



# ST2317DFX

## HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

PRELIMINARY DATA

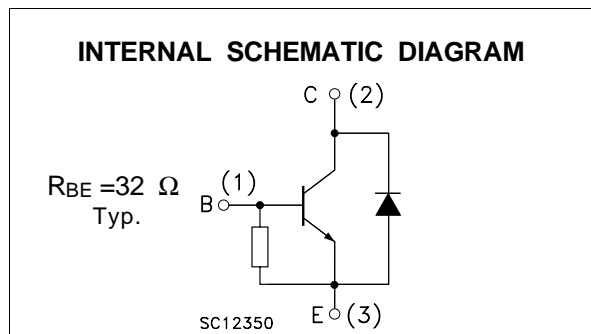
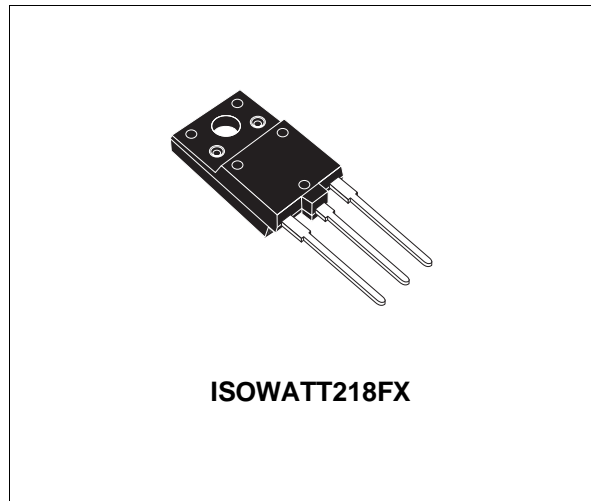
- NEW SERIES, ENHANCED PERFORMANCE
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING
- VERY HIGH VOLTAGE CAPABILITY (> 1700 V)
- INTEGRATED FREE WHEELING DIODE
- HIGH SWITCHING SPEED
- TIGHTER  $h_{FE}$  CONTROL
- IMPROVED RUGGEDNESS

### APPLICATIONS:

- HORIZONTAL DEFLECTION FOR LARGE / FLAT SCREEN COLOUR TV

### 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-Base Voltage ( $V_{BE} = 0$ )	1700	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	10	A
$I_{CM}$	Collector Peak Current ( $t_p < 5$ ms)	20	A
$I_B$	Base Current	7	A
$P_{tot}$	Total Dissipation at $T_C = 25$ °C	70	W
$V_{isol}$	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

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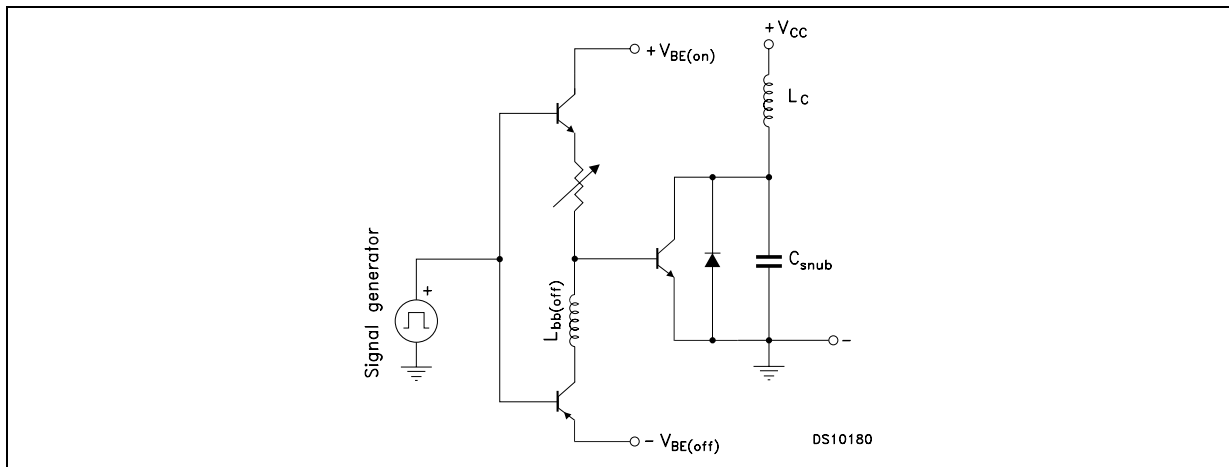
### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	1.8	°C/W
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### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

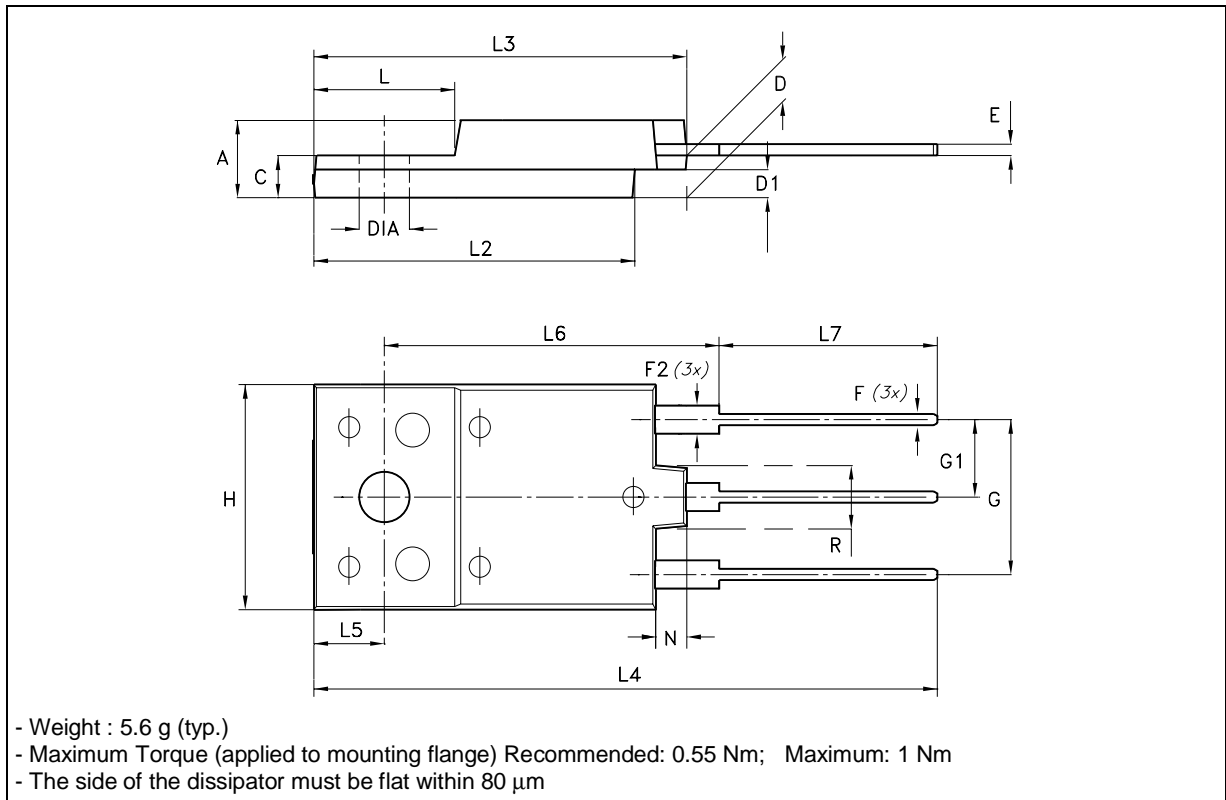
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CES</sub>	Collector Cut-off Current (V <sub>BE</sub> = 0)	V <sub>CE</sub> = 1700 V V <sub>CE</sub> = 1700 V T <sub>j</sub> = 125°C			0.5 1	mA mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 4 V	85		205	mA
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 800 mA	7			V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 6 A I <sub>B</sub> = 1.2 A			5	V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 6 A I <sub>B</sub> = 1.2 A		0.9	1.2	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 1 A V <sub>CE</sub> = 5 V I <sub>C</sub> = 6 A V <sub>CE</sub> = 1.5 V I <sub>C</sub> = 6 A V <sub>CE</sub> = 5 V		20 6		
C <sub>COB</sub>	Collector-Output Capacitance	I <sub>E</sub> = 0 V <sub>CB</sub> = 10 V f = 1 MHz		180		pF
t <sub>s</sub> t <sub>f</sub>	INDUCTIVE LOAD Storage Time Fall Time	I <sub>C</sub> = 6 A f = 16 KHz V <sub>CC</sub> = 135 V L = 480 μH V <sub>(flyback)</sub> = 1050 V C <sub>sn</sub> = 25 nF L <sub>BB(off)</sub> = 2.3 μH V <sub>BB(off)</sub> = -2.7 V δ = 60%	2.5 0.3	3	4.5 0.7	μs μs
f <sub>T</sub>	Transition Frequency	V <sub>CE</sub> = 10 V I <sub>C</sub> = 0.1 A f = 1 MHz		2		MHz
V <sub>f</sub>	Diode Forward Voltage	I <sub>F</sub> = 8 A		1.6	2.0	V

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

**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	9.80		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
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

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