



STBV32

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

- MEDIUM VOLTAGE CAPABILITY
- LOW SPREAD OF DYNAMIC PARAMETERS
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- VERY HIGH SWITCHING SPEED

APPLICATIONS:

- ELECTRONIC BALLASTS FOR FLUORESCENT LIGHTING

DESCRIPTION

The device is manufactured using high voltage Multi Epitaxial Planar technology for high switching speeds and medium voltage capability.

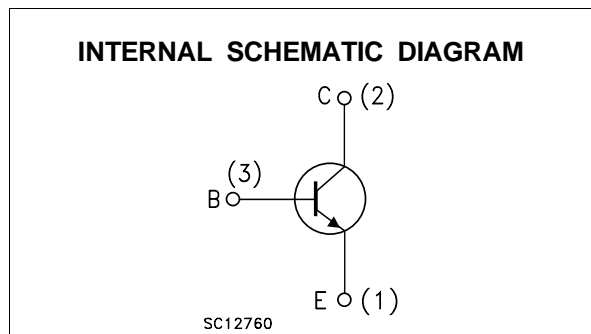
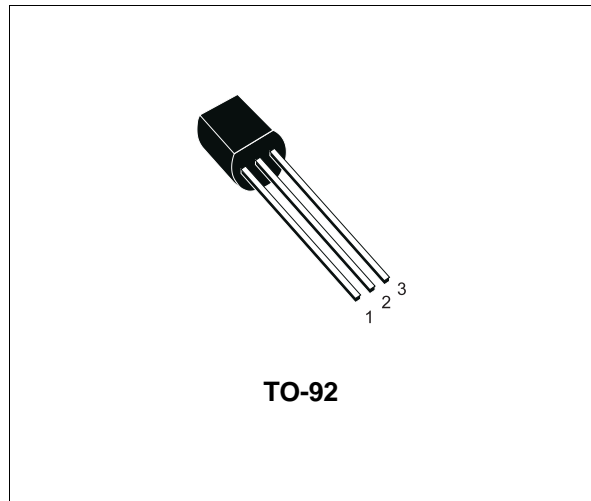
It uses a Cellular Emitter structure with planar edge termination to enhance switching speeds while maintaining the wide RBSOA.

The STBV32 is designed for use in compact fluorescent lamp application.

Ordering codes:

STBV32 (shipment in bulk)

STBV32-AP (shipment in ammpack)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	700	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	400	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$, $I_B = 0.5$ A, $t_p < 10\mu s$, $T_j < 150^\circ C$)	BV_{EBO}	V
I_C	Collector Current	1	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	3	A
I_B	Base Current	0.5	A
I_{BM}	Base Peak Current ($t_p < 5$ ms)	1.5	A
P_{tot}	Total Dissipation at $T_{amb} = 25^\circ C$	1.1	W
T_{stg}	Storage Temperature	-65 to 150	$^\circ C$
T_j	Max. Operating Junction Temperature	150	$^\circ C$

STBV32

THERMAL DATA

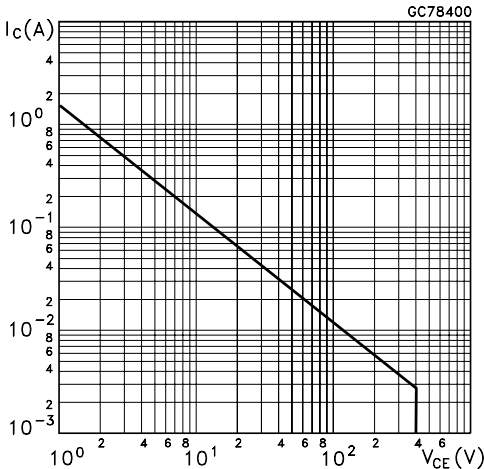
R_{thj-a}	Thermal Resistance Junction-ambient	Max	112	$^{\circ}\text{C}/\text{W}$
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

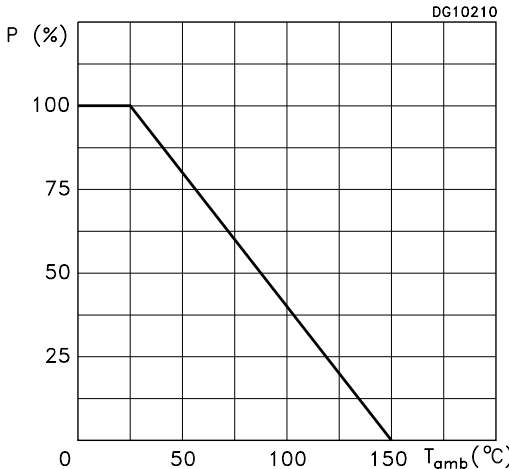
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5\text{V}$)	$V_{CE} = 700\text{V}$ $V_{CE} = 700\text{V}$ $T_j = 125^{\circ}\text{C}$			1 5	mA mA
BV_{EBO}	Emitter-Base Breakdown Voltage ($I_C = 0$)	$I_E = 10\text{ mA}$	9		18	V
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 10\text{ mA}$ $L = 25\text{mH}$	400			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 0.5\text{ A}$ $I_B = 0.1\text{ A}$ $I_C = 1\text{ A}$ $I_B = 0.25\text{ A}$ $I_C = 1.5\text{ A}$ $I_B = 0.5\text{ A}$			0.5 1 3	V V V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 0.5\text{ A}$ $I_B = 0.1\text{ A}$ $I_C = 1\text{ A}$ $I_B = 0.25\text{ A}$			1 1.2	V V
h_{FE}	DC Current Gain	$I_C = 0.5\text{ A}$ $V_{CE} = 2\text{ V}$ $I_C = 1\text{ A}$ $V_{CE} = 2\text{ V}$	8 5		35 25	
t_r t_s t_f	RESISTIVE LOAD Rise Time Storage Time Fall Time	$I_C = 1\text{ A}$ $V_{CC} = 125\text{ V}$ $I_{B1} = 0.2\text{ A}$ $I_{B2} = -0.2\text{ A}$ $T_p = 25\text{ }\mu\text{s}$			1 4 0.7	μs μs μs
t_s	INDUCTIVE LOAD Storage Time	$I_C = 1\text{ A}$ $I_{B1} = 0.2\text{ A}$ $V_{BE} = -5\text{ V}$ $L = 50\text{ mH}$ $V_{clamp} = 300\text{ V}$		0.8		μs

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

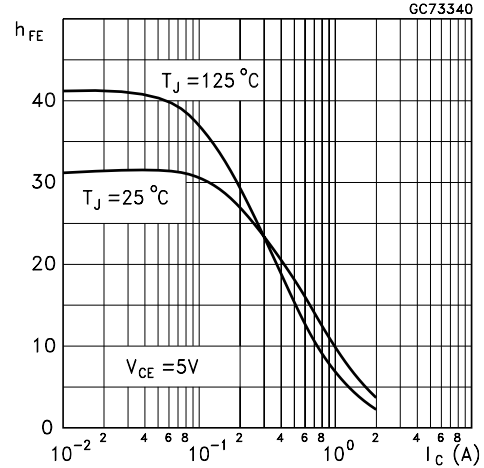
Safe Operating Areas



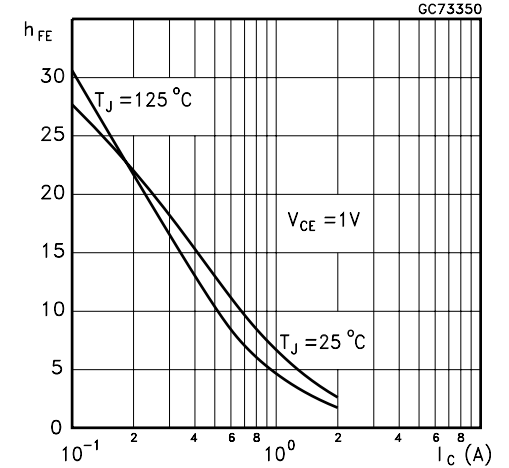
Derating Curve



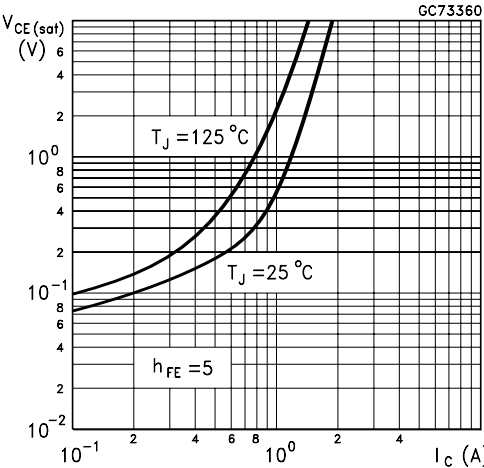
DC Current Gain



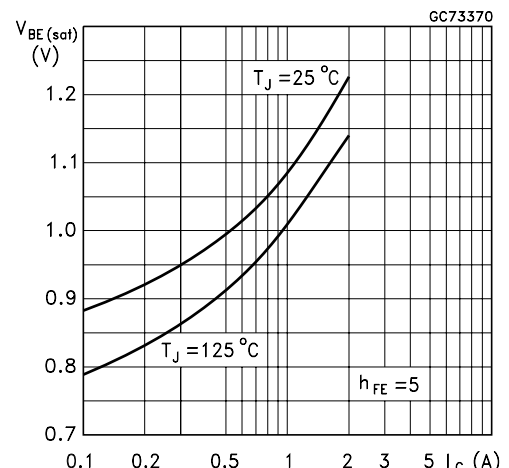
DC Current Gain



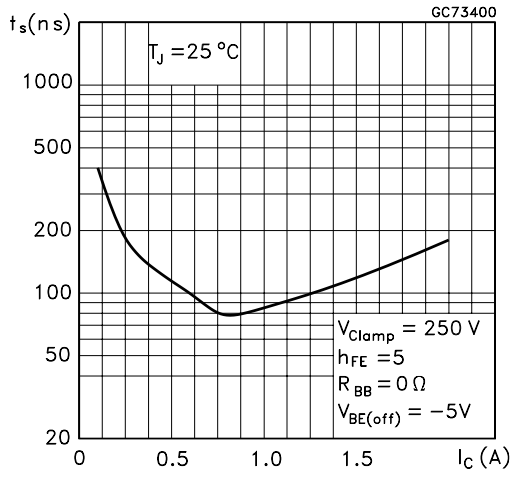
Collector Emitter Saturation Voltage



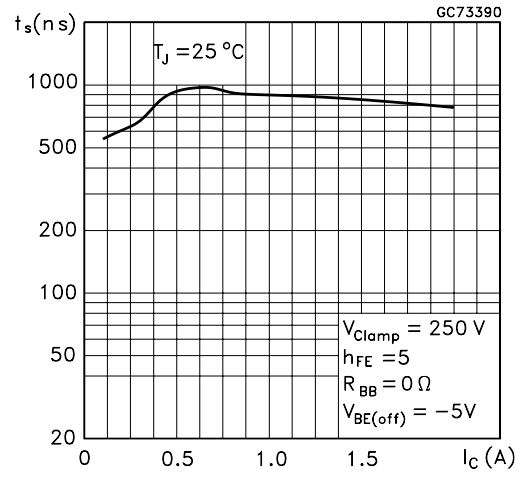
Base Emitter Saturation Voltage



Inductive Fall Time



Inductive Storage Time



Reverse Biased SOA

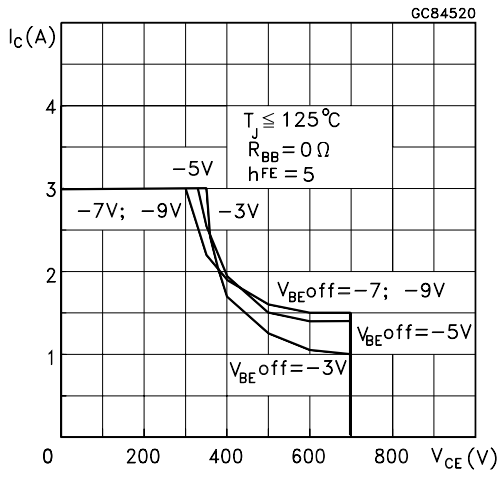


Figure 1: Inductive Load Switching Test Circuits.

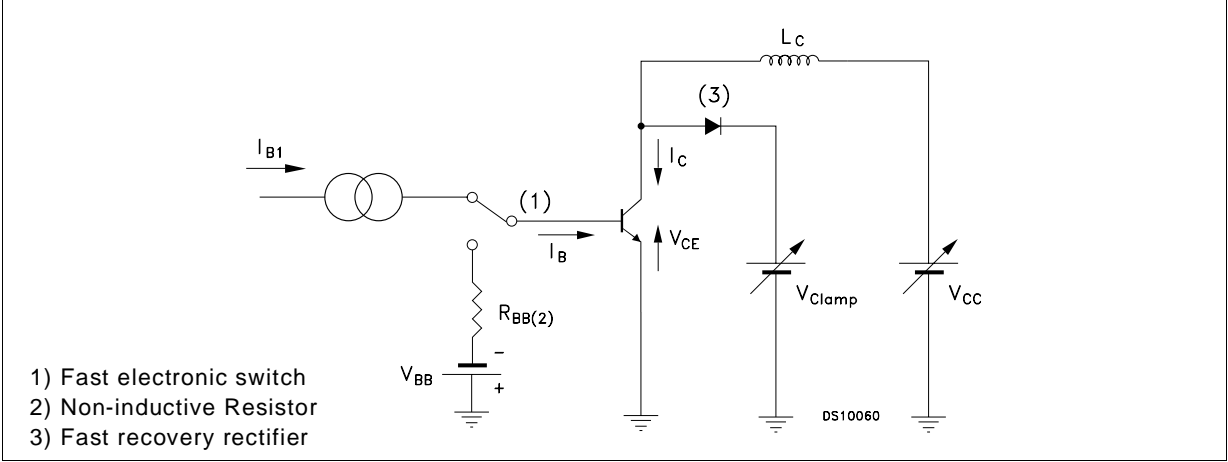
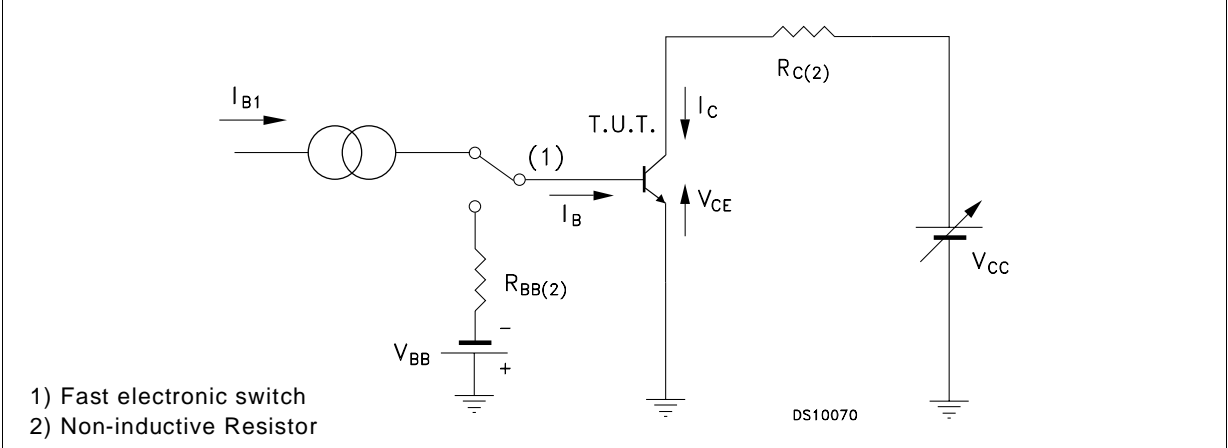
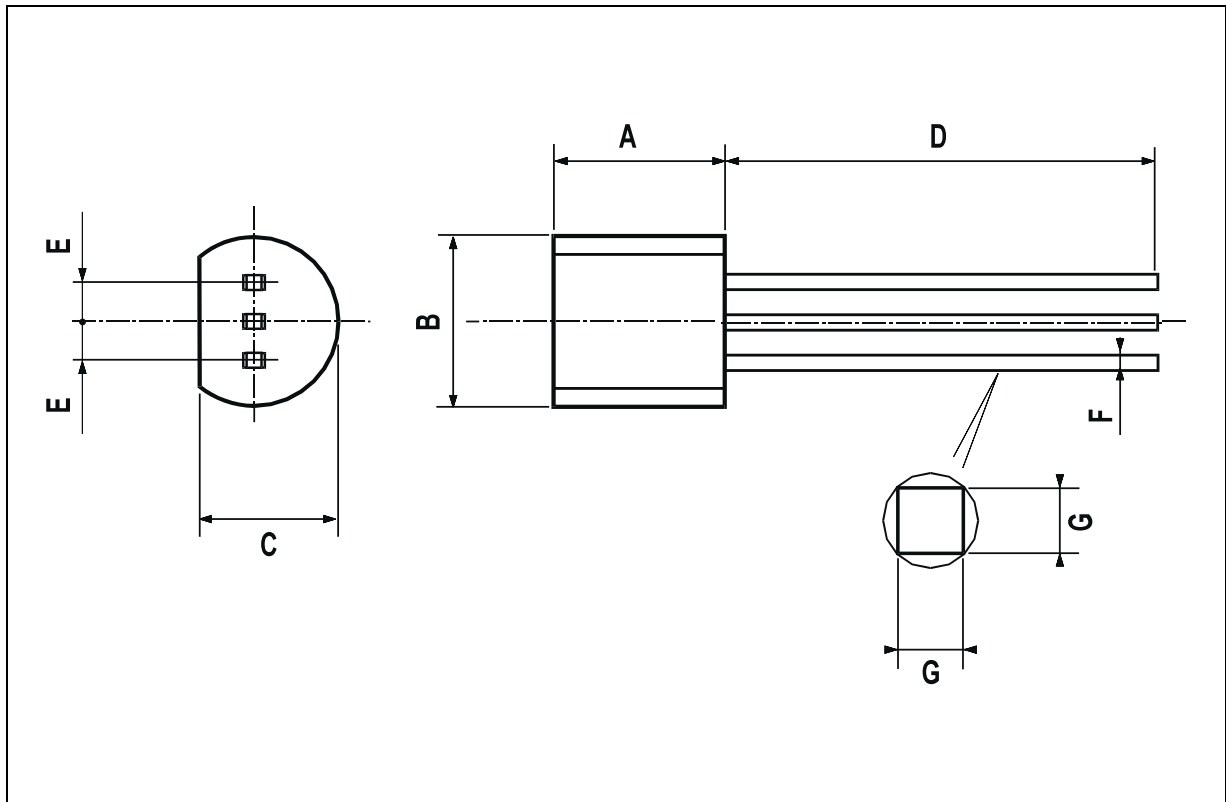


Figure 2: Resistive Load Switching Test Circuits.



TO-92 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.58		5.33	0.180		0.210
B	4.45		5.2	0.175		0.204
C	3.2		4.2	0.126		0.165
D	12.7			0.500		
E		1.27			0.050	
F	0.4		0.51	0.016		0.020
G	0.35			0.14		



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