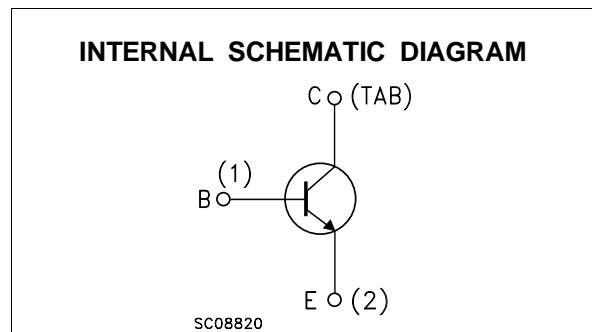
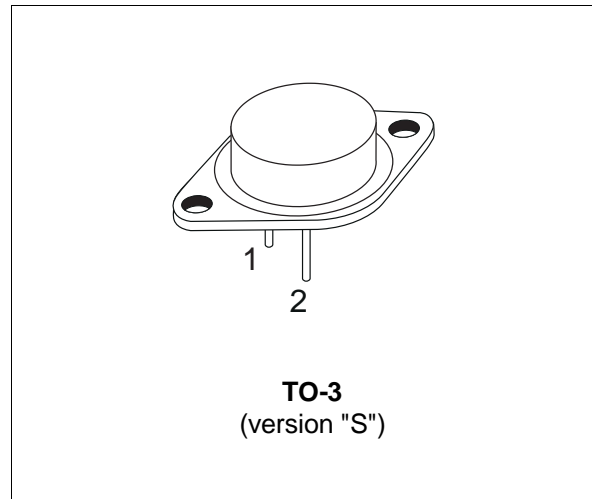


## FAST-SWITCHING POWER TRANSISTOR

- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH VOLTAGE
- FAST SWITCHING
- OFF-LINE APPLICATIONS TO 380V

### APPLICATIONS

- SWITCH MODE POWER SUPPLIES
- UNINTERRUPTABLE POWER SUPPLY
- DC AND AC MOTOR CONTROL



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CEV}$	Collector-Emitter Voltage ( $V_{BE} = -1.5\text{ V}$ )	850	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	450	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	7	V
$I_C$	Collector Current	45	A
$I_{CM}$	Collector Peak Current	60	A
$I_B$	Base Current	9	A
$I_{BM}$	Base Peak Current ( $t_p < 5\text{ ms}$ )	15	A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25\text{ °C}$	300	W
$T_{stg}$	Storage Temperature	-65 to 200	°C
$T_j$	Junction Temperature	200	°C

## BUX348

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	0.58	°C/W
-----------------------	----------------------------------	-----	------	------

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CEr</sub>	Collector Cut-off Current (R <sub>BE</sub> = 10 Ω)	V <sub>CE</sub> = V <sub>CEV</sub> V <sub>CE</sub> = V <sub>CEV</sub> T <sub>c</sub> = 100 °C			0.4 2	mA mA
I <sub>CEV</sub>	Collector Cut-off Current (V <sub>BE</sub> = -1.5V)	V <sub>CE</sub> = V <sub>CEV</sub> V <sub>CE</sub> = V <sub>CEV</sub> T <sub>c</sub> = 100 °C			0.4 2	mA mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			2	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 0.2 A      L = 25 mH	450			V
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 100 mA	7			V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 30 A    I <sub>B</sub> = 6 A I <sub>C</sub> = 30 A    I <sub>B</sub> = 6 A      T <sub>j</sub> = 100 °C		0.7 1.35	0.9 2	V V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 30 A    I <sub>B</sub> = 6 A I <sub>C</sub> = 30 A    I <sub>B</sub> = 6 A      T <sub>j</sub> = 100 °C		1.12 1.1	1.5 1.5	V V
di <sub>C</sub> /dt	Rated of Rise on-state Collector Current	V <sub>CC</sub> = 300V    I <sub>B1</sub> = 9 A      R <sub>C</sub> = 0 t <sub>p</sub> = 3μs      T <sub>j</sub> = 100 °C	125	250		A/μs
V <sub>CE(3μs)*</sub>	Collector-Emitter Dynamic Voltage	V <sub>CC</sub> = 300V      I <sub>B1</sub> = 9 A R <sub>C</sub> = 10 Ω      T <sub>j</sub> = 100 °C		4.4	8	V
V <sub>CE(5μs)*</sub>	Collector-Emitter Dynamic Voltage	V <sub>CC</sub> = 300V      I <sub>B1</sub> = 9 A R <sub>C</sub> = 10 Ω      T <sub>j</sub> = 100 °C		2.3	4	V

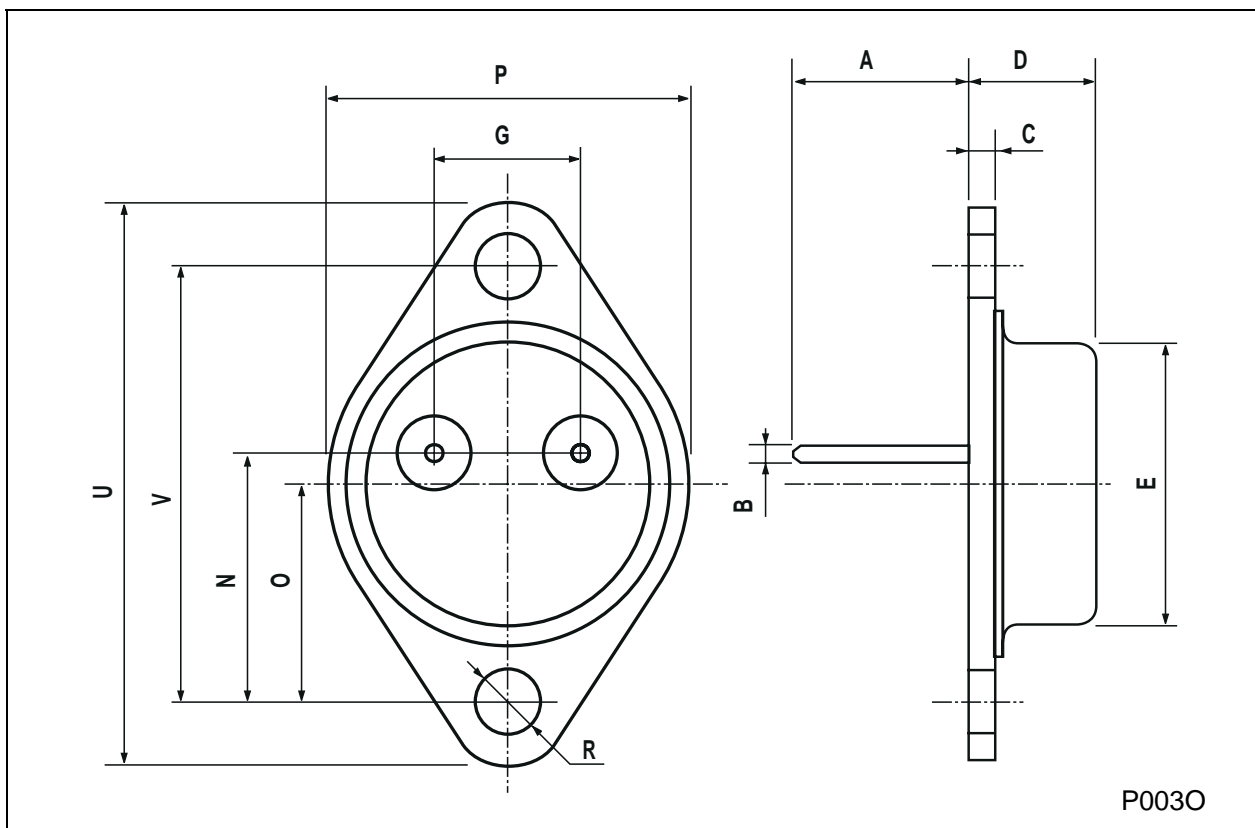
### INDUCTIVE LOAD

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t <sub>s</sub>	Storage Time	V <sub>CC</sub> = 50 V      V <sub>Clamp</sub> = 450 V		2.75	4.5	μs
t <sub>f</sub>	Fall Time	I <sub>C</sub> = 30 A      I <sub>B1</sub> = 6 A		0.12	0.4	μs
t <sub>c</sub>	Crossover Time	V <sub>BB</sub> = -5 V      L <sub>C</sub> = 80 μH R <sub>BB</sub> = 0.4 Ω      T <sub>j</sub> = 100 °C		0.44	0.7	μs
V <sub>CEW</sub>	Maximum Collector Emitter Voltage without Snubber	V <sub>CC</sub> = 50 V      I <sub>CWoff</sub> = 45 A V <sub>BB</sub> = -5 V      I <sub>B1</sub> = 6 A L <sub>C</sub> = 55 μH      R <sub>BB</sub> = 0.4 Ω T <sub>j</sub> = 125 °C	450			V

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

**TO-3 (version S) MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	1.47		1.60	0.058		0.063
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>