

**STBV45**

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:

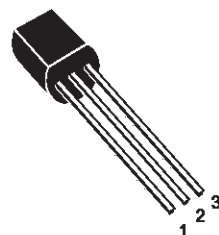
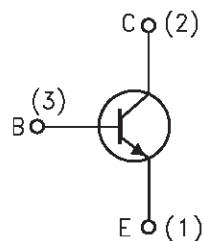
- ELECTRONIC BALLASTS FOR FLUORESCENT LIGHTING

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 STBV45 is designed for use in compact fluorescent lamp application.

**TO-92****INTERNAL SCHEMATIC DIAGRAM****ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	600	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	400	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	9	V
I_C	Collector Current	0.75	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	1.5	A
I_B	Base Current	0.4	A
I_{BM}	Base Peak Current ($t_p < 5$ ms)	0.75	A
P_{tot}	Total Dissipation at $T_{amb} = 25$ °C	0.95	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

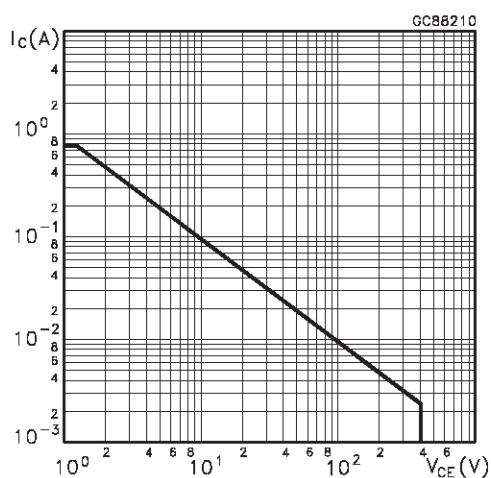
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	130	$^{\circ}\text{C/W}$
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

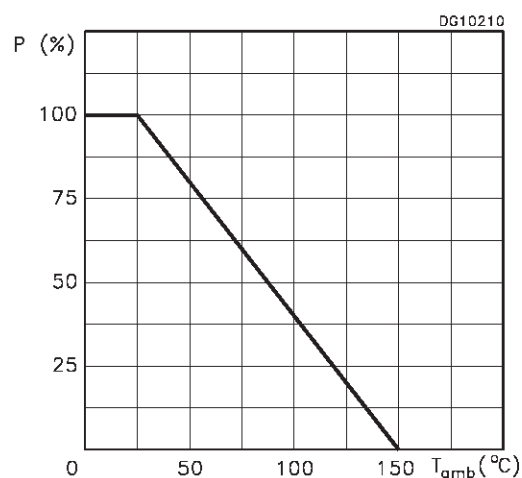
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5\text{V}$)	$V_{CE} = 600\text{ V}$				250	μA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 9\text{ V}$				1	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 1\text{ mA}$ $L = 25\text{ mH}$		400			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 0.2\text{ A}$	$I_B = 40\text{ mA}$		0.2	0.5	V
		$I_C = 0.3\text{ A}$	$I_B = 75\text{ mA}$		0.3	1.0	V
		$I_C = 0.4\text{ A}$	$I_B = 135\text{ mA}$		0.4	1.5	V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 0.2\text{ A}$	$I_B = 40\text{ mA}$			1.0	V
		$I_C = 0.3\text{ A}$	$I_B = 75\text{ mA}$			1.2	V
h_{FE}^*	DC Current Gain	$I_C = 0.2\text{ A}$	$V_{CE} = 5\text{ V}$	10		30	
		$I_C = 0.4\text{ A}$	$V_{CE} = 5\text{ V}$	5		20	
t_f	INDUCTIVE LOAD Fall Time	$I_C = 0.2\text{ A}$ $I_{B1} = -I_{B2} = 40\text{ mA}$	$V_{clamp} = 300\text{ V}$ $L = 3\text{ mH}$		0.3		μs

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

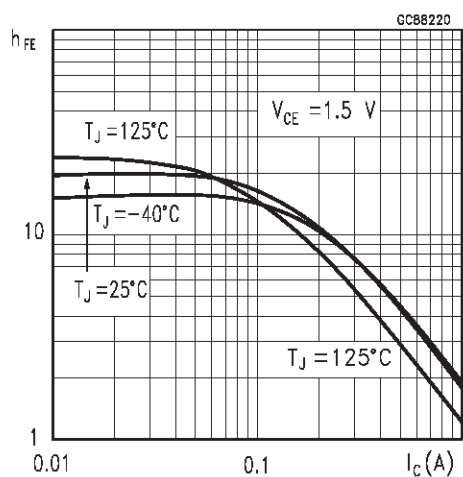
Safe Operating Area



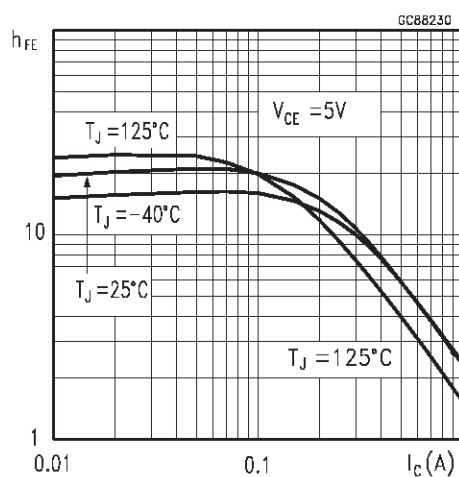
Derating Curve



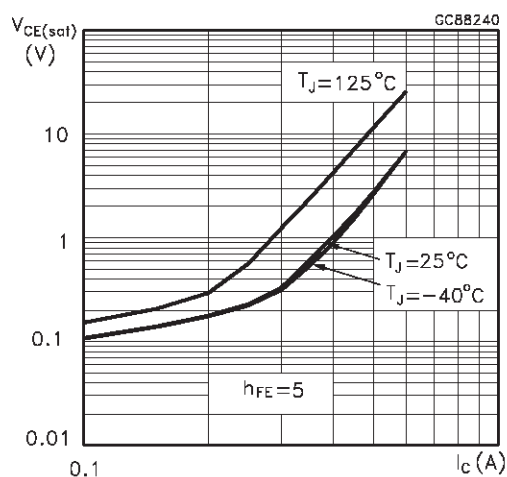
DC Current Gain



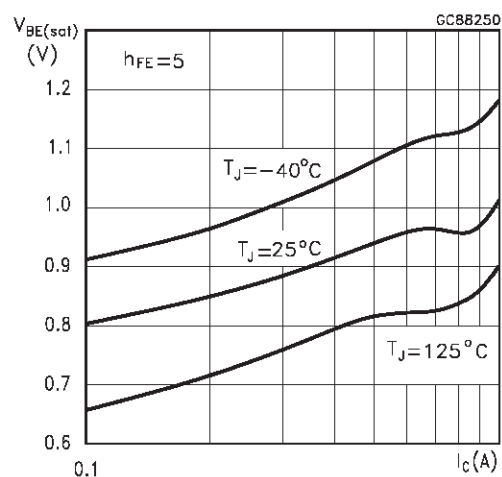
DC Current Gain



Collector Emitter Saturation Voltage

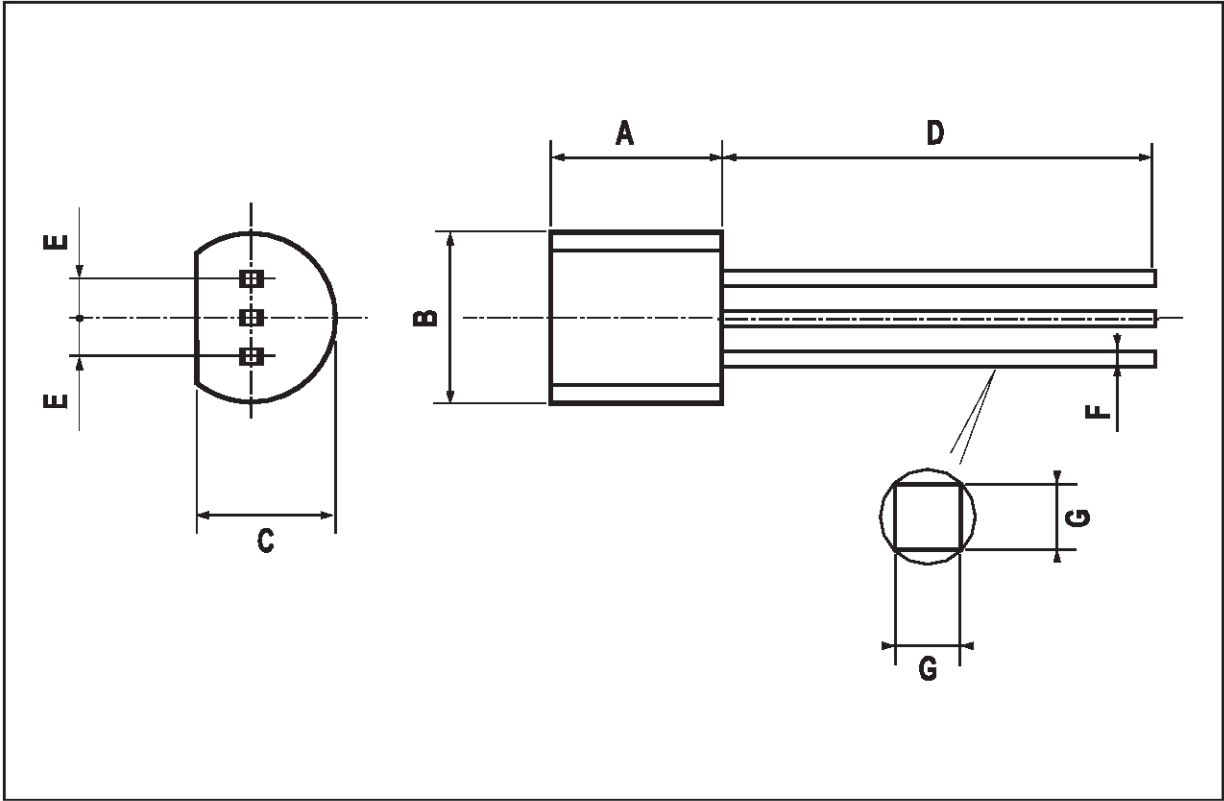


Base Emitter Saturation Voltage



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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