BUX10

HIGH POWER NPN SILICON TRANSISTOR

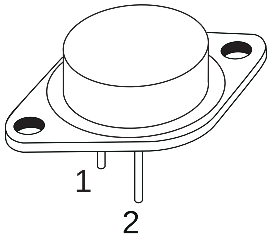
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

APPLICATIONS

- MOTOR CONTROL
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

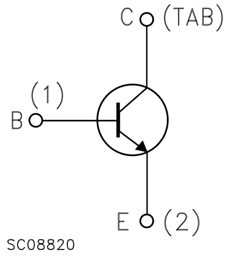
DESCRIPTION

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.



TO-3

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 $T_{case} \leq 25\ ^oC$	150	W
T_{stg}	Storage Temperature	-65 to 200	^oC
T_j	Max Operating Junction Temperature	200	^oC

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case Max	1.17	^oC/W

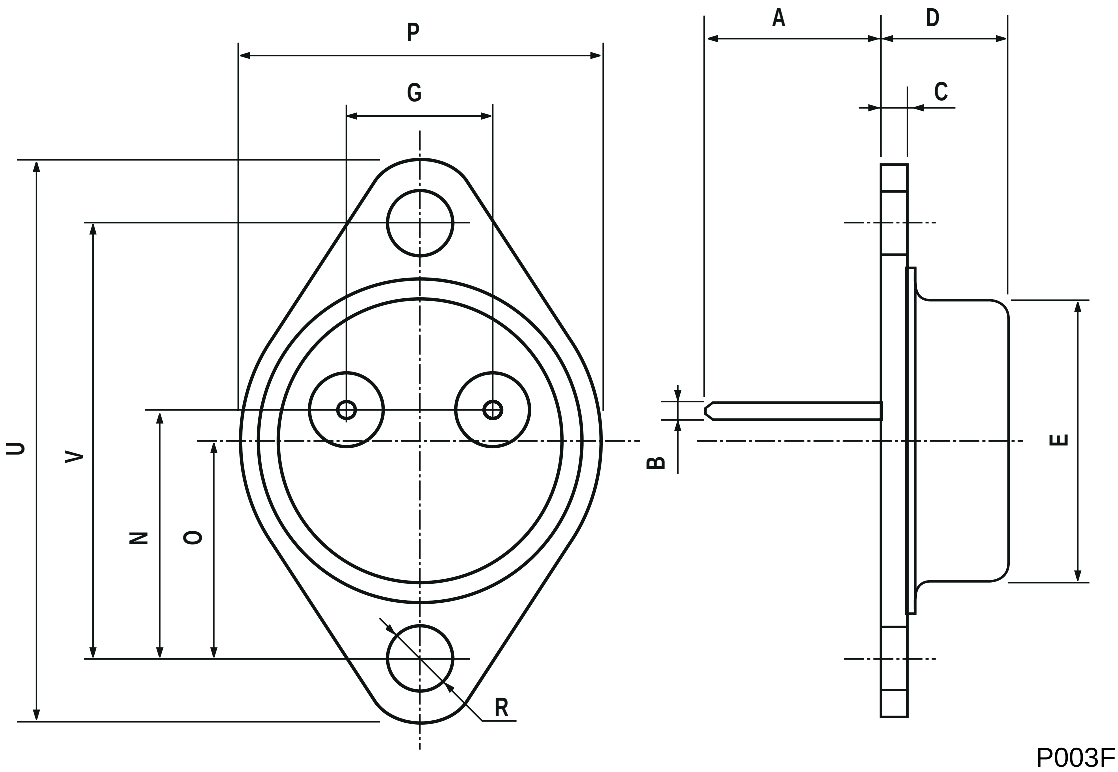
ELECTRICAL CHARACTERISTICS (T$_{case}$ = 25 ^oC unless otherwise specified)

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 V_{BE} = -1.5V T_{case} = 125 ^oC V_{CE} = 160 V V_{BE} = -1.5V			1.5 6	mA 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 I_B = 1 A I_C = 20 A I_B = 2 A		0.3 0.7	0.6 1.2	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 20 A I_B = 2 A		1.6	2	V
h_{FE}	DC Current Gain	I_C = 10 A V_{CE} = 2 V I_C = 20 A V_{CE} = 4 V	20 10		60	
$I_{S/b}$	Second Breakdown Collector Current	V_{CE} = 30 V t = 1 s V_{CE} = 48 V t = 1 s	5 1			A A
f_T	Transistor Frequency	I_C = 1 A V_{CE} =15 V f = 10MHz	8			MHz
t_{on}	Turn-on Time	I_C = 20 A I_{B1} = 2 A V_{CC} = 30V		0.5	1.5	μs
t_s t_f	Storage Time Fall Time	I_C = 20 A I_{B1} = - I_{B2} = 2A V_{CC} = 30V		0.6 0.15	1.2 0.3	μs μs
	Clamped $E_{s/b}$ Collector Current	V_{clamp}=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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