



# ST2001HI

## HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

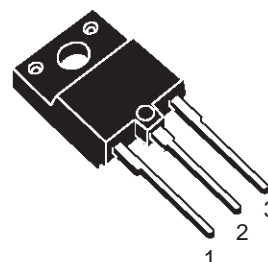
- NEW SERIES, ENHANCED PERFORMANCE
- FULLY INSULATED PACKAGE FOR EASY MOUNTING
- HIGH VOLTAGE CAPABILITY
- HIGH SWITCHING SPEED
- TIGHTER  $h_{fe}$  CONTROL
- IMPROVED RUGGEDNESS

### APPLICATIONS:

- HORIZONTAL DEFLECTION FOR COLOR TV AND MONITOR

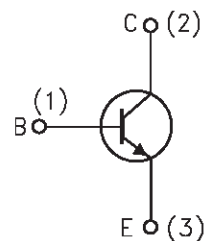
### DESCRIPTION

The ST2001HI is manufactured using Diffused Collector technology for more stable operation Vs base drive circuit variations resulting in very low worst case dissipation.



ISOWATT218

### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	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
$I_C$	Collector Current	10	A
$I_{CM}$	Collector Peak Current ( $t_p < 5$ ms)	20	A
$I_B$	Base Current	7	A
$P_{tot}$	Total Dissipation at $T_C = 25^\circ\text{C}$	55	W
$T_{stg}$	Storage Temperature	-65 to 150	$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	150	$^\circ\text{C}$

THERMAL DATA

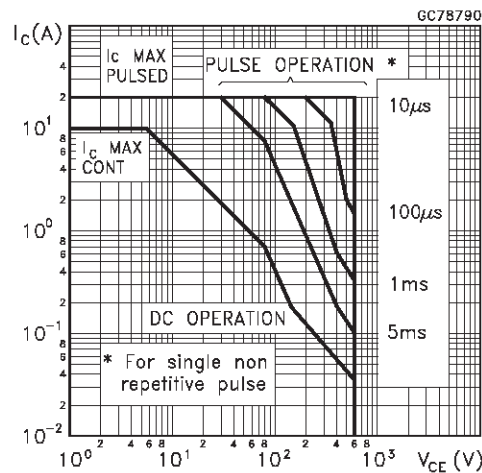
R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	2.3	°C/W
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ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

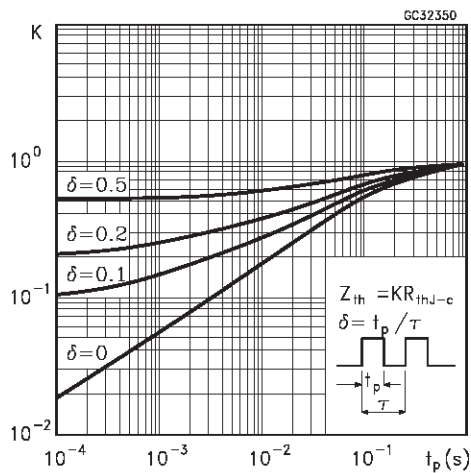
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CES</sub>	Collector Cut-off Current (V <sub>BE</sub> = 0)	V <sub>CE</sub> = 1500 V V <sub>CE</sub> = 1500 V T <sub>j</sub> = 125 °C			1 2	mA mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 7 V			1	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 100 mA L = 25 mH	600			V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5 A I <sub>B</sub> = 1.25 A			1.5	V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 5 A I <sub>B</sub> = 1.25 A			1.2	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 6 A V <sub>CE</sub> = 5 V	5		10	
t <sub>s</sub> t <sub>f</sub>	INDUCTIVE LOAD Storage Time Fall Time	I <sub>C</sub> = 5 A I <sub>Bon(END)</sub> = 1 A L <sub>B</sub> = 1 μH V <sub>BB</sub> = -2.5 V f = 64 KHz		2.5 0.3	3.5 0.45	μs μs

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

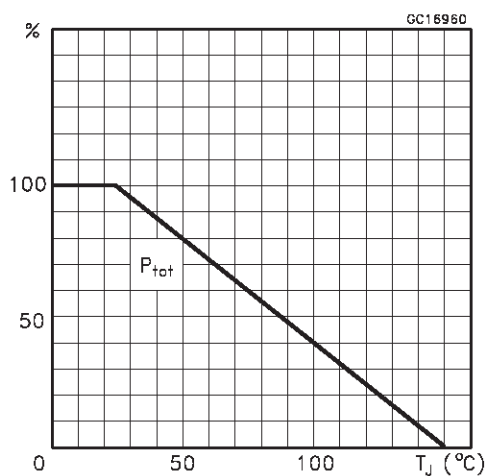
Safe Operating Area



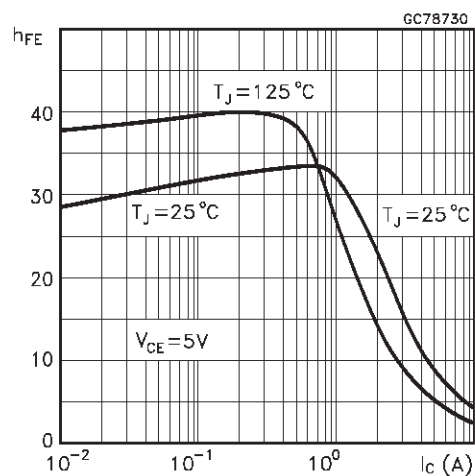
Thermal Impedance



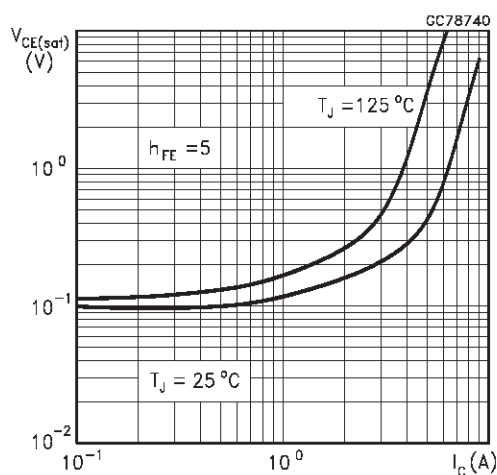
Derating Curve



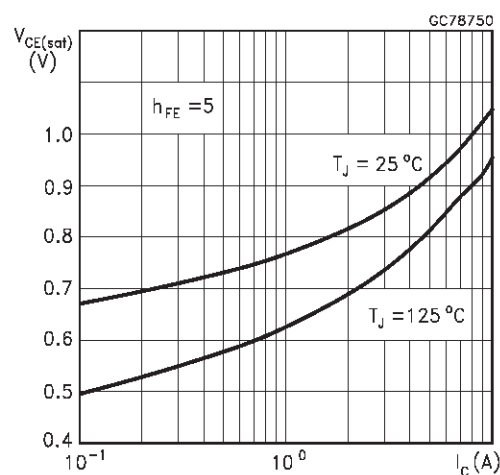
DC Current Gain



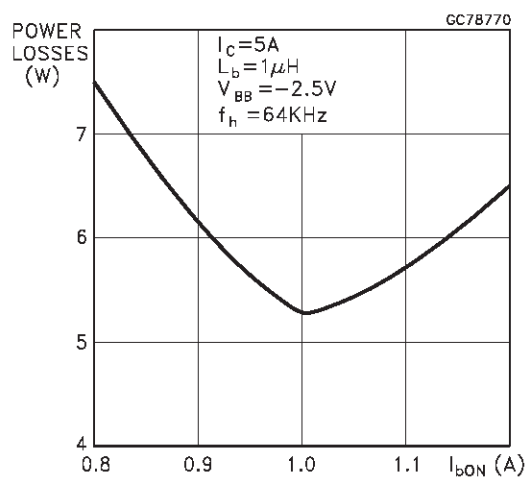
Collector Emitter Saturation Voltage



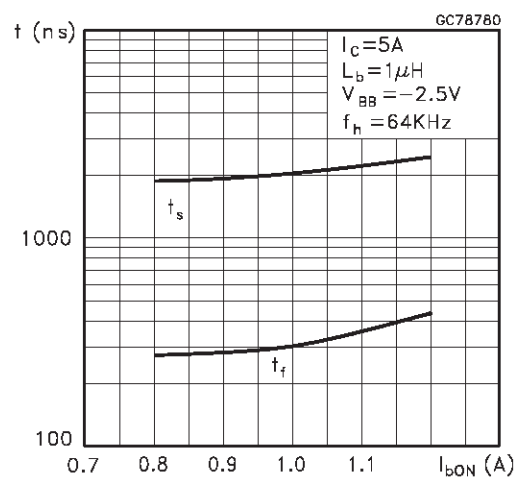
Base Emitter Saturation Voltage



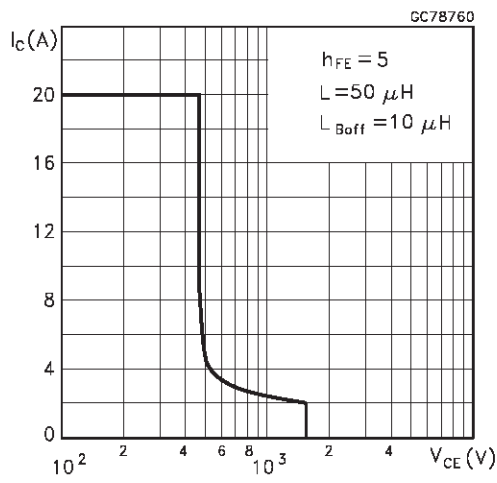
Power Losses



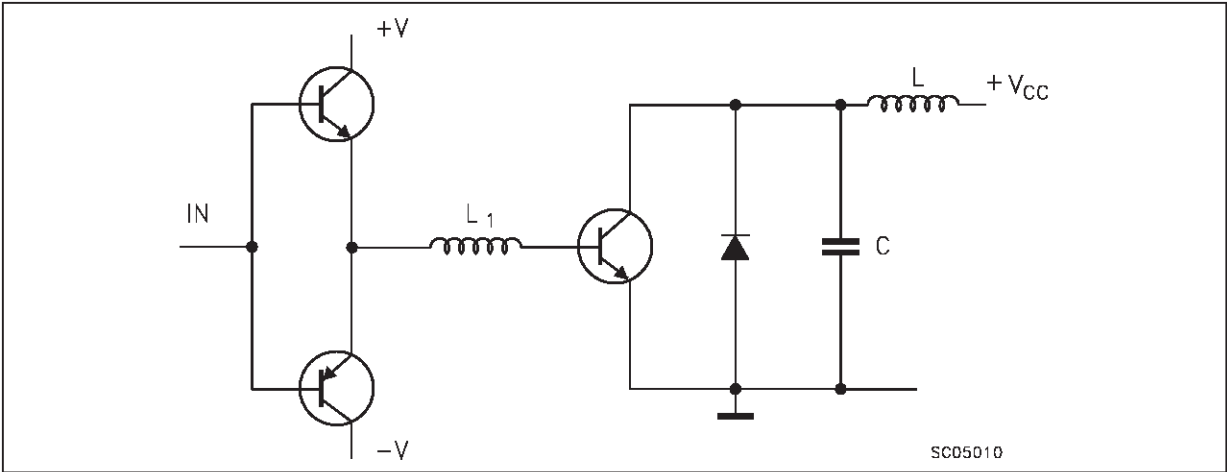
Switching Time Inductive Load



RBSOA



Inductive Load Switching Test Circuits.





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