$	8		MHz	
t_{on}	Turn-on Time	$I_C = 20 A$ $V_{CC} = 30V$	$I_{B1} = 2 A$		0.5	1.5	μs
t_s t_f	Storage Time Fall Time	$I_C = 20 A$ $V_{CC} = 30V$	$I_{B1} = - I_{B2} = 2A$		0.6	1.2	μs
					0.15	0.3	μs
	Clamped $E_{s/b}$ Collector Current	$V_{clamp} = 125 V$ $L = 500 \mu H$	20			A	

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

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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