

## SILICON NPN SWITCHING TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- VERY LOW SATURATION VOLTAGE
- FAST TURN-OFF AND TURN-ON

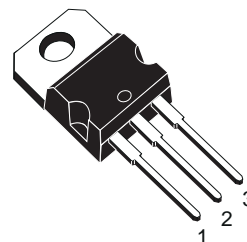
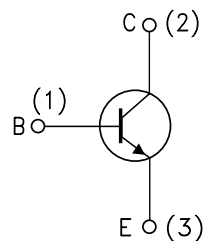
**APPLICATIONS:**

- SWITCHING REGULATORS
- SOLENOID / RELAY DRIVERS

**DESCRIPTION**

High speed transistor suited for low voltage applications.

High frequency and efficiency converters switching regulators motor control.


**TO-220**
**INTERNAL SCHEMATIC DIAGRAM**


SC06960

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	400	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	200	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	7	V
$I_C$	Collector Current	10	A
$I_{CM}$	Collector Peak Current	15	A
$I_B$	Base Current	2	A
$I_{BM}$	Base Peak Current	4	A
$P_{tot}$	Total Dissipation at $T_c < 25\text{ }^\circ\text{C}$	85	W
$P_{tot}$	Total Dissipation at $T_c < 60\text{ }^\circ\text{C}$	65	W
$T_{stg}$	Storage Temperature	-65 to +175	$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	175	$^\circ\text{C}$

**THERMAL DATA**

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	1.76	°C/W
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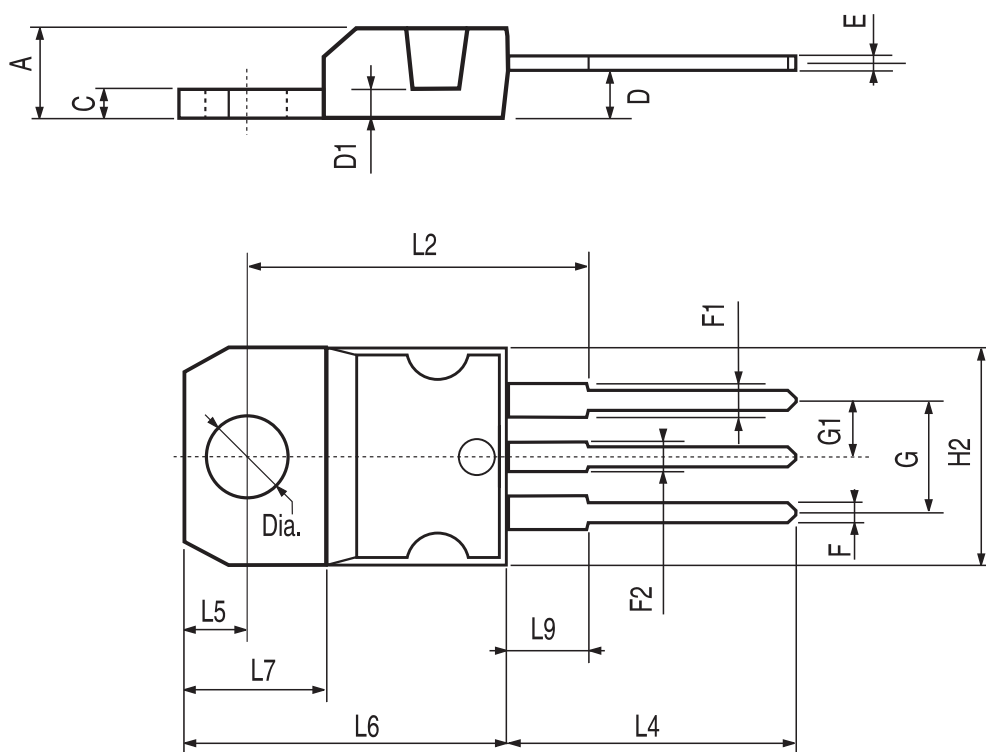
**ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CEr</sub>	Collector Cut-off Current (R <sub>BE</sub> = 50Ω)	V <sub>CE</sub> = 400V T <sub>c</sub> = 125°C			3	mA
I <sub>CEx</sub>	Collector Cut-off Current	V <sub>CE</sub> = 400V V <sub>BE</sub> = -1.5V T <sub>c</sub> = 125°C			1	mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			1	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 0.2 A L = 25mH	200			V
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 50mA	7		30	V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 3A I <sub>B</sub> = 0.3A I <sub>C</sub> = 6A I <sub>B</sub> = 0.6A			0.7 1.5	V V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 6A I <sub>B</sub> = 0.6A			2	V
t <sub>on</sub> t <sub>s</sub> t <sub>f</sub>	<b>RESISTIVE LOAD</b> Storage Time Fall Time Turn-on Time	V <sub>CC</sub> = 150V I <sub>C</sub> = 6A V <sub>BE</sub> = - 6V I <sub>B1</sub> = 0.6A R <sub>BB</sub> = 5Ω		0.3 0.5 0.1	1 1.5 0.25	μs μs μs
t <sub>s</sub> t <sub>f</sub>  t <sub>s</sub> t <sub>f</sub>	<b>INDUCTIVE LOAD</b> Storage time Fall Time  Storage Time Fall Time	V <sub>CC</sub> = 150V I <sub>C</sub> = 6A I <sub>B1</sub> = 0.6A V <sub>BE</sub> = - 5V L <sub>B</sub> = 1μH  V <sub>CC</sub> = 150V I <sub>C</sub> = 6A I <sub>B1</sub> = 0.6A V <sub>BE</sub> = - 5V L <sub>B</sub> = 1μH T <sub>j</sub> = 125°C		1 0.04	3 0.2	μs μs  μs μs

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

**TO-220 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



P011C

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