

HIGH VOLTAGE FASTSWITCHING NPN POWER TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPES
- HIGH VOLTAGE CAPABILITY
- VERY HIGH SWITCHING SPEED
- LOW BASE-DRIVE REQUIREMENTS

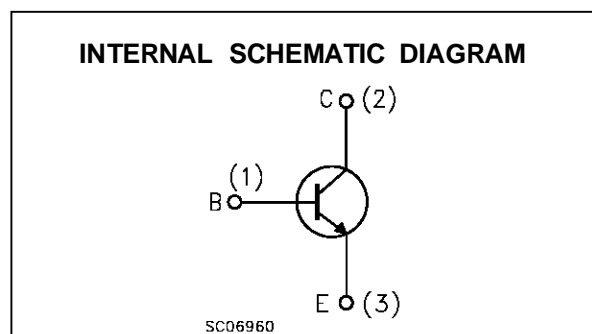
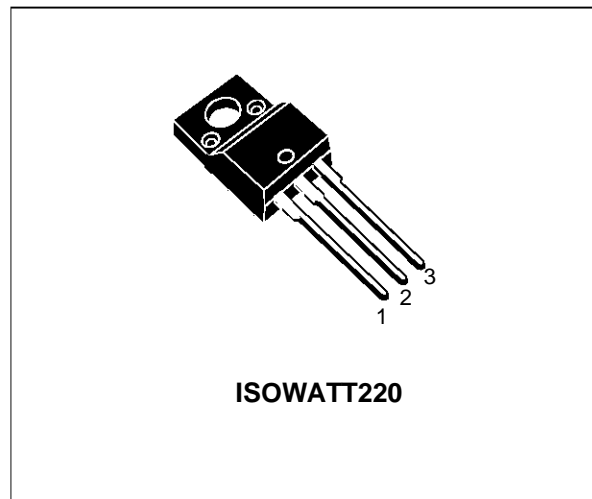
APPLICATIONS:

- SWITCH MODE POWER SUPPLIES
- HORIZONTAL DEFLECTION FOR COLOUR TVS AND MONITORS

DESCRIPTION

The SGSIF344 is manufactured using Multi-epitaxial Mesa technology for cost-effective high performance and uses a Hollow Emitter structure to enhance switching speeds.

The SGSIF series is designed for high speed switching applications such as power supplies and horizontal deflection circuits in TVs and monitors.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	1200	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	600	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	7	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	12	A
I_B	Base Current	5	A
I_{BM}	Base Peak Current ($t_p < 5$ ms)	8	A
P_{tot}	Total Dissipation at $T_c = 25$ °C	40	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

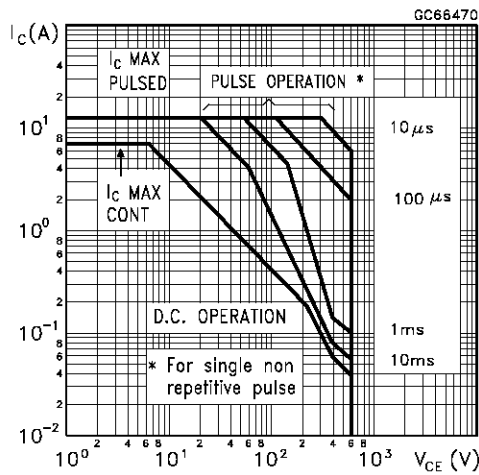
R _{thj-case}	Thermal Resistance Junction-case	Max	1.72	°C/W
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	V _{CE} = 1200 V			200	μA
I _{CEO}	Collector Cut-off Current (I _B = 0)	V _{EC} = 380 V V _{EC} = 600 V			200 2	μA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{BE} = 7 V			1	mA
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage	I _C = 100 mA	600			V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = 3.5 A I _B = 0.7 A I _C = 2.5 A I _B = 0.35 A			1.5 1.5	V V
V _{BE(sat)*}	Base-Emitter Saturation Voltage	I _C = 3.5 A I _B = 0.7 A I _C = 2.5 A I _B = 0.35 A			1.5 1.5	V V
t _{ON} t _s t _f	Turn-on Time Storage Time Fall Time	RESISTIVE LOAD V _{CC} = 250 v I _C = 3.5 A I _{B1} = 0.7 A I _{B1} = -1.4 A		0.7 2.2 0.18	1.2 3.5 0.4	μs μs μs
t _{ON} t _s t _f	Turn-on Time Storage Time Fall Time	RESISTIVE LOAD V _{CC} = 250 v I _C = 3.5 A I _{B1} = 0.7 A I _{B1} = -1.4 A With Antisaturation Network		0.7 1.5 0.2		μs μs μs
t _{ON} t _s t _f	Turn-on Time Storage Time Fall Time	RESISTIVE LOAD V _{CC} = 250 V I _C = 3.5 A I _{B1} = 0.7 A V _{BE(off)} = - 5 V		0.7 1 0.2		μs μs μs
t _s t _f	Storage Time Fall Time	INDUCTIVE LOAD I _C = 3.5 A h _{FE} = 5 V _{CL} = 450 V V _{BE(off)} = -5 V L = 300 μH R _{BB} = 1.2 Ω		1.4 0.1	2.8 0.2	μs μs
t _s t _f	Storage Time Fall Time	INDUCTIVE LOAD I _C = 3.5 A h _{FE} = 5 V _{CL} = 450 V V _{BE(off)} = -5 V L = 300 μH R _{BB} = 1.2 Ω T _C = 100 °C			4 0.3	μs μs

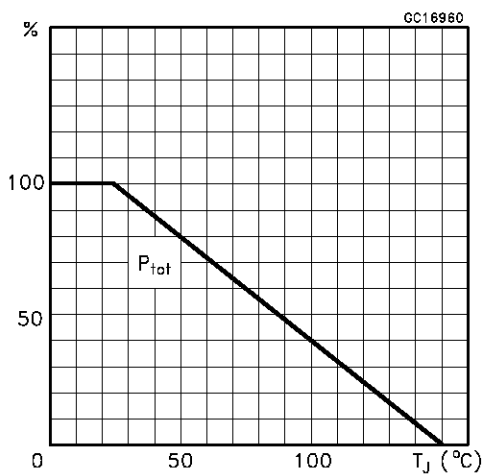
* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

Safe Operating Area

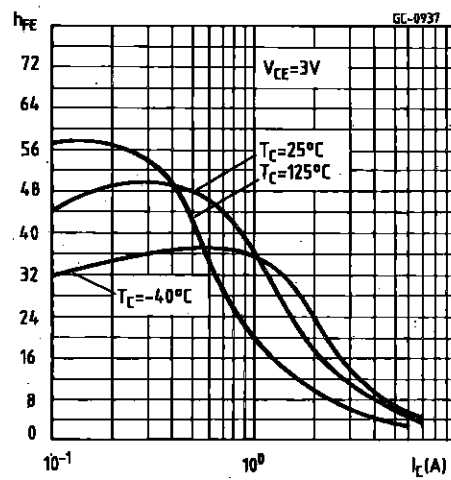


Thermal Impedance

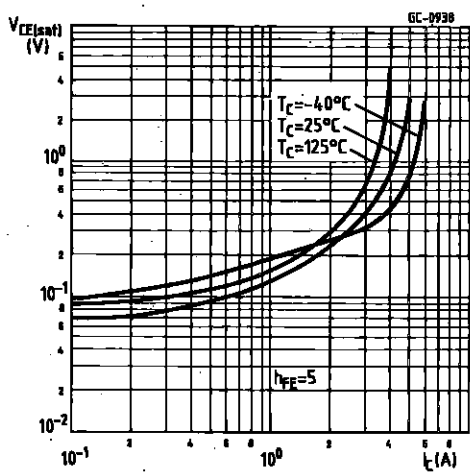
Derating Curve



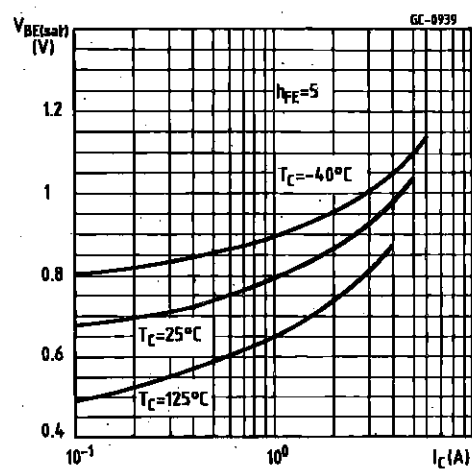
DC Current Gain



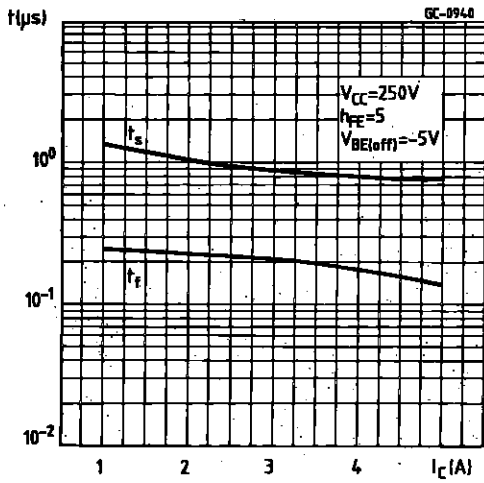
Collector Emitter Saturation Voltage



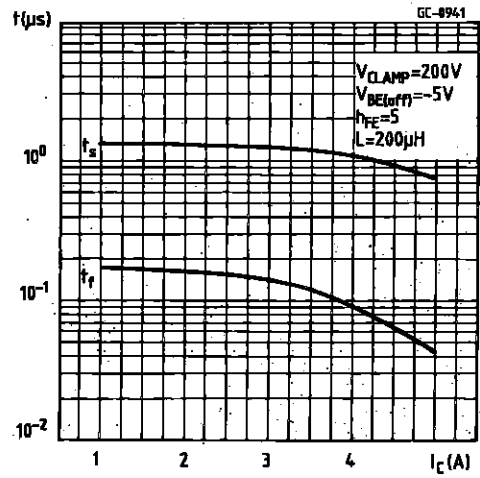
Base Emitter Saturation Voltage



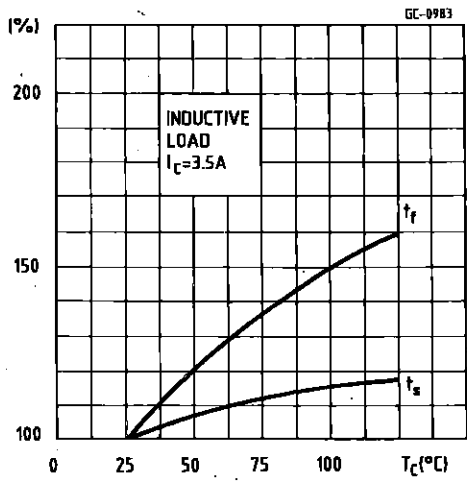
Resistive Load Switching Times



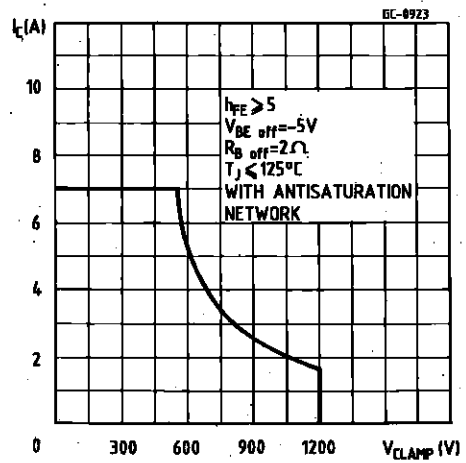
Inductive Load Switching Times



Switching Times Percentance Variation

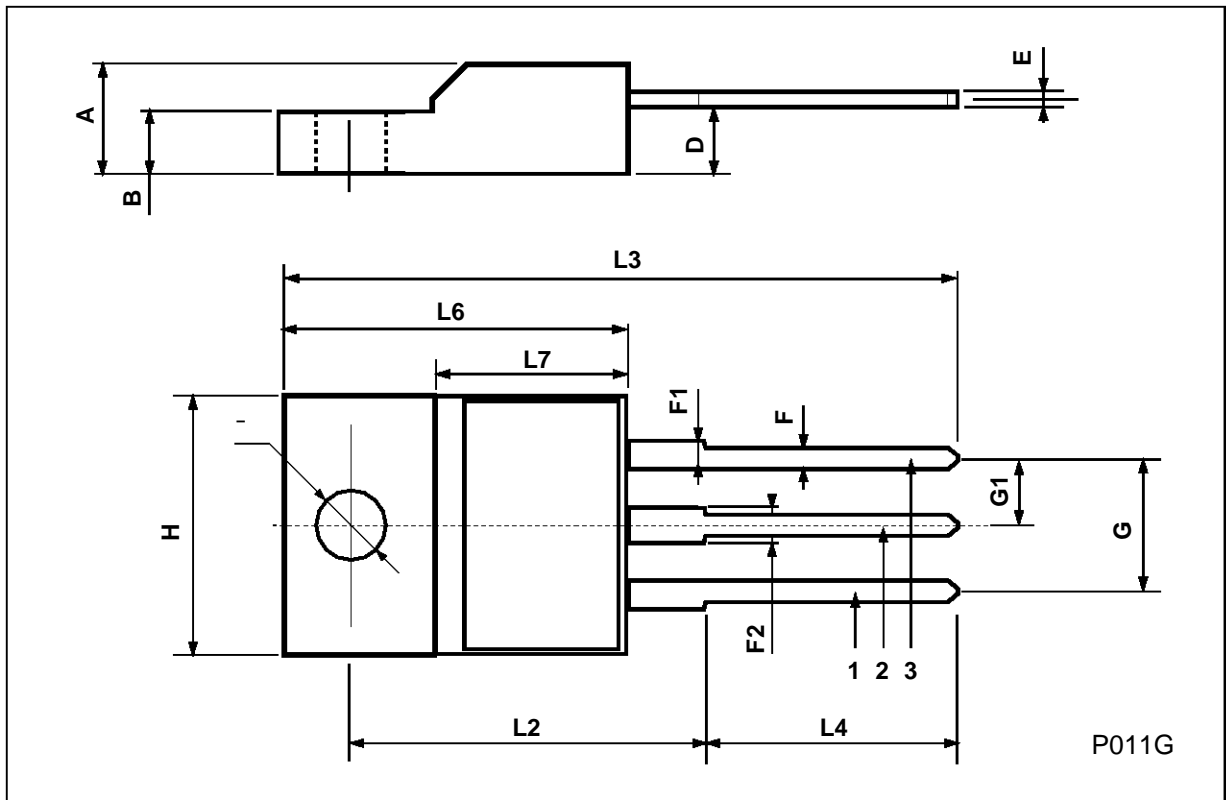


Reverse Biased SOA



ISOWATT220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.4		4.6	0.173		0.181
B	2.5		2.7	0.098		0.106
D	2.5		2.75	0.098		0.108
E	0.4		0.7	0.015		0.027
F	0.75		1	0.030		0.039
F1	1.15		1.7	0.045		0.067
F2	1.15		1.7	0.045		0.067
G	4.95		5.2	0.195		0.204
G1	2.4		2.7	0.094		0.106
H	10		10.4	0.393		0.409
L2		16			0.630	
L3	28.6		30.6	1.126		1.204
L4	9.8		10.6	0.385		0.417
L6	15.9		16.4	0.626		0.645
L7	9		9.3	0.354		0.366
Ø	3		3.2	0.118		0.126



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