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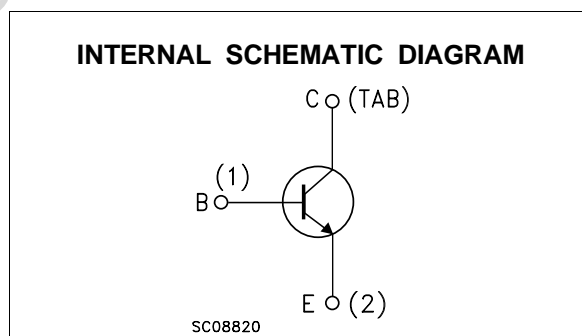
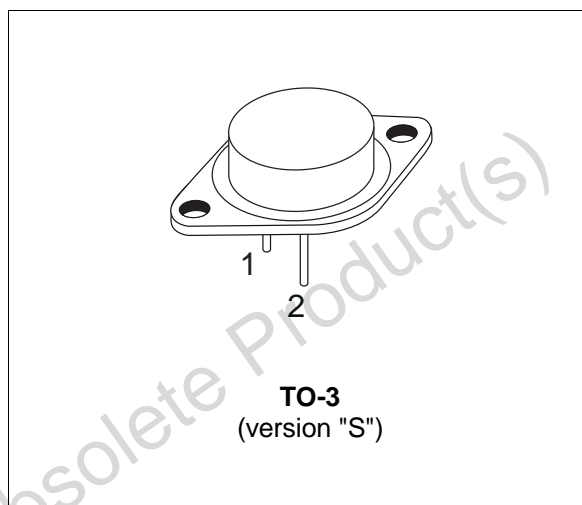
BUX348

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 $T_{case} \leq 25\text{ }^\circ\text{C}$	300	W
T_{stg}	Storage Temperature	-65 to 200	$^\circ\text{C}$
T_j	Junction Temperature	200	$^\circ\text{C}$

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THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	0.58	$^{\circ}C/W$
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current ($R_{BE} = 10 \Omega$)	$V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV}$ $T_c = 100^{\circ}C$			0.4 2	mA mA
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5V$)	$V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV}$ $T_c = 100^{\circ}C$			0.4 2	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			2	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 0.2 A$ $L = 25 mH$	450			V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	$I_E = 100 mA$	7			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 30 A$ $I_B = 6 A$ $I_C = 30 A$ $I_B = 6 A$ $T_j = 100^{\circ}C$		0.7 1.35	0.9 2	V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 30 A$ $I_B = 6 A$ $I_C = 30 A$ $I_B = 6 A$ $T_j = 100^{\circ}C$		1.12 1.1	1.5 1.5	V V
di_C/dt	Rated of Rise on-state Collector Current	$V_{CC} = 300V$ $I_{B1} = 9 A$ $R_C = 0$ $t_p = 3\mu s$ $T_j = 100^{\circ}C$	125	250		A/ μs
$V_{CE(3\mu s)}^*$	Collector-Emitter Dynamic Voltage	$V_{CC} = 300V$ $I_{B1} = 9 A$ $R_C = 10 \Omega$ $T_j = 100^{\circ}C$		4.4	8	V
$V_{CE(5\mu s)}^*$	Collector-Emitter Dynamic Voltage	$V_{CC} = 300V$ $I_{B1} = 9 A$ $R_C = 10 \Omega$ $T_j = 100^{\circ}C$		2.3	4	V

INDUCTIVE LOAD

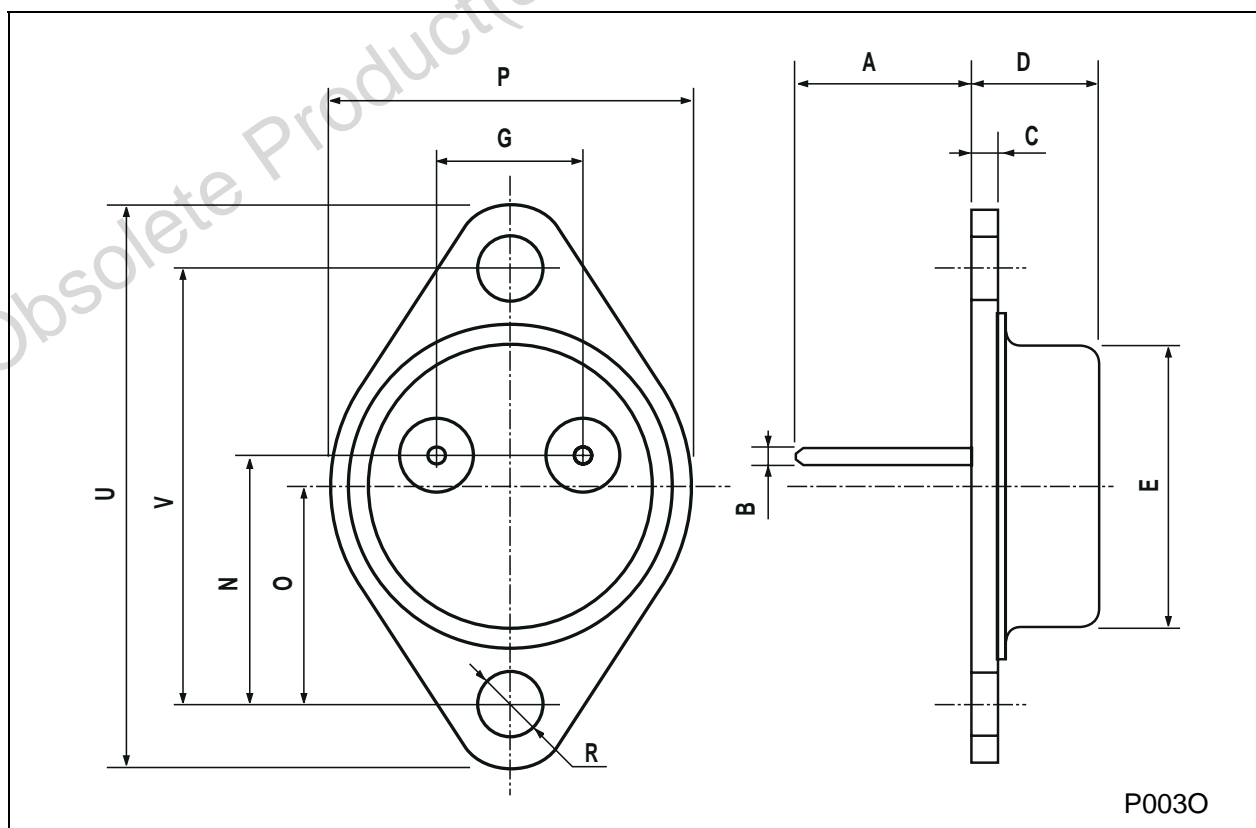
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_s	Storage Time	$V_{CC} = 50 V$ $V_{Clamp} = 450 V$		2.75	4.5	μs
t_f	Fall Time	$I_C = 30 A$ $I_{B1} = 6 A$		0.12	0.4	μs
t_c	Crossover Time	$V_{BB} = -5 V$ $L_C = 80 \mu H$ $R_{BB} = 0.4 \Omega$ $T_j = 100^{\circ}C$		0.44	0.7	μs
V_{CEW}	Maximum Collector Emitter Voltage without Snubber	$V_{CC} = 50 V$ $I_{Cwoff} = 45 A$ $V_{BB} = -5 V$ $I_{B1} = 6 A$ $L_C = 55 \mu H$ $R_{BB} = 0.4 \Omega$ $T_j = 125^{\circ}C$	450			V

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

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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



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