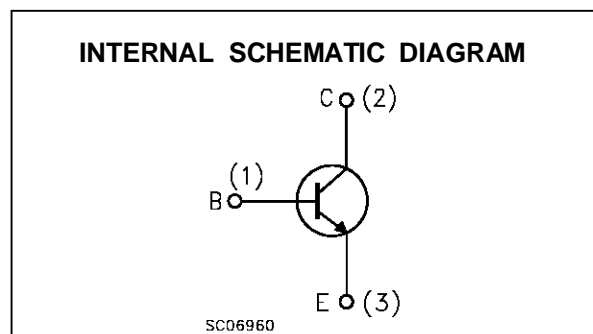
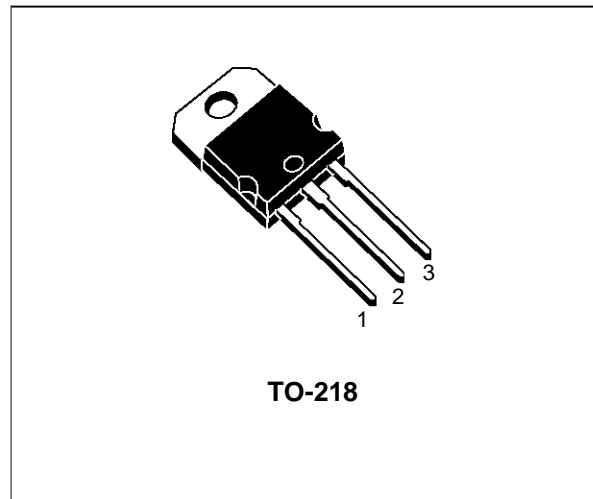


SILICON NPN SWITCHING TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE
- VERY LOW SATURATION VOLTAGE AND HIGH GAIN FOR REDUCED LOAD OPERATION
- TURN-ON AND TURN-OFF TAIL SPECIFICATIONS
- TURN-ON di/dt FOR BETTER RECTIFIER CHOICE
- SWITCHING TIMES SPECIFIED WITH AND WITHOUT NEGATIVE BASE DRIVE
- FAST SWITCHING TIMES
- LOW SWITCHING LOSSES
- LOW ON-STATE VOLTAGE DROP
- BASE CURRENT REQUIREMENTS



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEV}	Collector-emitter Voltage ($V_{BE} = -1.5V$)	250	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	125	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	25	A
I_{CM}	Collector Peak Current	50	A
I_B	Base Current	6	A
I_{BM}	Base Peak Current	12	A
P_{Base}	Reverse Bias Base Power Dissipation (B.E. junction in avalanche)	2	W
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$	150	W
T_{stg}	Storage Temperature	-65 to 175	$^\circ C$
T_j	Max Operating Junction Temperature	175	$^\circ C$

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-case	Max	1	°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} = 10Ω)	V _{CE} = V _{CEV} V _{CE} = V _{CEV} T _C = 100°C			1 5	mA mA
I _{CEV}	Collector Cut-off Current	V _{CE} = V _{CEV} V _{BE} = -1.5V V _{CE} = V _{CEV} V _{BE} = -1.5V T _C =100°C			1 5	mA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			1	mA
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage	I _C = 0.2A L = 25 mH	125			V
V _{EBO}	Emitter-base Voltage (I _C = 0)	I _E = 50 mA	7			V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = 10A I _B = 0.5A I _C = 20A I _B = 2A I _C = 10A I _B = 0.5A T _j = 100°C I _C = 20A I _B = 2A T _j = 100°C		0.4 0.6 0.5 0.75	0.8 0.9 0.9 1.5	V V V V
V _{BE(sat)*}	Base-Emitter Saturation Voltage	I _C = 20A I _B = 2A I _C = 20A I _B = 2A T _j = 100°C		1.25 1.25	1.6 1.7	V V
di _c /dt*	Rate of Rise of on-state Collector Current	V _{CC} = 160V R _C = 0 I _{B1} = 3A T _j = 25°C T _j = 100°C	50 45	100 85		A/μs A/μs
V _{CE(2μs)}	Collector-Emitter Dynamic Voltage	V _{CC} = 100V R _C = 5Ω I _{B1} = 2A T _j = 25°C T _j = 100°C		1.4 2.1	3 4	V V
V _{CE(4μs)}	Collector-Emitter Dynamic Voltage	V _{CC} = 100V R _C = 5Ω I _{B1} = 2A T _j = 25°C T _j = 100°C		1.1 1.5	2 2.5	V V

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

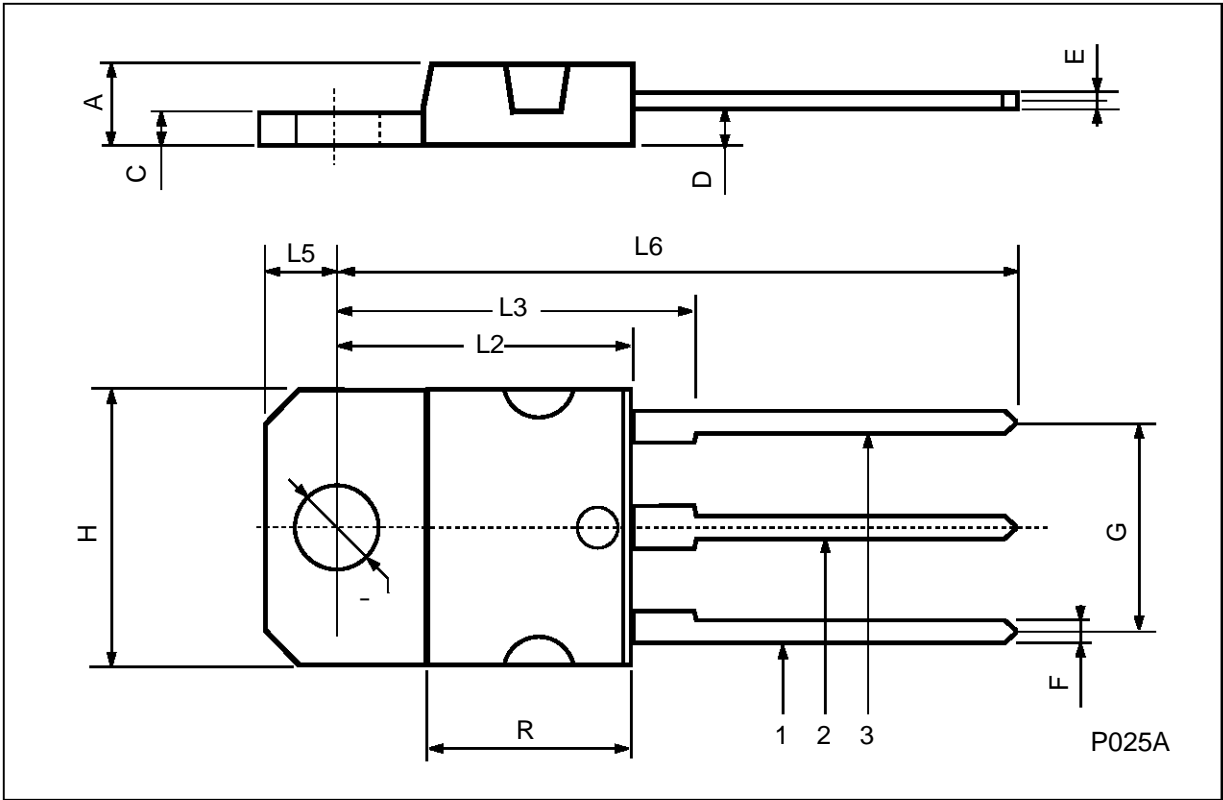
ELECTRICAL CHARACTERISTICS (continued)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
	RESISTIVE LOAD					
t_r	Rise Time	$V_{CC} = 100V$ $I_C = 24A$		0.33	0.6	μs
t_s	Storage Time	$V_{BB} = -5V$ $I_{B1} = 3A$		0.75	1.2	μs
t_f	Fall Time	$R_B = 0.83\Omega$ $T_p = 30\mu s$		0.15	0.3	μs
	INDUCTIVE LOAD					
t_s	Storage Time	$V_{CC} = 100V$ $V_{clamp} = 125V$		0.85	1.4	μs
t_f	Fall Time	$I_C = 20A$ $I_B = 2A$		0.09	0.2	μs
t_t	Tail Time in Turn-on	$V_{BB} = -5V$ $R_B = 1.3\Omega$		0.04	0.05	μs
t_c	Crossover Time	$L_C = 0.25mH$		0.16	0.3	μs
t_s	Storage Time	$V_{CC} = 100V$ $V_{clamp} = 125V$		1.2	1.7	μs
t_f	Fall Time	$I_C = 20A$ $I_B = 2A$		0.17	0.3	μs
t_t	Tail Time in Turn-on	$V_{BB} = -5V$ $R_B = 1.3\Omega$		0.07	0.1	μs
t_c	Crossover Time	$L_C = 0.25mH$ $T_j = 100^\circ C$		0.3	0.5	μs
t_s	Storage Time	$V_{CC} = 100V$ $V_{clamp} = 125V$		2.1		μs
t_f	Fall Time	$I_C = 20A$ $I_B = 2A$		0.7		μs
t_t	Tail Time in Turn-on	$V_{BB} = 0$ $R_B = 4.7\Omega$		0.28		μs
		$L_C = 0.25mH$				
t_s	Storage Time	$V_{CC} = 100V$ $V_{clamp} = 125V$		3.2		μs
t_f	Fall Time	$I_C = 20A$ $I_B = 2A$		1.2		μs
t_t	Tail Time in Turn-on	$V_{BB} = 0$ $R_B = 4.7\Omega$		0.55		μs
		$L_C = 0.25mH$ $T_j = 100^\circ C$				

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

TO-218 (SOT-93) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		4.9	0.185		0.193
C	1.17		1.37	0.046		0.054
D		2.5			0.098	
E	0.5		0.78	0.019		0.030
F	1.1		1.3	0.043		0.051
G	10.8		11.1	0.425		0.437
H	14.7		15.2	0.578		0.598
L2	-		16.2	-		0.637
L3		18			0.708	
L5	3.95		4.15	0.155		0.163
L6		31			1.220	
R	-		12.2	-		0.480
Ø	4		4.1	0.157		0.161



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