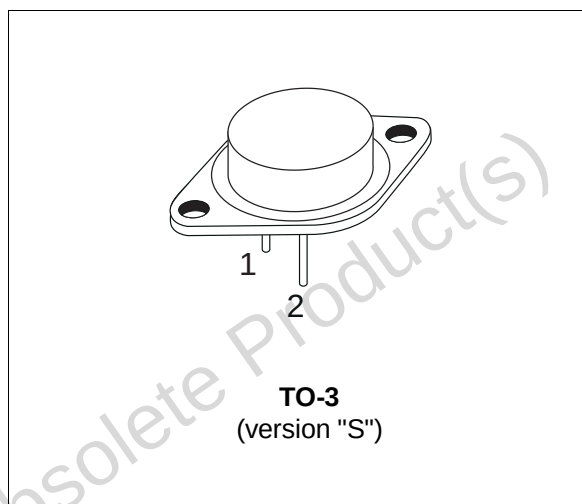


FAST-SWITCHING POWER TRANSISTOR

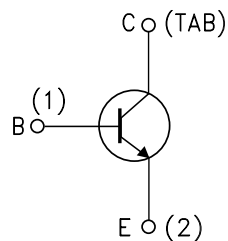
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH VOLTAGE
- FAST SWITCHING
- OFF-LINE APPLICATIONS TO 380V

APPLICATIONS

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



INTERNAL SCHEMATIC DIAGRAM



SC08820

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	$^\circ\text{C}$

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-case	Max	0.58	°C/W
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C 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 °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 °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 °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 °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 μs T _j = 100 °C	125	250		A/μs
V _{CE(3μs)*}	Collector-Emitter Dynamic Voltage	V _{CC} = 300V I _{B1} = 9 A R _C = 10 Ω T _j = 100 °C		4.4	8	V
V _{CE(5μs)*}	Collector-Emitter Dynamic Voltage	V _{CC} = 300V I _{B1} = 9 A R _C = 10 Ω T _j = 100 °C		2.3	4	V

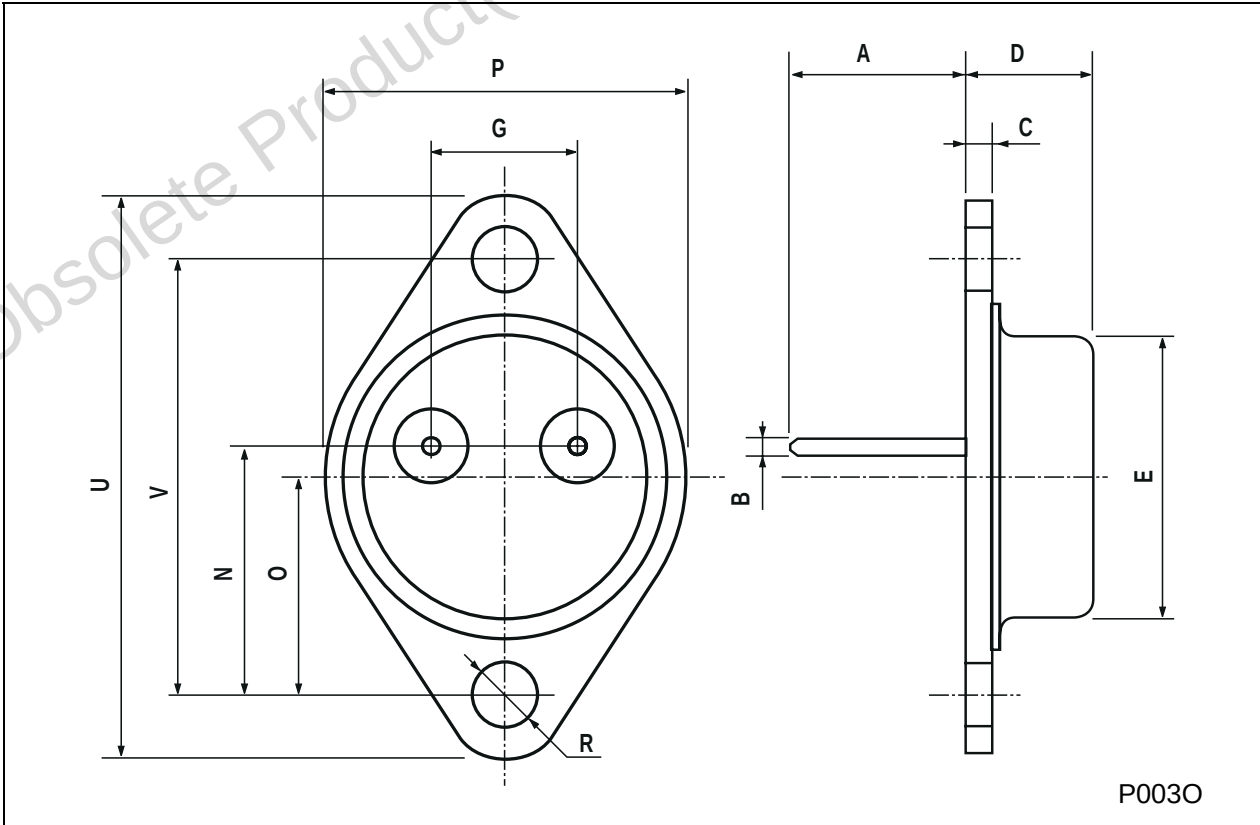
INDUCTIVE LOAD

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 μH R _{BB} = 0.4 Ω T _j = 100 °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 μH R _{BB} = 0.4 Ω T _j = 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



Obsolete Product(s) - Obsolete Product(s)

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