

ST2310FX

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

NEW SERIES, ENHANCED PERFORMANCE

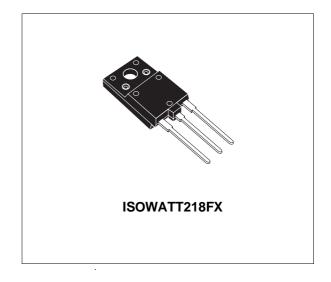
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING
- HIGH VOLTAGE CAPABILITY (> 1500 V)
- HIGH SWITCHING SPEED
- TIGTHER hfe CONTROL
- IMPROVED RUGGEDNESS

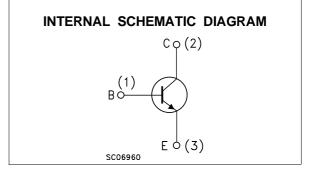
APPLICATIONS:

 HORIZONTAL DEFLECTION FOR MONITORS 17" AND HIGH END TVS

DESCRIPTION

The device is manufactured using Diffused Collector technology for more stable operation Vs base drive circuit variations resulting in very low worst case dissipation.





ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V _{CES}	Collector-Emitter Voltage (V _{BE} = 0)	1500	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	600	V
Vebo	Emitter-Base Voltage $(I_C = 0)$	7	V
Ι _C	Collector Current	12	A
Iсм	Collector Peak Current (t _p < 5 ms)	25	A
IB	Base Current	7	A
Ptot	Total Dissipation at $T_C = 25 \ ^{\circ}C$	65	W
V _{isol}	Insulation Withstand Voltage (RMS) from All Three Leads to External Heatsink	2500	V
T _{stg}	Storage Temperature	-65 to 150	°C
Tj	Max. Operating Junction Temperature	150	°C

October 2003

THERMAL DATA

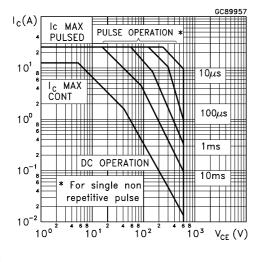
R _{thj-case} Thermal Resistance Junction-case	Max	1.9	°C/W
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25 \, {}^{\circ}C$ unless otherwise specified)

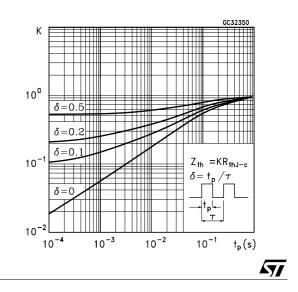
Symbol	Parameter	Test C	onditions	Min.	Тур.	Max.	Unit
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	V _{CE} = 1500 V V _{CE} = 1500 V	T _J = 125 ^o C			1 2	mA mA
I _{EBO}	Emitter Cut-off Current $(I_C = 0)$	V _{EB} = 7 V				1	mA
$V_{CEO(sus)}*$	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 100 mA	L = 25 mH	600			V
V _{CE(sat)} *	Collector-Emitter Saturation Voltage	I _C = 7 A	I _B = 1.75 A			3	V
V _{BE(sat)} *	Base-Emitter Saturation Voltage	I _C = 7 A	I _B = 1.75 A			1.1	V
h _{FE} *	DC Current Gain	I _C = 1 A I _C = 7 A I _C = 7 A	V _{CE} = 5 V V _{CE} = 1 V V _{CE} = 5 V	6.5	25 5.5	9.5	
t _s t _f	INDUCTIVE LOAD Storage Time Fall Time	$\begin{split} I_{C} &= 6 \text{ A} \\ I_{B(on)} &= 1 \text{ A} \\ L_{BB(off)} &= 1.3 \mu\text{H} \end{split}$	$f_h = 64 \text{ KHz}$ $V_{BE(off)} = -2.5 \text{ V}$ (see figure 1)		2.3 0.16	3 0.35	μs μs

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

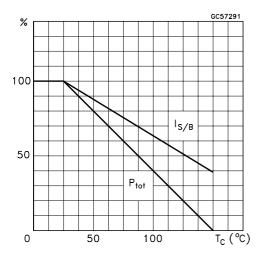
Safe Operating Area



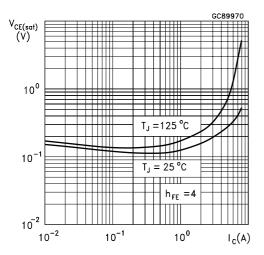
Thermal Impedance



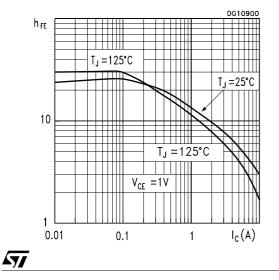
Derating Curve



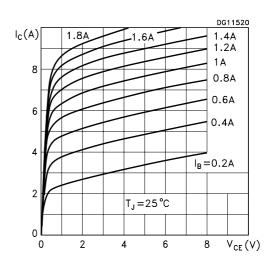
Collector Emitter Saturation Voltage



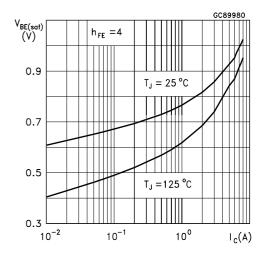
DC Current Gain

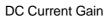


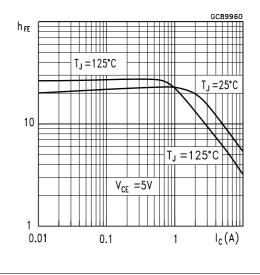
Output Characteristics



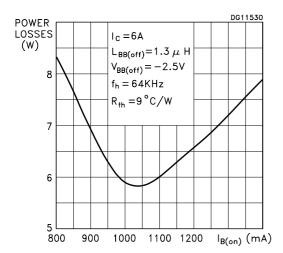
Base Emitter Saturation Voltage







Power Losses



Reverse Biased SOA

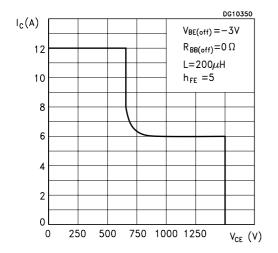
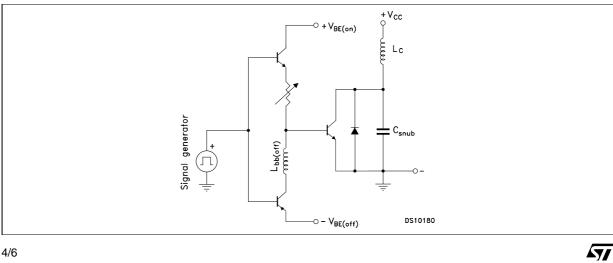
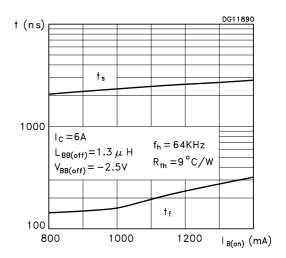


Figure 1: Inductive Load Switching Test Circuit.



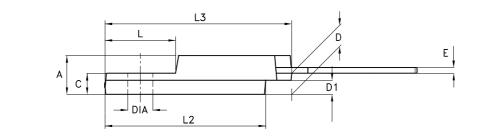
Switching Time Inductive Load

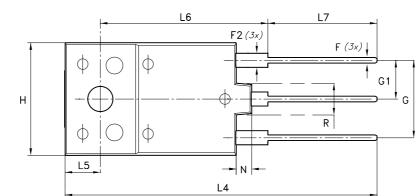


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DIM.	mm		inch			
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
А	5.30		5.70	0.209		0.224
С	2.80		3.20	0.110		0.126
D	3.10		3.50	0.122		0.138
D1	1.80		2.20	0.071		0.087
E	0.80		1.10	0.031		0.043
F	0.65		0.95	0.026		0.037
F2	1.80		2.20	0.071		0.087
G	10.30		11.50	0.406		0.453
G1		5.45			0.215	
Н	15.30		15.70	0.602		0.618
L	9.80		10.20	0.386		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
Ν	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

ISOWATT218FX MECHANICAL DATA





- 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 μ m

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