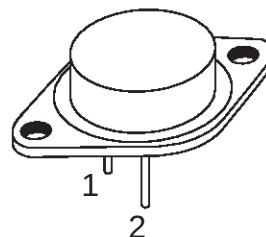


FAST-SWITCHING POWER TRANSISTOR

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

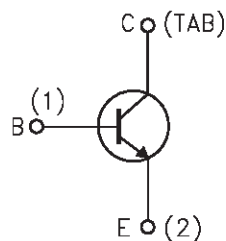
APPLICATIONS

- 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	15	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25$ °C	300	W
T_{stg}	Storage Temperature	-65 to 200	°C
T_j	Junction Temperature	200	°C

THERMAL DATA

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current ($R_{BE} = 10\ \Omega$)	$V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV}$ $T_c = 100^{\circ}\text{C}$			0.4 2	mA mA
I_{CEV}	Collector Cut-off Current	$V_{CE} = V_{CEV}$ $V_{BE} = -1.5\text{V}$ $V_{CE} = V_{CEV}$ $V_{BE} = -1.5\text{V}$ $T_c = 100^{\circ}\text{C}$			0.4 2	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			2	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage	$I_C = 0.2\text{ A}$ $L = 25\text{ mH}$	450			V
V_{EB0}	Emitter-Base Voltage ($I_C = 0$)	$I_E = 100\text{ mA}$	7			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 30\text{ A}$ $I_B = 6\text{ A}$ $I_C = 30\text{ A}$ $I_B = 6\text{ A}$ $T_j = 100^{\circ}\text{C}$		0.7 1.35	0.9 2	V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 30\text{ A}$ $I_B = 6\text{ A}$ $I_C = 30\text{ A}$ $I_B = 6\text{ A}$ $T_j = 100^{\circ}\text{C}$		1.12 1.1	1.5 1.5	V V
di_C/dt	Rated of Rise on-state Collector Current	$V_{CC} = 300\text{V}$ $I_{B1} = 9\text{ A}$ $R_C = 0$ $t_p = 3\mu\text{s}$ $T_j = 100^{\circ}\text{C}$	125	250		A/ μs
$V_{CE(3\mu\text{s})}^*$	Collector-Emitter Dynamic Voltage	$V_{CC} = 300\text{V}$ $I_{B1} = 9\text{ A}$ $R_C = 10\ \Omega$ $T_j = 100^{\circ}\text{C}$		4.4	8	V
$V_{CE(5\mu\text{s})}^*$	Collector-Emitter Dynamic Voltage	$V_{CC} = 300\text{V}$ $I_{B1} = 9\text{ A}$ $R_C = 10\ \Omega$ $T_j = 100^{\circ}\text{C}$		2.3	4	V

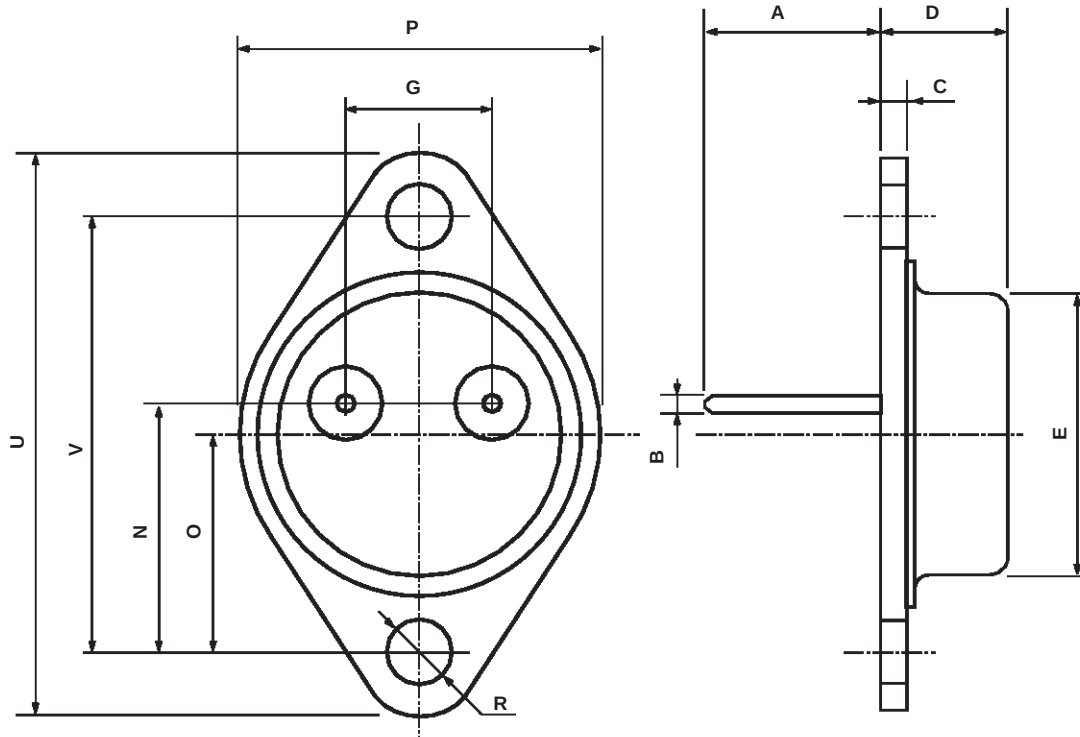
INDUCTIVE LOAD

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

* Pulsed : Pulse duration = 300 μs , 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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