

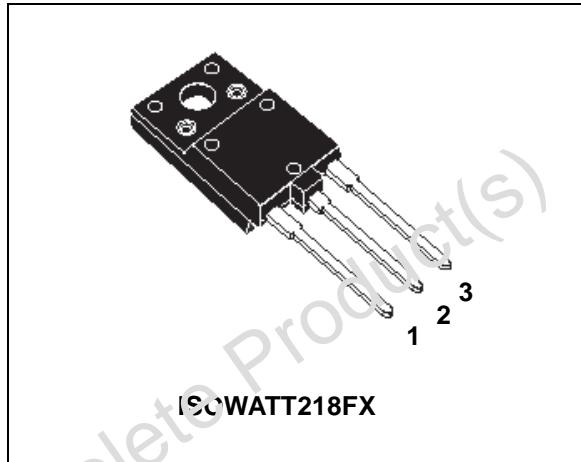
High Voltage NPN Power Transistor
for High Definition and New Super-Slim CRT Display

Features

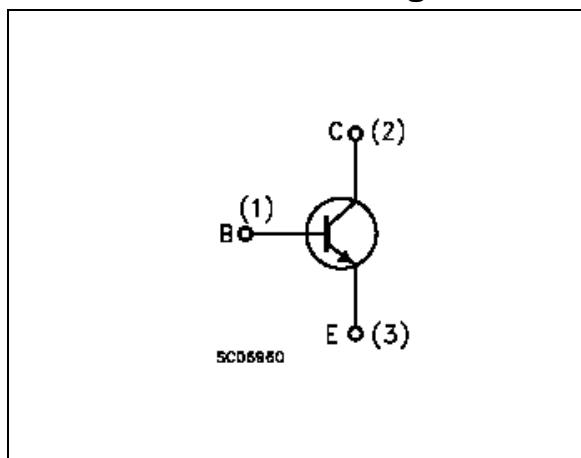
- STATE-OF-THE-ART TECHNOLOGY: DIFFUSED COLLECTOR "ENHANCED GENERATION" EHVS1
- WIDER RANGE OF OPTIMUM DRIVE CONDITIONS
- LESS SENSITIVE TO OPERATING TEMPERATURE VARIATION
- FULLY INSULATED POWER PACKAGE WHICH IS U.L COMPLIANT

Applications

- HORIZONTAL DEFLECTION OUTPUT FOR DIGITAL TV, HDTV, AND HIGH-END MONITORS



Internal Schematic Diagram



Order Codes

Part Number	Marking	Package	Packing
HD1530FX	HD1530FX	ISOWATT218FX	TUBE

1 Absolute Maximum Ratings

Table 1. Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	1500	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	700	V
V_{EBO}	Emitte-Base Voltage ($I_C = 0$)	10	V
I_C	Collector Current	26	A
I_{CM}	Collector Peak Current ($t_P < 5\text{ms}$)	40	A
I_B	Base Current	10	A
I_{BM}	Base Peak Current ($t_P < 5\text{ms}$)	20	A
P_{TOT}	Total dissipation at $T_c = 25^\circ\text{C}$	70	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

1.1 Thermal Data

Table 2. Thermal Data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal Resistance Junction Case	Max	1.8

2 Electrical Characteristics

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 1500\text{V}$ $V_{CE} = 1500\text{V}$ $T_C = 125^\circ\text{C}$			0.2 2	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{V}$			10	μA
$V_{CEO(sus)}$ <i>Note: 1</i>	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 10\text{mA}$	700			V
V_{EBO}	Emitter-Base Voltage	$I_E = 10\text{mA}$	10			V
$V_{CE(sat)}$ <i>Note: 1</i>	Collector-Emitter saturation Voltage	$I_C = 13\text{A}$ $I_B = 3.25\text{A}$			2	V
$V_{BE(sat)}$ <i>Note: 1</i>	Base-Emitter saturation Voltage	$I_C = 13\text{A}$ $I_B = 3.25\text{A}$		1	1.5	V
h_{FE}	DC Current Gain	$I_C = 1\text{A}$ $V_{CE} = 5\text{V}$ $I_C = 13\text{A}$ $V_{CE} = 5\text{V}$	5.5	30	9	
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$I_C = 12\text{A}$ $f_h = 32\text{KHz}$ $I_{B(on)} = 1.4\text{A}$ $I_{B(off)} = -6\text{A}$		3.2 230		μs ns
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$I_C = 12\text{A}$ $f_h = 48\text{KHz}$ $I_{B(on)} = 2\text{A}$ $I_{B(off)} = -6.7\text{A}$		2.8 200		μs ns
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$I_C = 6.5\text{A}$ $f_h = 100\text{KHz}$ $I_{B(on)} = 0.8\text{A}$ $I_{B(off)} = -4.5\text{A}$		1.4 100		μs ns

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

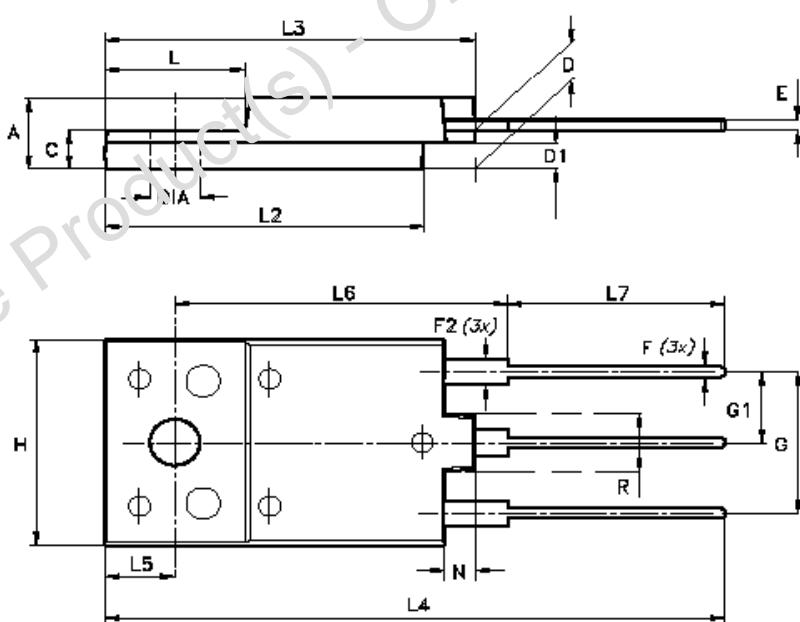
3 Package Mechanical Data

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

Table 4. 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		0.492
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

Figure 1. ISOwatt218FX Drawing



- 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

4 Revision History

Date	Revision	Changes
05-July-2005	1	Initial release.
25-July-2005	2	New Template, no content change
19-Aug-2005	3	New ECOPACK® label

Obsolete Product(s) - Obsolete Product(s)

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