

**STBV42**

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:

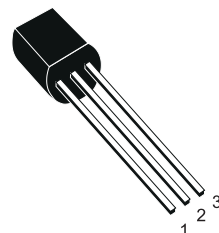
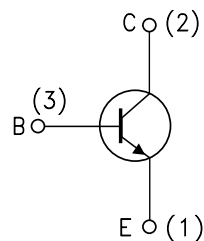
- ELECTRONIC BALLASTS FOR FLUORESCENT LIGHTING

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 STBV42 is designed for use in compact fluorescent lamp application.

**TO-92****INTERNAL SCHEMATIC DIAGRAM**

SC12760

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 ($I_C = 0$)	9	V
I_C	Collector Current	1	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	2	A
I_B	Base Current	0.5	A
I_{BM}	Base Peak Current ($t_p < 5$ ms)	1	A
P_{tot}	Total Dissipation at $T_{amb} = 25$ °C	1	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

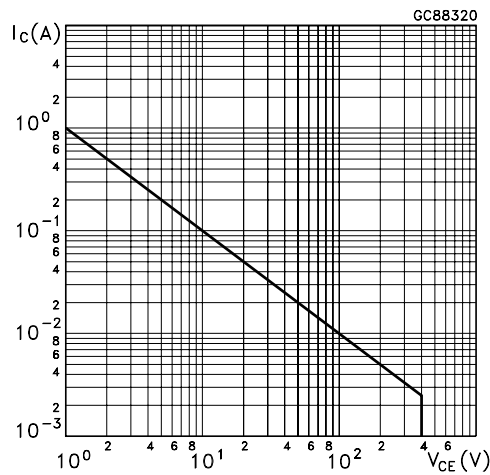
R _{thj-amb}	Thermal Resistance Junction-ambient	Max	120	°C/W
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

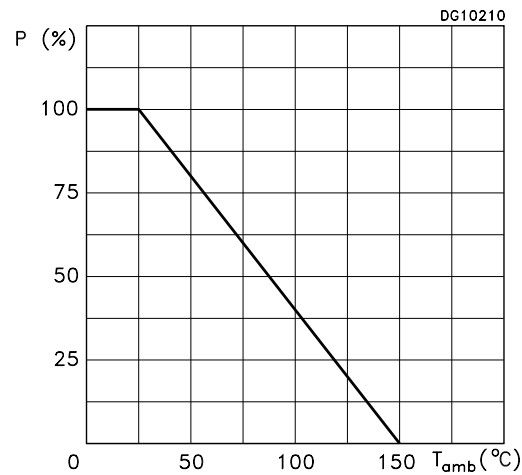
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CEV}	Collector Cut-off Current (V _{BE} = -1.5V)	V _{CE} = 700 V V _{CE} = 700 V T _J = 125°			1 5	mA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 9 V			1	mA
V _{CEO(sus)} *	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 1 mA L = 25mH	400			V
V _{CE(sat)} *	Collector-Emitter Saturation Voltage	I _C = 0.25 A I _B = 0.05 A I _C = 0.5 A I _B = 0.125 A I _C = 0.75 A I _B = 0.25 A		0.2 0.3 0.4	0.5 1 1.5	V V V
V _{BE(sat)} *	Base-Emitter Saturation Voltage	I _C = 0.25 A I _B = 0.05 A I _C = 0.5 A I _B = 0.125 A			1 1.2	V V
h _{FE} *	DC Current Gain	I _C = 0.4 A V _{CE} = 5 V I _C = 0.8 A V _{CE} = 5 V	10 5		30 20	
t _f	INDUCTIVE LOAD Fall Time	I _C = 0.25 A V _{clamp} = 300 V I _{B1} = -I _{B2} = 50 mA L = 3 mH		0.3		μs

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

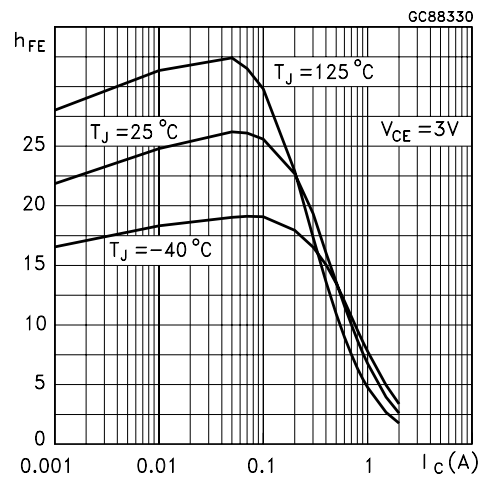
Safe Operating Area



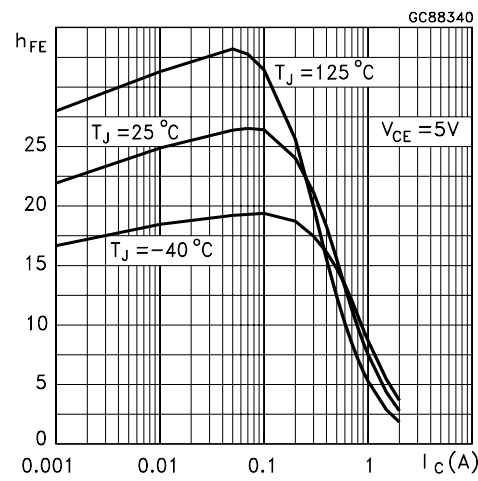
Derating Curve



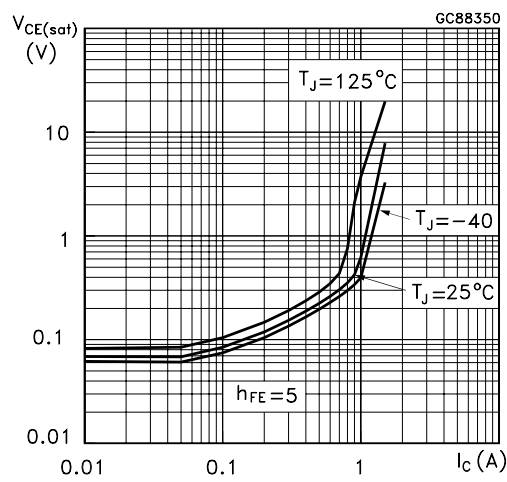
DC Current Gain



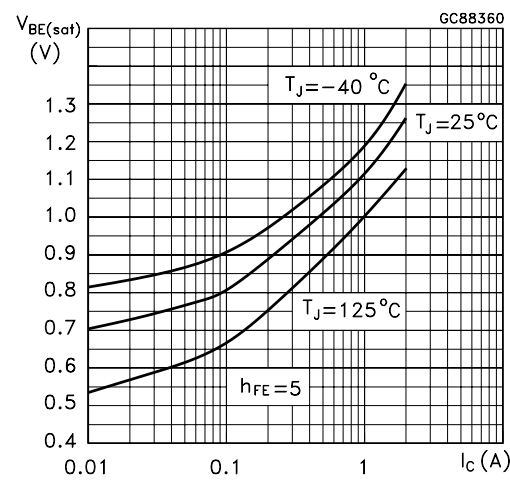
DC Current Gain



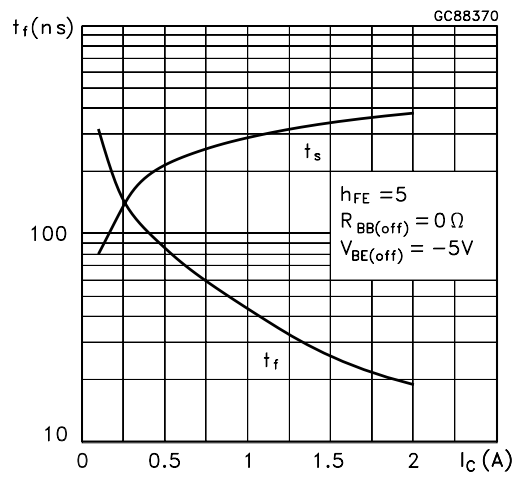
Collector Emitter Saturation Voltage



Base Emitter Saturation Voltage

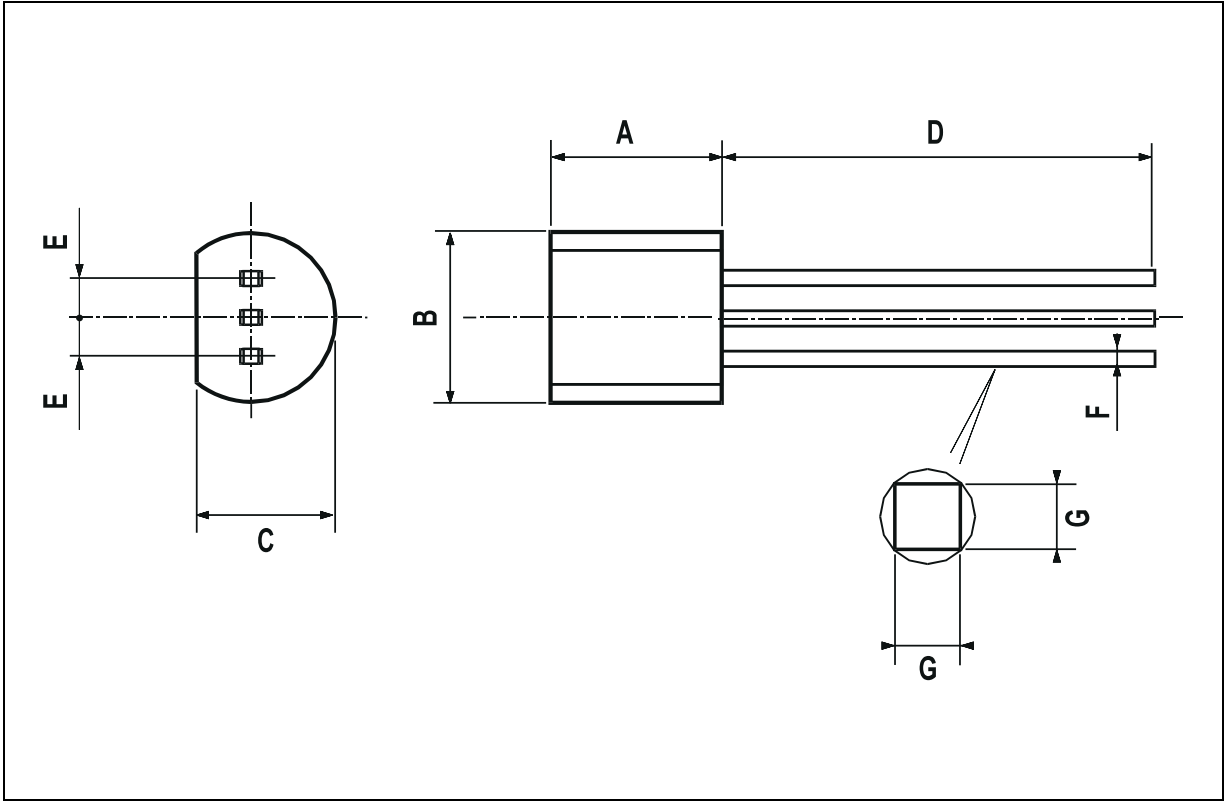


Switching Time Inductive Load



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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