SGS-THOMSON
MICROELECTRONICS

BUTW92

HIGH CURRENT NPN SILICON TRANSISTOR

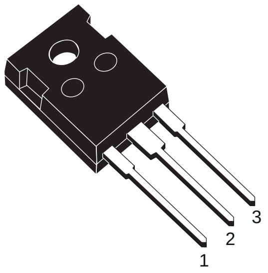
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR

APPLICATIONS:

- MOTOR CONTROL
- HIGH FREQUENCY AND EFFICIENCY CONVERTERS

DESCRIPTION

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



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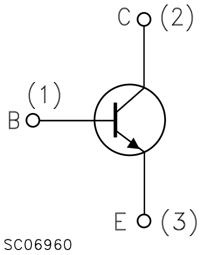
INTERNAL SCHEMATIC DIAGRAM



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 ($t_p < 5ms$)	70	A
I_B	Base Current	15	A
I_{BM}	Base Peak Current ($t_p < 5ms$)	18	A
P_{tot}	Total Dissipation at $T_c \leq 25$ °C	180	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

For PNP type voltage and current values are negative.

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case MAX	0.7	$^oC/W$

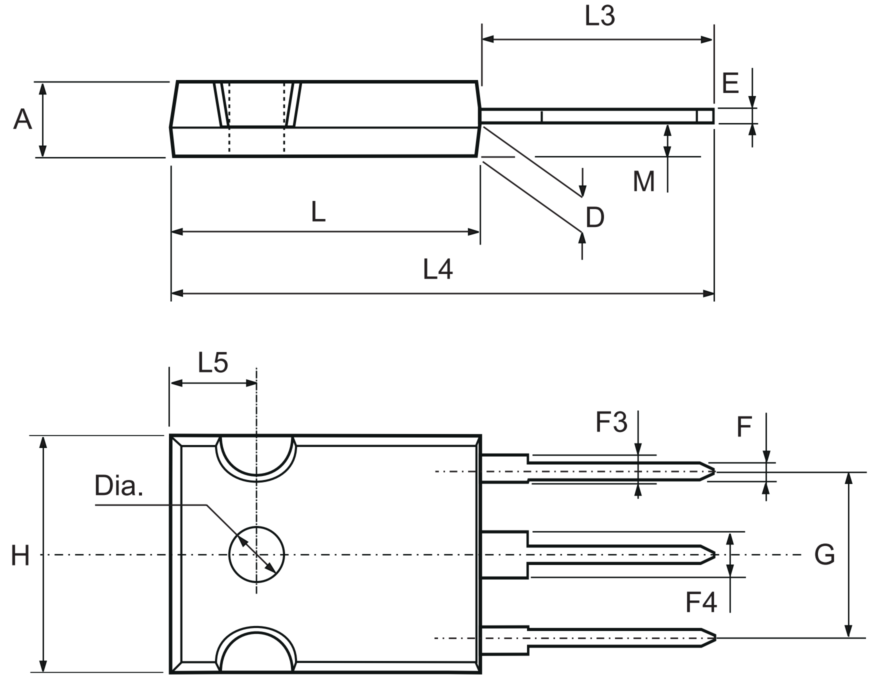
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

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

∗ Pulsed: Pulse duration = 300 µs, 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	0.413	0.582
L4		34.6			1.362	
L5		5.5			0.217	
M	2		3	0.079		0.118
Dia	3.55		3.65	0.140		0.144



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