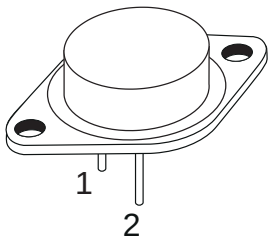
BUX348

FAST-SWITCHING POWER TRANSISTOR

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

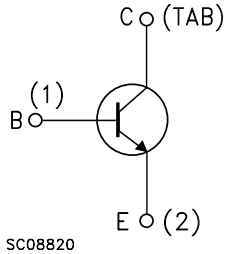
APPLICATIONS

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



TO-3
(version "S")

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEV}	Collector-Emitter Voltage (V_{BE} = -1.5 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 ms)	15	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25\ ^oC$	300	W
T_{stg}	Storage Temperature	-65 to 200	^oC
T_j	Junction Temperature	200	^oC

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	0.58	$^oC/W$

ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current (R_{BE} = 10 Ω)	V_{CE} = V_{CEV} V_{CE} = V_{CEV} T_c = 100 ^oC			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 ^oC			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 ^oC		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 ^oC		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 = 3µs T_j = 100 ^oC	125	250		A/µs
$V_{CE(3\mu s)}$*	Collector-Emitter Dynamic Voltage	V_{CC} = 300V I_{B1} = 9 A R_C = 10 Ω T_j = 100 ^oC		4.4	8	V
$V_{CE(5\mu s)}$*	Collector-Emitter Dynamic Voltage	V_{CC} = 300V I_{B1} = 9 A R_C = 10 Ω T_j = 100 ^oC		2.3	4	V

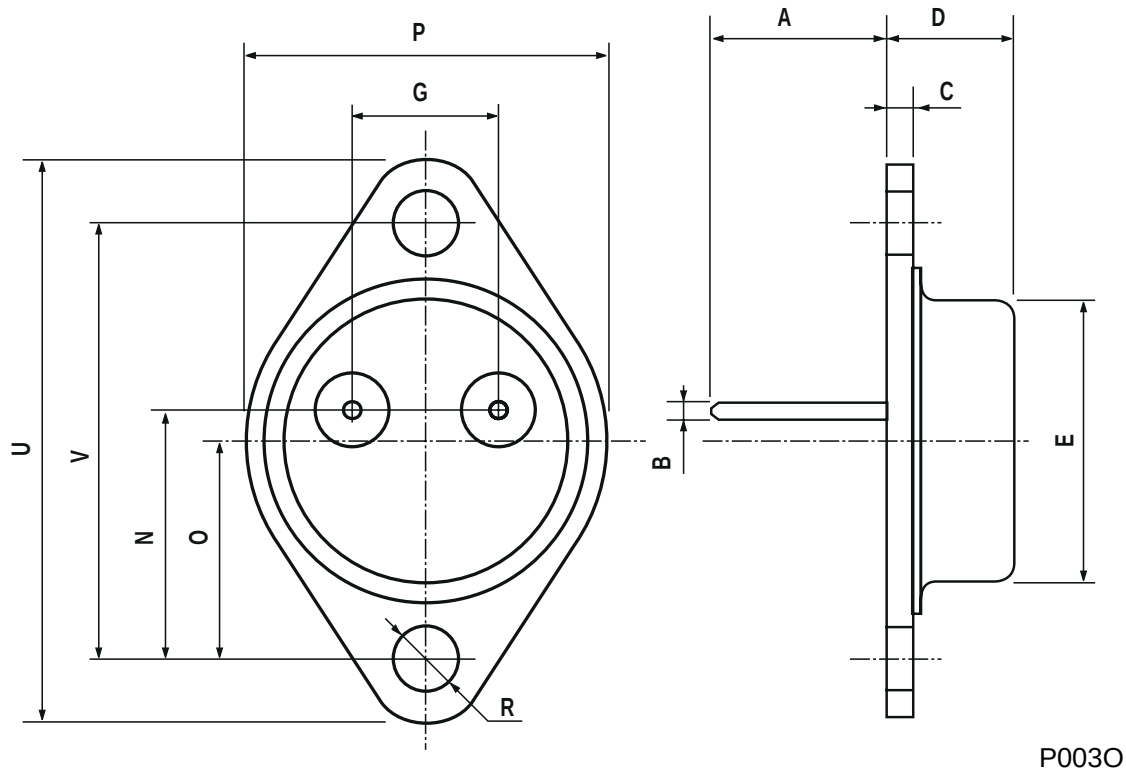
INDUCTIVE LOAD

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_s t_f t_c	Storage Time Fall Time Crossover Time	V_{CC} = 50 V V_{Clamp} = 450 V I_C = 30 A I_{B1} = 6 A V_{BB} = -5 V L_C = 80 µH R_{BB} = 0.4 Ω T_j = 100 ^oC		2.75 0.12 0.44	4.5 0.4 0.7	µs µs 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 µH R_{BB} = 0.4 Ω T_j = 125 ^oC	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



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