

ST2001HI

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

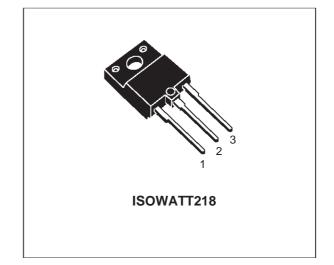
- NEW SERIES, ENHANCHED PERFORMANCE
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING
- HIGH VOLTAGE CAPABILITY
- HIGH SWITCHING SPEED
- TIGTHER hfe CONTROL
- IMPROVED RUGGEDNESS

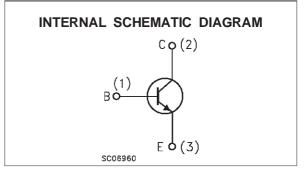
APPLICATIONS:

 HORIZONTAL DEFLECTION FOR COLOR TVS OVER 21 INCHES AND 15 INCHES MONITORS

DESCRIPTION

The ST2001HI 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 _{СВО}	Collector-Base Voltage (I _E = 0)	1500	V
V _{CEO}	Collector-Emitter Voltage $(I_B = 0)$	600	V
V _{EBO}	Emitter-Base Voltage (I _C = 0)	7	V
Ic	Collector Current	10	A
Ісм	Collector Peak Current (t _p < 5 ms)	20	A
Ι _Β	Base Current	7	A
Ptot	Total Dissipation at T _c = 25 °C	55	W
Visol	Insulation Withstand Voltage (RMS) from All Three Leads to Exernal Heatsink	2500	V
T _{stg}	Storage Temperature	-65 to 150	°C
Tj	Max. Operating Junction Temperature	150	°C

THERMAL DATA

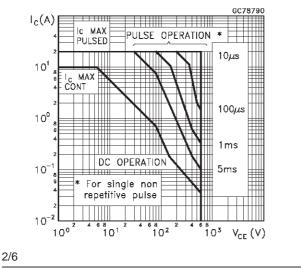
R _{thj-case}	Thermal Resistance Junction-case	Max	2.3	°C/W	
-----------------------	----------------------------------	-----	-----	------	--

ELECTRICAL CHARACTERISTICS ($T_{case} = 25 \,^{\circ}C$ unless otherwise specified)

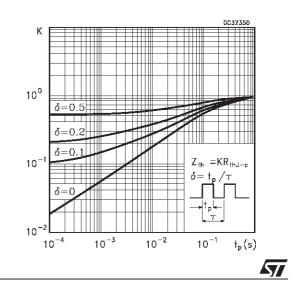
Symbol	Parameter	Test	Conditions	Min.	Тур.	Max.	Unit
I _{CES}	Collector Cut-off Current ($V_{BE} = 0$)	V _{CE} = 1500 V V _{CE} = 1500 V	T _C = 125 °C			1 2	mA mA
I _{EBO}	Emitter Cut-off Current $(I_C = 0)$	$V_{EB} = 7 V$				1	mA
$V_{CEO(sus)^*}$	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 100 mA	L = 25 mH	600			V
V _{CE(sat)} *	Collector-Emitter Saturation Voltage	I _C = 5 A	I _B = 1.25 A			1.5	V
$V_{BE(sat)^*}$	Base-Emitter Saturation Voltage	I _C = 5 A	I _B = 1.25 A			1.2	V
h _{FE} *	DC Current Gain	$I_{C} = 5 A$ $I_{C} = 6 A$	$V_{CE} = 1 V$ $V_{CE} = 5 V$	5	4.5	10	
t _s t _f	INDUCTIVE LOAD Storage Time Fall Time	$I_{C} = 5 A$ $L_{BB(off)} = 2 \mu H$ $f_{h} = 64 \text{ KHz}$	$I_{Bon(END)} = 850 \text{ mA}$ $V_{BB(off)} = -2.5 \text{ V}$		2.6 0.2	3 0.4	μs μs

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

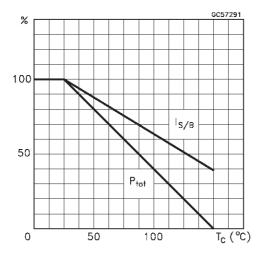
Safe Operating Area



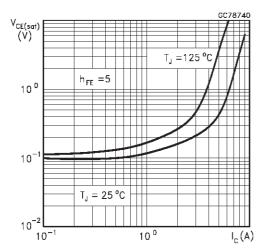
Thermal Impedance



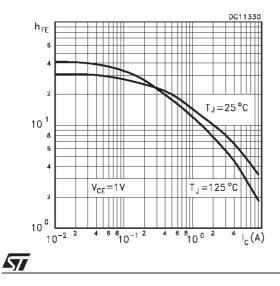
Derating Curve



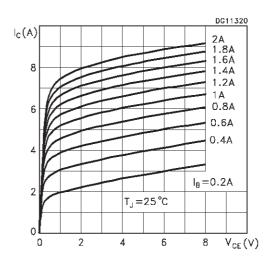
Collector Emitter Saturation Voltage



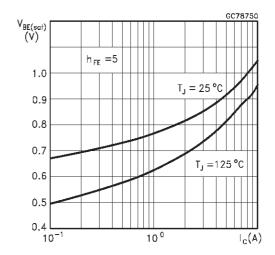
DC Current Gain

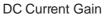


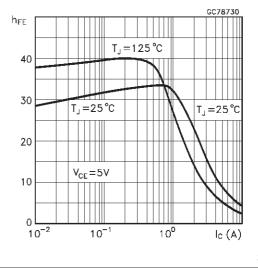
Output Characteristics



Base Emitter Saturation Voltage

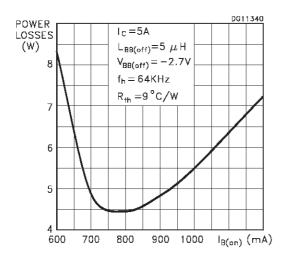






ST2001HI

Power Losses



RBSOA

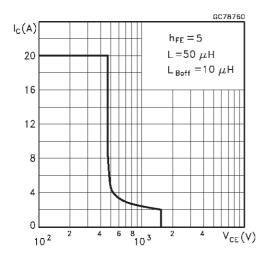
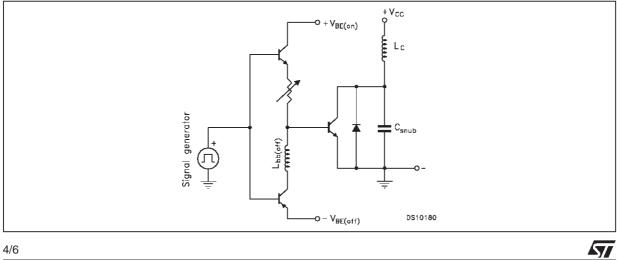
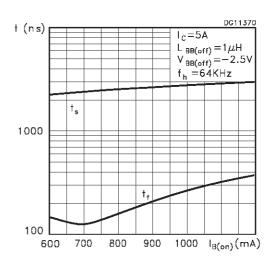


Figure 1: Inductive Load Switching Test Circuits.

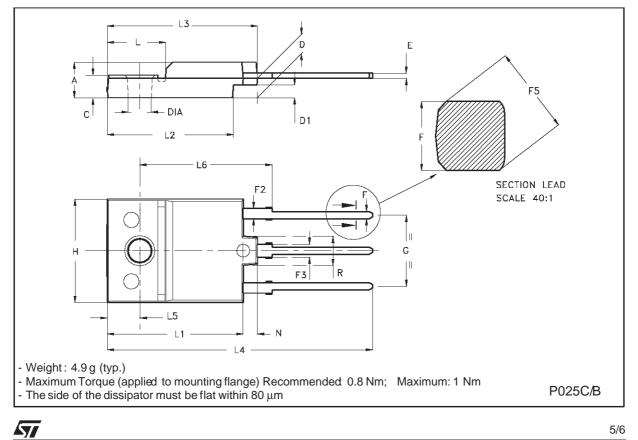


Switching Time Inductive Load



DIM.	mm		inch			
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
А	5.35		5.65	0.211		0.222
С	3.30		3.80	0.130		0.150
D	2.90		3.10	0.114		0.122
D1	1.88		2.08	0.074		0.082
E	0.75		0.95	0.030		0.037
F	0.75		0.95	0.030		0.037
F2	1.50		1.70	0.059		0.067
F3	1.90		2.10	0.075		0.083
F5			1.10			0.043
G	10.80		11.20	0.425		0.441
Н	15.80		16.20	0.622		0.638
L		9			0.354	
L1	20.80		21.20	0.819		0.835
L2	19.10		19.90	0.752		0.783
L3	22.80		23.60	0.898		0.929
L4	40.50		42.50	1.594		1.673
L5	4.85		5.25	0.191		0.207
L6	20.25		20.75	0.797		0.817
Ν	2.1		2.3	0.083		0.091
R		4.6			0.181	
DIA	3.5		3.7	0.138		0.146

ISOWATT218 NARROW LEADS MECHANICAL DATA



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. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics 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 trademark of STMicroelectronics

 $\ensuremath{\textcircled{\sc 0}}$ 2002 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

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

http://www.st.com

57

6/6