ST8812FX

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

PRELIMINARY DATA

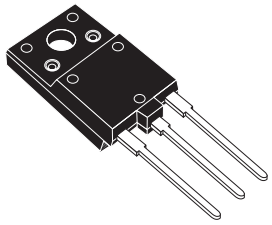
- HIGH VOLTAGE CAPABILITY
- VERY HIGH SWITCHING SPEED
- TIGHT hfe CONTROL
- LARGE R.B.S.O.A.
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING

APPLICATIONS:

- SWITCH MODE POWER SUPPLIES FOR CRT TV

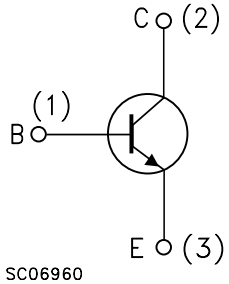
DESCRIPTION

The ST8812FX is manufactured using latest Multi Epitaxial Planar technology with high voltage capability. It shows wide R.B.S.O.A and high switching speed thanks to its Cellular Emitter structure with planar edge termination and deep base diffusion.



ISOWATT218FX

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	1150	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	600	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	15	V
I_C	Collector Current	7	A
I_{CM}	Collector Peak Current (t_p < 5 ms)	12	A
I_B	Base Current	4	A
P_{tot}	Total Dissipation at T_c = 25 °C	50	W
V_{ins}	Insulation Withstand Voltage (RMS) from All Three Leads to External Heatsink	2500	V
T_{stg}	Storage Temperature	–65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

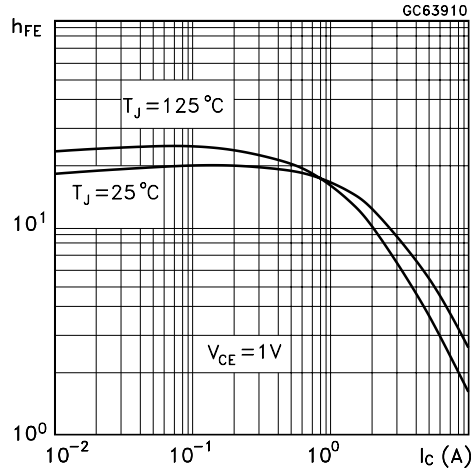
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	2.5	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

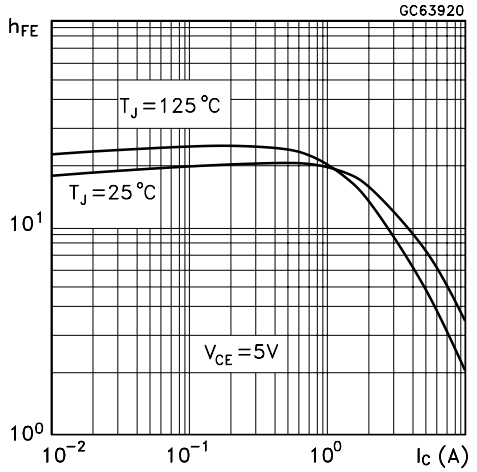
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = 1150 V V_{CE} = 1150 V	 T_c = 125 °C			1 2	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 14 V				1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 100 mA		600			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 4 A I_C = 4 A	I_B = 0.8 A I_B = 1.2 A			3 1.5	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 4 A	I_B = 0.8 A			1.3	V
h_{FE}*	DC Current Gain	I_C = 1 A I_C = 5 A I_C = 5 A	V_{CE} = 5 V V_{CE} = 1 V V_{CE} = 5 V	 4.5	25 5 	 9	
 t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	I_C = 4 A I_{B1} = 0.8 A V_{CLAMP} = 480 V (See Figure 1)	$V_{BE(off)}$ = -5 V R_{BB} = 0 L_C = 200 µH		 1 60	 1.6 120	 µs ns

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

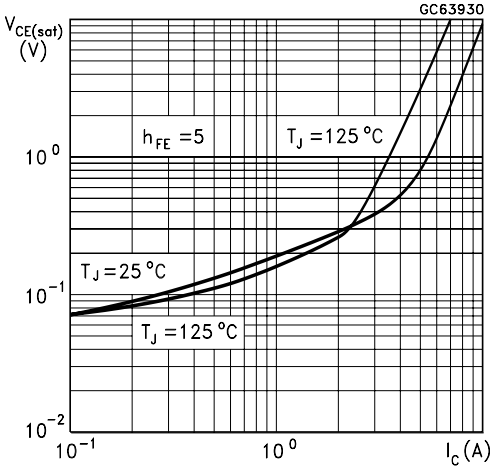
DC Current Gain



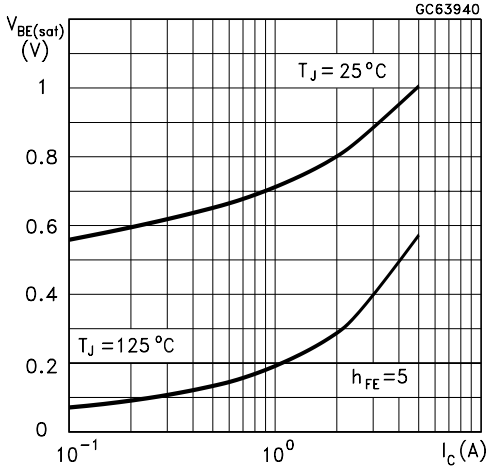
DC Current Gain



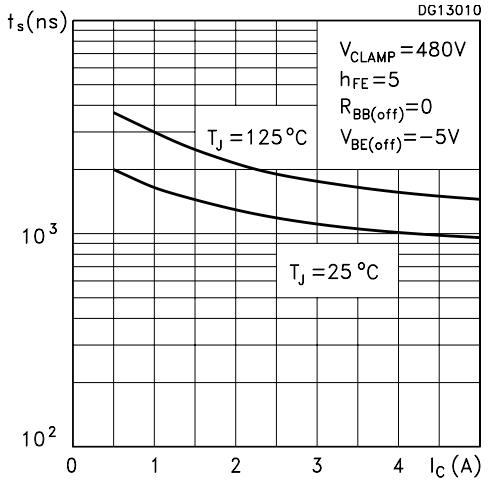
Collector Emitter Saturation Voltage



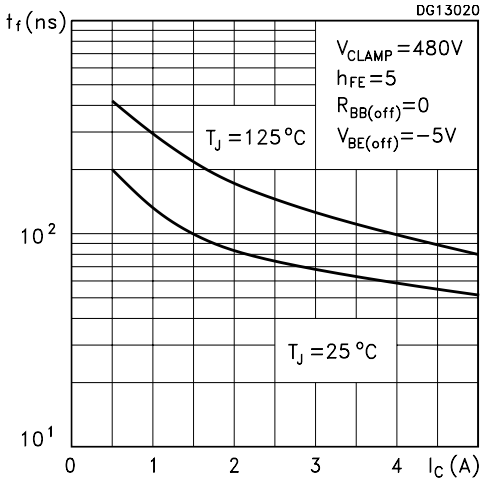
Base Emitter Saturation Voltage



Inductive Load Storage Time



Inductive Load Fall Time



Reverse Biased S.O.A.

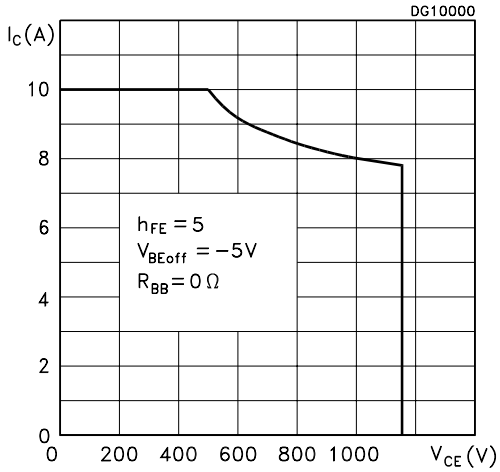
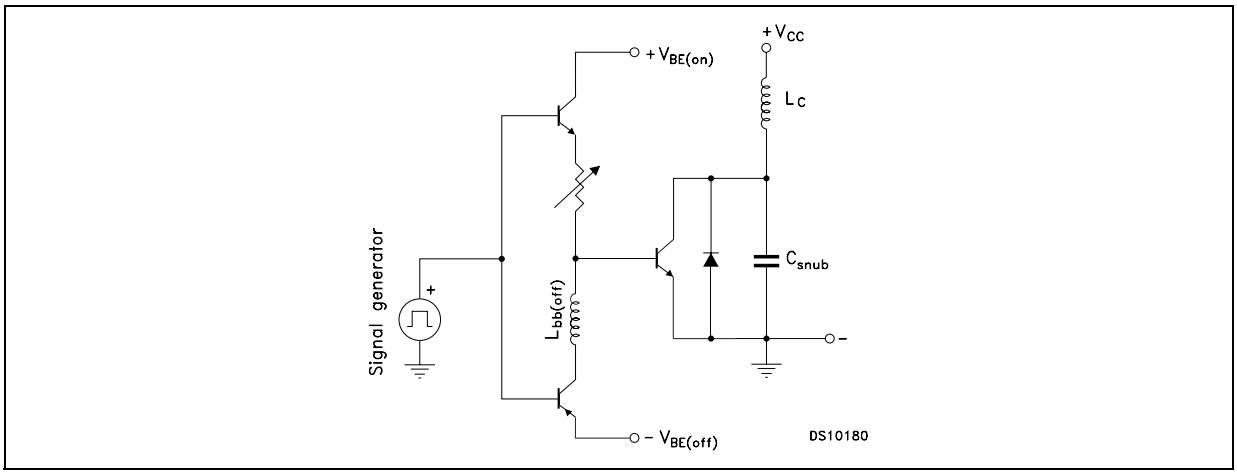
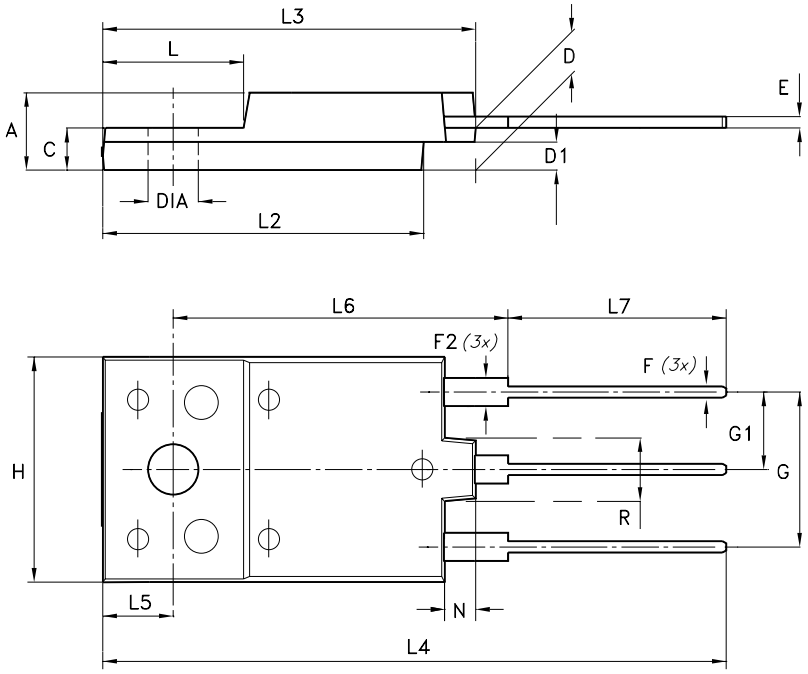


Figure 1: Inductive Load Switching Test Circuit



ISOWATT218FX MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	5.30		5.70	0.209		0.224
C	2.80		3.20	0.110		0.126
D	3.10		3.50	0.122		0.138
D1	1.80		2.20	0.071		0.087
E	0.80		1.10	0.031		0.043
F	0.65		0.95	0.026		0.037
F2	1.80		2.20	0.071		0.087
G	10.30		11.50	0.406		0.453
G1		5.45			0.215	
H	15.30		15.70	0.602		0.618
L	9.0		10.20	0.354		0.402
L2	22.80		23.20	0.898		0.913
L3	26.30		26.70	1.035		1.051
L4	43.20		44.40	1.701		1.748
L5	4.30		4.70	0.169		0.185
L6	24.30		24.70	0.957		0.972
L7	14.60		15.00	0.575		0.591
N	1.80		2.20	0.071		0.087
R	3.80		4.20	0.150		0.165
DIA	3.40		3.80	0.134		0.150



- Weight : 5.6 g (typ.)
- Maximum Torque (applied to mounting flange) Recommended: 0.55 Nm; Maximum: 1 Nm
- The side of the dissipator must be flat within 80 µm