



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

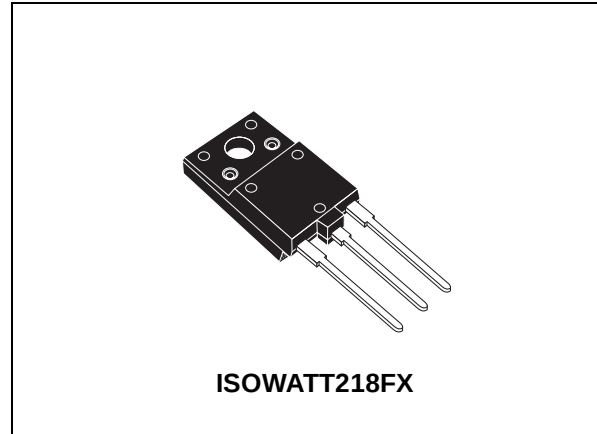
Applications

- HORIZONTAL DEFLECTION AND SWITCH MODE POWER SUPPLY FOR TVs.

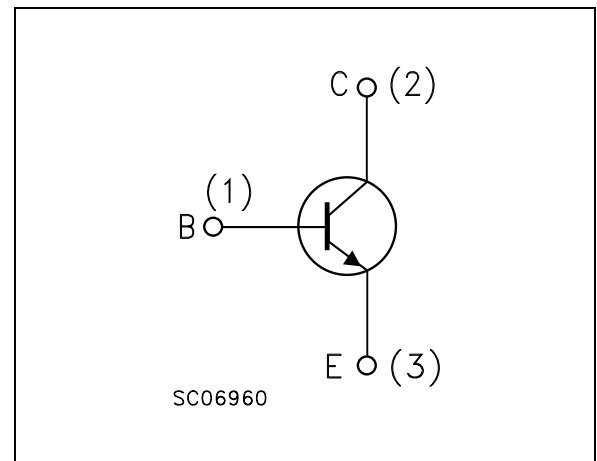
Description

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



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	$^\circ\text{C/W}$

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 ($V_{BE} = 0$)	$V_{CE} = 1500V$ $V_{CE} = 1500V, T_j = 125^{\circ}C$			1 2	mA 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	$I_C = 1 A$ $V_{CE} = 5 V$ $I_C = 8 A$ $V_{CE} = 5 V$	4.5	25	9	
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$I_C = 6 A$ $f_h = 64KHz$ $I_{B(on)} = 1 A$ $V_{BE(off)} = -2.5 V$ $L_{BB(off)} = 1.3\mu H$		2.3 0.16	3 0.35	μs μs

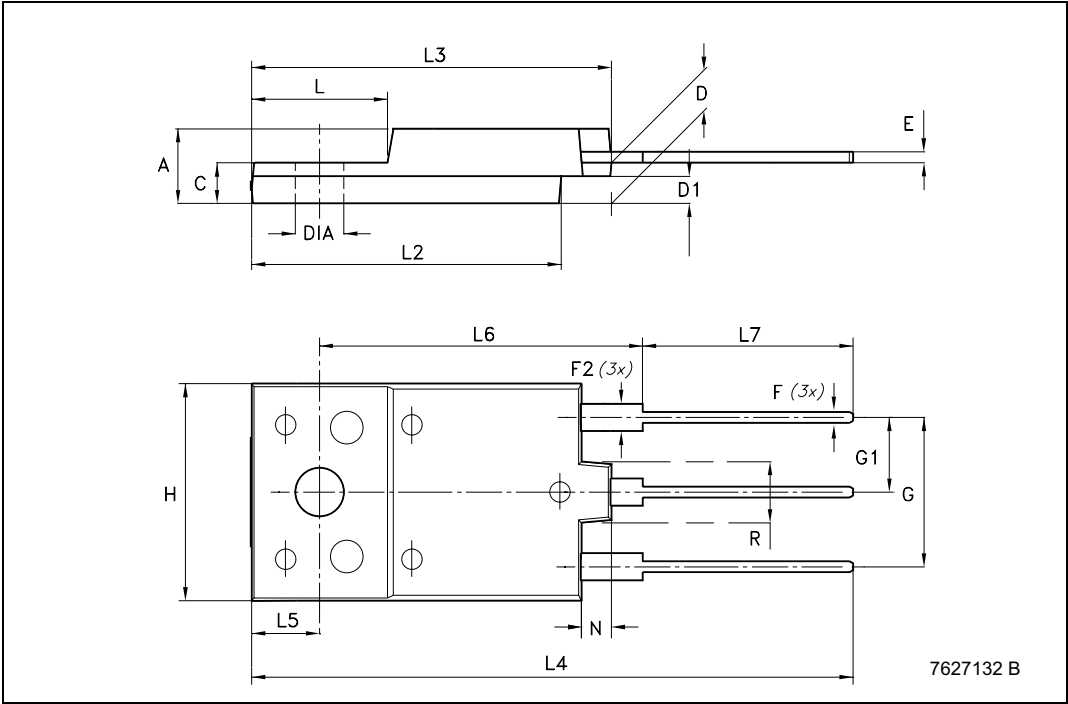
Note: 1 Pulsed duration = 300 μs , duty cycle $\leq 1.5\%$.

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

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

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics.
All other names are the property of their respective owners

© 2005 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan -
Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com

