

HIGH CURRENT NPN SILICON TRANSISTOR

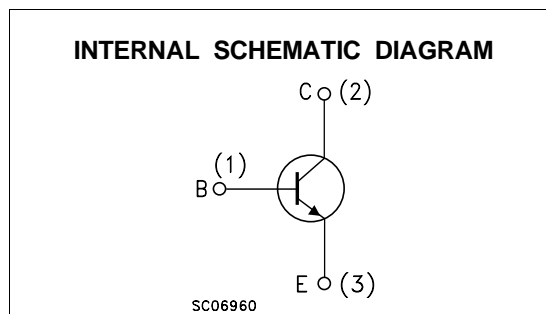
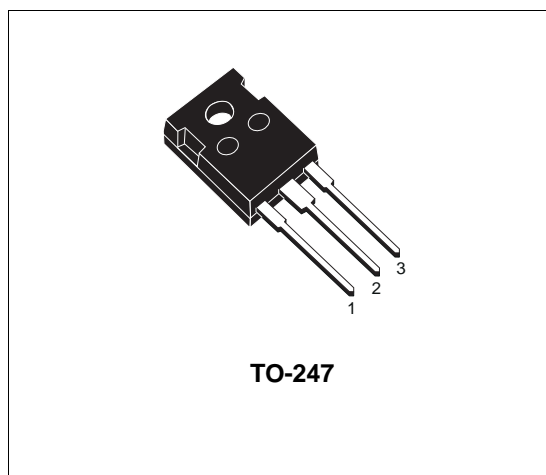
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR

APPLICATIONS:

- MOTOR CONTROL
- HIGH FREQUENCY AND EFFICIENCY CONVERTERS

DESCRIPTION

High current, high speed transistor suited for power conversion applications, high efficiency converters and motor controls.


ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	500	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	250	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	7	V
I_E	Emitter-Current	60	A
I_{EM}	Emitter Peak Current ($t_p < 5\text{ms}$)	70	A
I_B	Base Current	15	A
I_{BM}	Base Peak Current ($t_p < 5\text{ms}$)	18	A
P_{tot}	Total Dissipation at $T_c \leq 25\text{ }^\circ\text{C}$	180	W
T_{stg}	Storage Temperature	-65 to 150	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	150	$^\circ\text{C}$

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THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	MAX	0.7	°C/W
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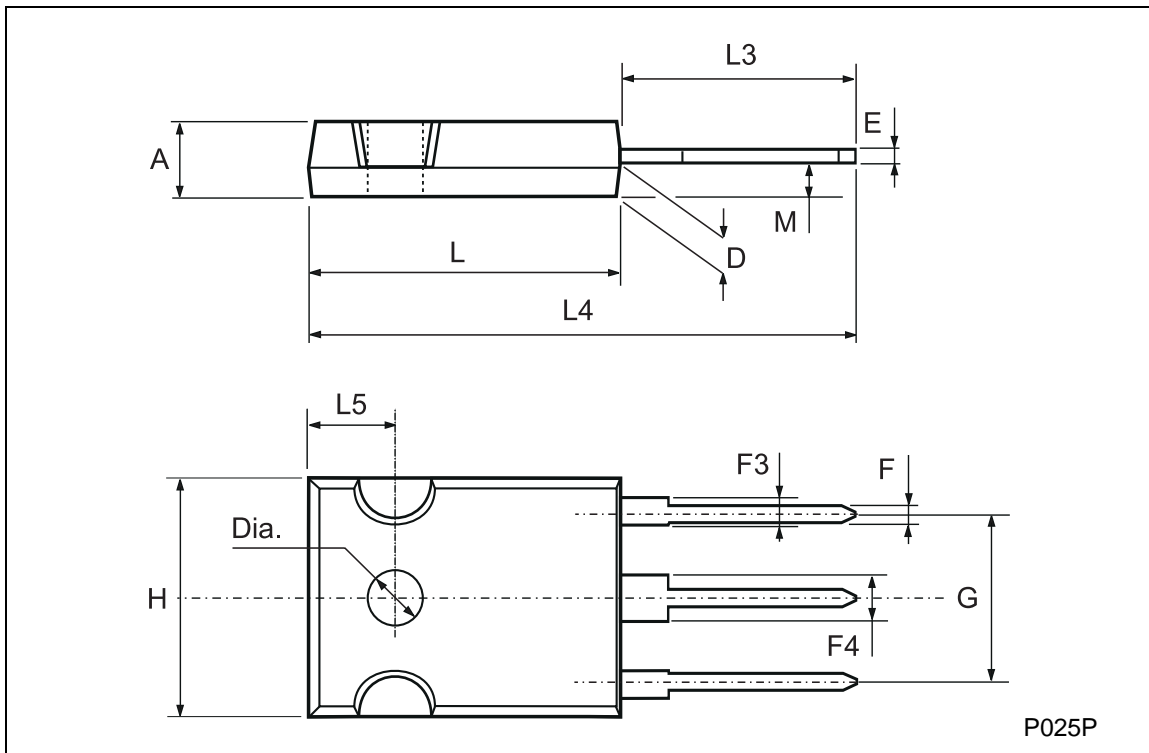
ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = -1.5V$)	$V_{CE} = 450\text{ V}$ $V_{CE} = 450\text{ V}$ $T_C = 100\text{ °C}$			50 1	μA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			50	μA
V_{CES}	Collector-Emitter Voltage ($V_{EB} = 0$)	$I_C = 5\text{ mA}$	500			V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	$I_E = 50\text{ mA}$	7			V
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 200\text{ mA}$	250			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 60\text{ A}$ $I_B = 15\text{ A}$ $I_C = 60\text{ A}$ $I_B = 15\text{ A}$ $T_C = 100\text{ °C}$		0.8 1.1	1 1.5	V V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 60\text{ A}$ $I_B = 15\text{ A}$ $I_C = 60\text{ A}$ $I_B = 15\text{ A}$ $T_C = 100\text{ °C}$			1.9 2	V V
h_{FE*}	DC Current Gain	$I_C = 60\text{ A}$ $V_{CE} = 3\text{ V}$ $I_C = 60\text{ A}$ $V_{CE} = 3\text{ V}$ $T_C = 100\text{ °C}$ $I_C = 5\text{ A}$ $V_{CE} = 3\text{ V}$	9 6		65	
t_s t_f	RESISTIVE LOAD Storage Time Fall Time	$I_C = 50\text{ A}$ $V_{CC} = 250\text{ V}$ $I_{B1} = -I_{B2} = 10\text{ A}$		1.2 250	1.4 300	μs ns

* Pulsed: Pulse duration = 300 ms, duty cycle 1.5 %

TO-247 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		5.3	0.185		0.209
D	2.2		2.6	0.087		0.102
E	0.4		0.8	0.016		0.031
F	1		1.4	0.039		0.055
F3	2		2.4	0.079		0.094
F4	3		3.4	0.118		0.134
G		10.9			0.429	
H	15.3		15.9	0.602		0.626
L	19.7		20.3	0.776		0.779
L3	14.2		14.8	0.559		0.582
L4		34.6			1.362	
L5		5.5			0.217	
M	2		3	0.079		0.118



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