



# THE DATASHEET OF ST2111FX





# ST2111FX

## HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

### Features

- NEW SERIES, ENHANCED PERFORMANCE
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING
- HIGH VOLTAGE CAPABILITY (1500V)
- HIGH SWITCHING SPEED
- TIGHTER  $h_{fe}$  CONTROL
- IMPROVED RUGGEDNESS

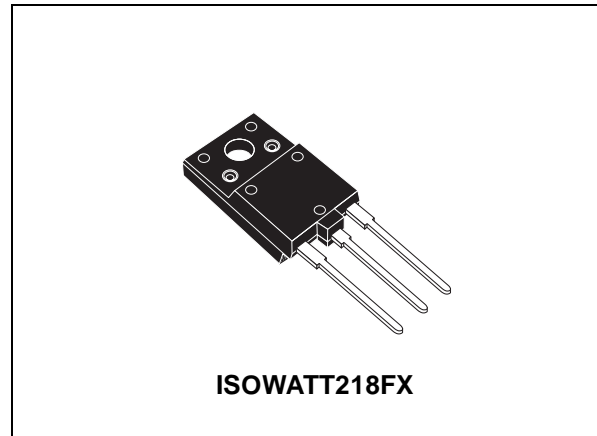
### Applications

- HORIZONTAL DEFLECTION AND SWITCH MODE POWER SUPPLY FOR TVs.

### Description

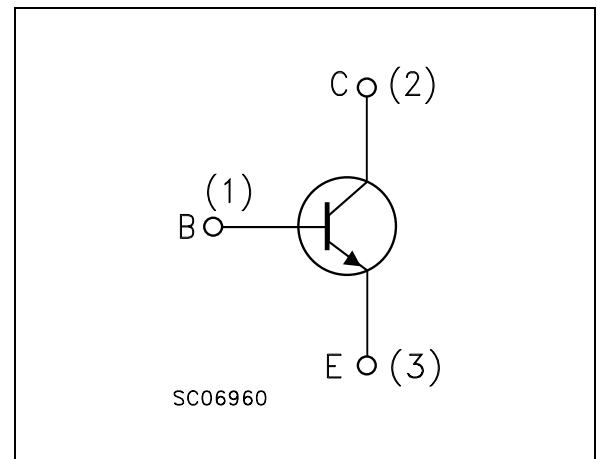
The device is manufactured using Diffused Collector Technology for more stable operation vs base drive circuit variations resulting in very low worst case dissipation.

### Order codes



ISOWATT218FX

### Internal Schematic Diagram



Part Number	Marking	Package	Packing
ST2111FX	2111FX	ISOWATT218FX	TUBE

# 1 Electrical Ratings

**Table 1. Absolute Maximum Rating**

Symbol	Parameter	Value	Unit
$V_{CES}$	Collector-Base Voltage ( $v_{BE} = 0$ )	1500	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	700	V
$V_{EBO}$	Collector-Base Voltage ( $I_C = 0$ )	7	V
$I_C$	Collector Current	12	A
$I_{CM}$	Collector Peak Current ( $t_P < 5\text{ms}$ )	25	A
$I_B$	Base Current	7	A
$P_{TOT}$	Total dissipation at $T_C = 25^\circ\text{C}$	65	W
$V_{isol}$	Insulation Withstand Voltage (RMS) from All Three Leads to External Heatsink	2500	V
$T_{STG}$	Storage Temperature	-65 to 150	$^\circ\text{C}$
$T_J$	Max. Operating Junction Temperature	150	$^\circ\text{C}$

**Table 2. Thermal Data**

Symbol	Parameter	Value	Unit
$R_{thJ-case}$	Thermal Resistance Junction-Case Max	1.9	$^\circ\text{C}/\text{W}$

## 2 Electrical Characteristics

**Table 3. Electrical Characteristics** ( $T_{CASE} = 25^{\circ}C$ ; unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CES}$	Collector Cut-off Current ( $V_{BE} = 0$ )	$V_{CE} = 1500V$			1	mA
		$V_{CE} = 1500V, T_j = 125^{\circ}C$			2	mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 7V$			1	mA
$V_{CE(sus)}$ <i>Note: 1</i>	Collector-Emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 100mA$	700			V
$V_{CE(sat)}$ <i>Note: 1</i>	Collector-Emitter Saturation Voltage	$I_C = 8 A$ $I_B = 2 A$			3	V
$V_{BE(sat)}$ <i>Note: 1</i>	Base-Emitter Saturation Voltage	$I_C = 8 A$ $I_B = 2 A$			1.5	V
$h_{FE}$ <i>Note: 1</i>	DC Current Gain	$I_C = 1 A$ $V_{CE} = 5 V$		25		
		$I_C = 8 A$ $V_{CE} = 5 V$	4.5		9	
$t_s$ $t_f$	INDUCTIVE LOAD	$I_C = 6 A$ $f_h = 64KHz$				
	Storage Time	$I_{B(on)} = 1 A$ $V_{BE(off)} = -2.5 V$		2.3	3	$\mu s$
	Fall Time	$L_{BB(off)} = 1.3\mu H$		0.16	0.35	$\mu s$

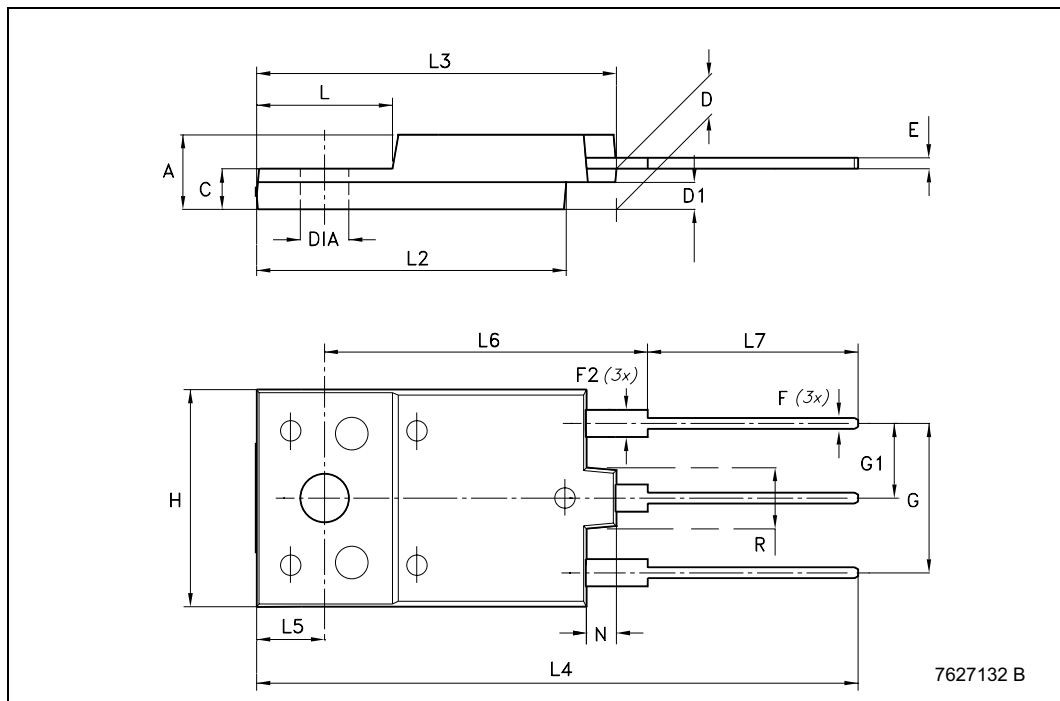
*Note: 1 Pulsed duration = 300  $\mu s$ , duty cycle  $\leq 1.5\%$ .*

### 3 Package Mechanical Data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: [www.st.com](http://www.st.com)

**ISOWATT218FX MECHANICAL DATA**

DIM.	mm.		
	MIN.	TYP	MAX.
A	5.30		5.70
C	2.80		3.20
D	3.10		3.50
D1	1.80		2.20
E	0.80		1.10
F	0.65		0.95
F2	1.80		2.20
G	10.30		11.50
G1		5.45	
H	15.30		15.70
L	9		10.20
L2	22.80		23.20
L3	26.30		26.70
L4	43.20		44.40
L5	4.30		4.70
L6	24.30		24.70
L7	14.60		15
N	1.80		2.20
R	3.80		4.20
Dia	3.40		3.80



## 4 Revision History

Date	Revision	Changes
18-Oct-2005	1	First Issue

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