

HIGH POWER NPN SILICON TRANSISTOR

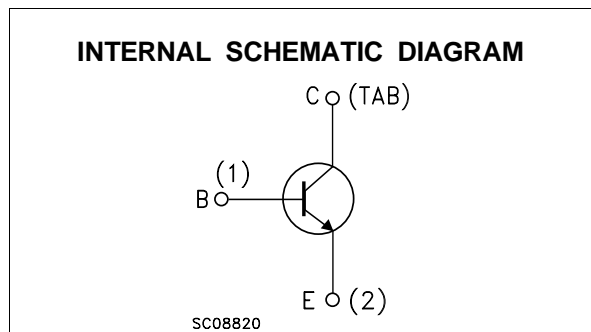
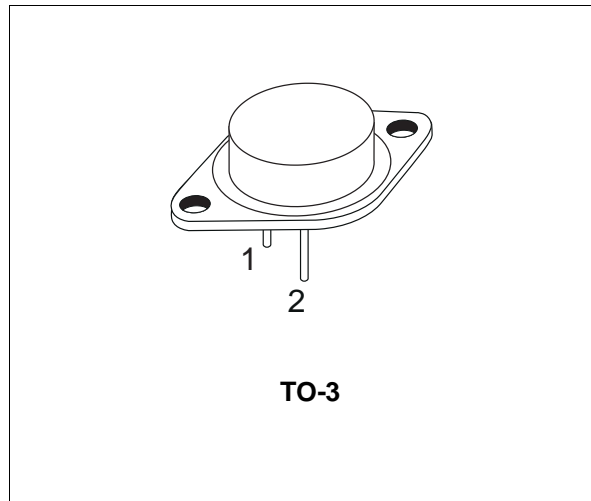
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

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 _{thj-case}	Thermal Resistance Junction-case	Max	1.17	°C/W
-----------------------	----------------------------------	-----	------	------

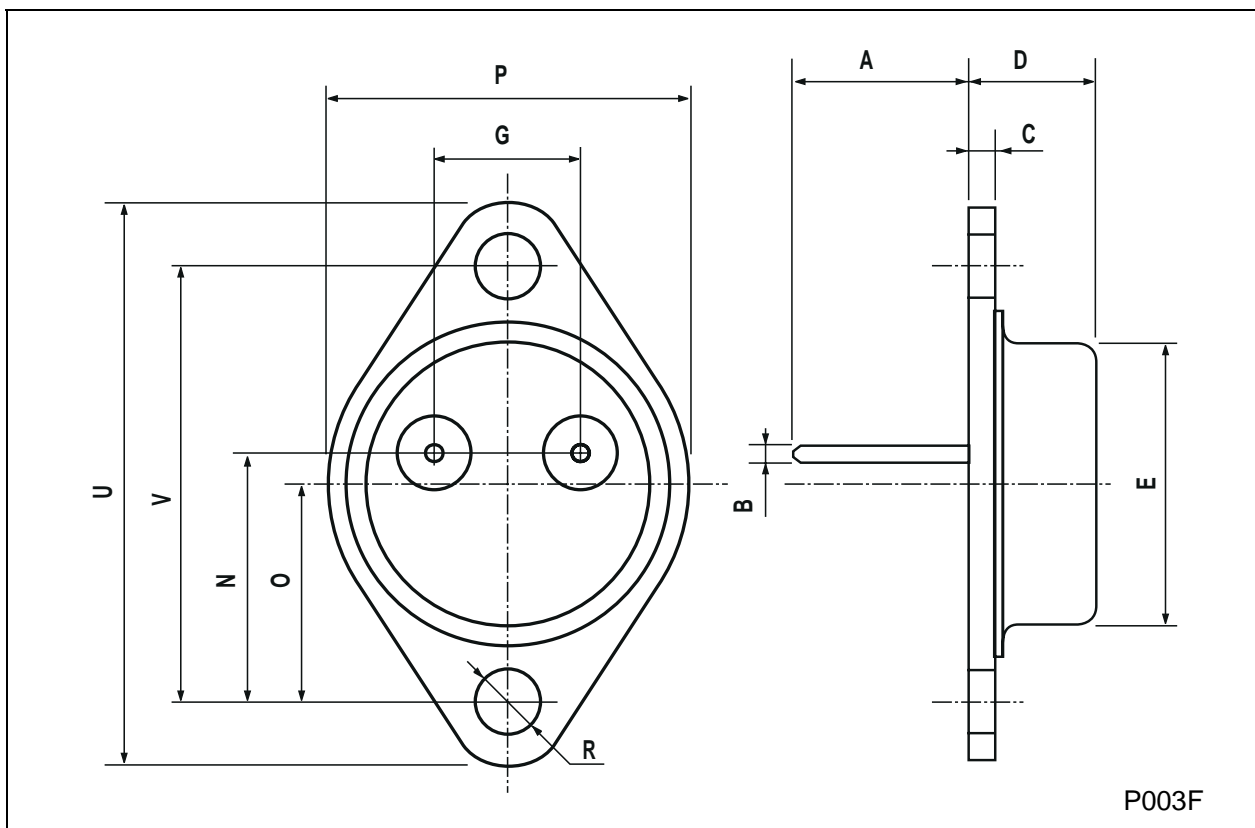
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

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			1.5	mA	
		T _{case} = 125 °C 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	I _B = 1 A	0.3	0.6	V	
		I _C = 20 A	I _B = 2 A	0.7	1.2	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	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	Storage Time	I _C = 20 A V _{CC} = 30V	I _{B1} = - I _{B2} = 2A		0.6	1.2	μs
t _f	Fall Time				0.15	0.3	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



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 2003 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>