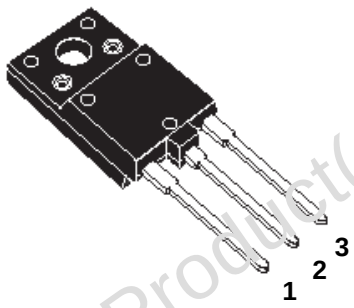
HD1530FX

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

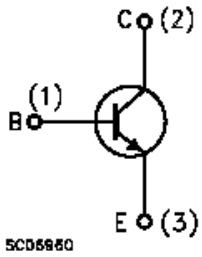


ISOWATT218FX

Applications

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

Internal Schematic Diagram



Description

The device uses a Diffused Collector in Planar technology which adopts ”Enhanced High Voltage Structure” (EHVS1) that was developed to fit High-Definition CRT displays.

The new HD product series features improved silicon efficiency, bringing updated performance to Horizontal Deflection output stages.

Order Codes

Part Number	Marking	Package	Packing
HD1530FX	HD1530FX	ISOWATT218FX	TUBE

1 Absolute Maximum Ratings

Table 1. Absolute Maximum Ratingsn

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 < 5ms)	40	A
I_B	Base Current	10	A
I_{BM}	Base Peak Current (t_P < 5ms)	20	A
P_{TOT}	Total dissipation at T_c = 25°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	°C/W

2 Electrical Characteristics

Table 3. Electrical Characteristics (T_{CASE} = 25°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_C = 125°C			0.2 2	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5V			10	µA
$V_{CEO(SUS)}$ *Note: 1*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 10mA	700			V
V_{EBO}	Emitter-Base Voltage	I_E = 10mA	10			V
$V_{CE(sat)}$ *Note: 1*	Collector-Emitter saturation Voltage	I_C = 13A I_B = 3.25A			2	V
$V_{BE(sat)}$ *Note: 1*	Base-Emitter saturation Voltage	I_C = 13A I_B = 3.25A		1	1.5	V
h_{FE}	DC Current Gain	I_C = 1A V_{CE} = 5V I_C = 13A V_{CE} = 5V	5.5	30	9	
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	I_C = 12A f_h = 32KHz $I_{B(on)}$ = 1.2A $I_{B(off)}$ = -6A		3.2 230		µs ns
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	I_C = 12A f_h = 48KHz $I_{B(on)}$ = 2A $I_{B(off)}$ = -6.7A		2.8 200		µs ns
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	I_C = 6.5A f_h = 100KHz $I_{B(on)}$ = 0.8A $I_{B(off)}$ = -4.5A		1.4 100		µs ns

Note: 1 Pulsed duration = 300 µs, duty cycle ≤1.5%.

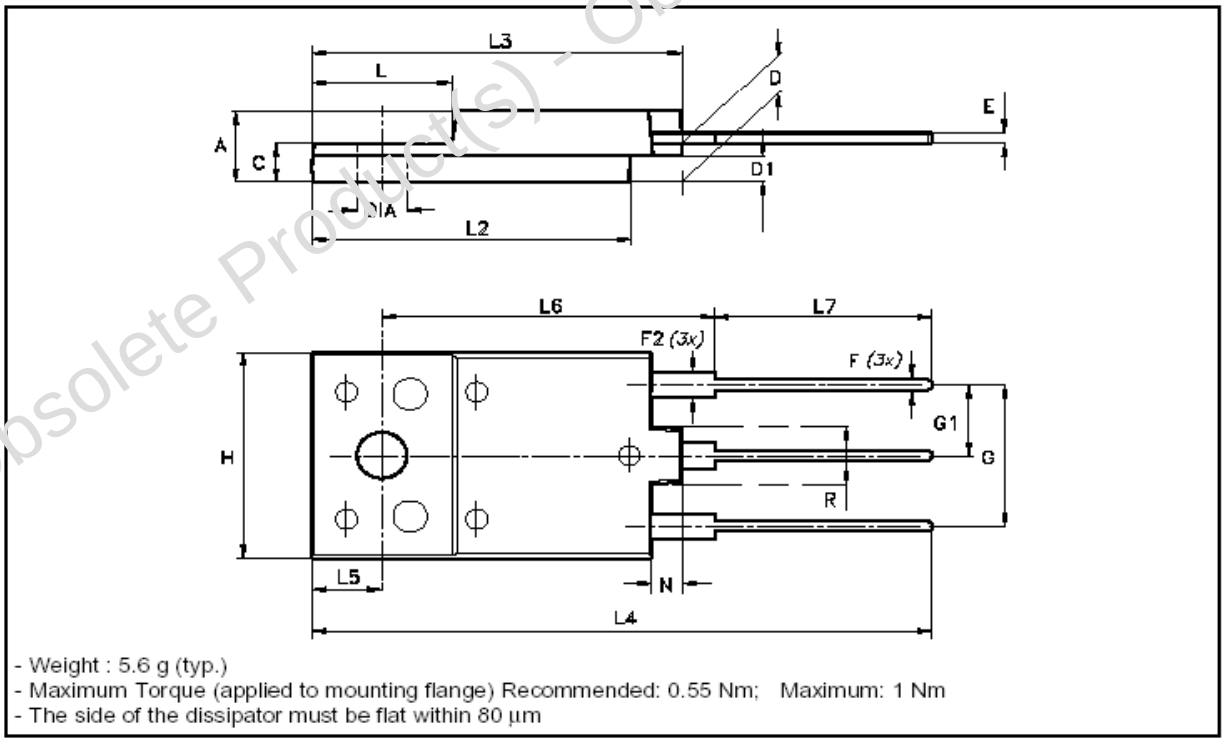
3 Package Mechanical Data

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		0.402
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

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 µm

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