BU505

HIGH VOLTAGE NPN MULTIEPITAXIAL FAST-SWITCHING TRANSISTOR

- HIGH VOLTAGE CAPABILITY
- VERY HIGH SWITCHING SPEED
- HIGH RUGGEDNESS

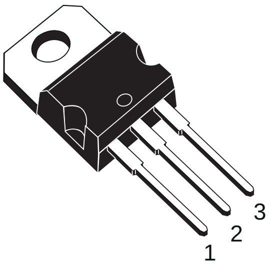
APPLICATIONS

- ELECTRONIC BALLASTS FOR FLUORESCENT LIGHTING
- SWITCH MODE POWER SUPPLIES

DESCRIPTION

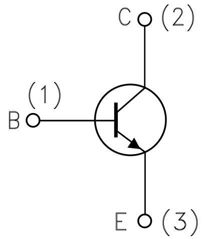
The BU505 is a high voltage NPN fastswitching transistor designed to be used in lighting application, like electronic ballast for fluorescent lamps.

Its characteristics make it also ideal for power supplies.



TO-220

INTERNAL SCHEMATIC DIAGRAM



SC06960

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage (V_{BE} = 0)	1500	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	700	V
I_C	Collector Current	2.5	A
I_{CM}	Collector Peak Current (t_p < 5 ms)	4	A
I_B	Base Current	1	A
I_{BM}	Base Peak Current (t_p < 5 ms)	2	A
P_{tot}	Total Dissipation at $T_c \leq 25\ ^oC$	75	W
T_{stg}	Storage Temperature	-65 to 150	^oC
T_j	Max. Operating Junction Temperature	150	^oC

THERMAL DATA

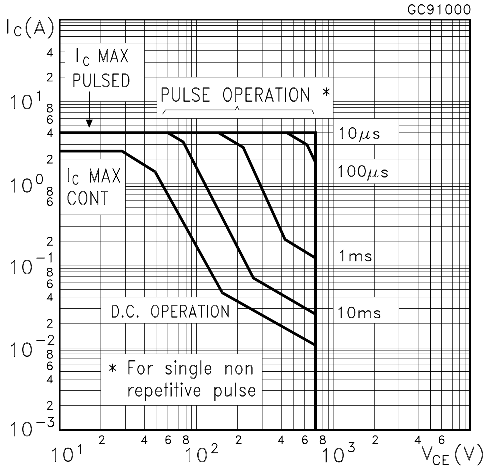
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	1.67	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

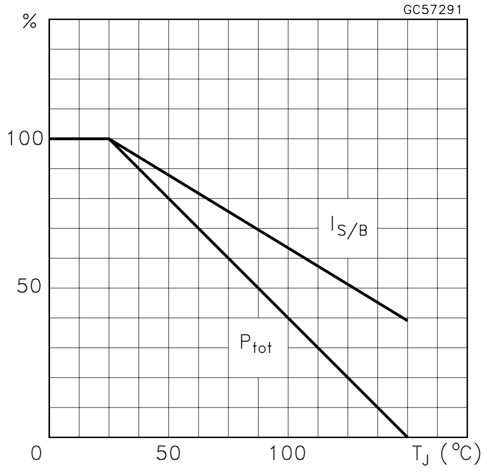
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = 1500 V V_{CE} = 1500 V T_{case} = 125°C			0.15 1	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = 100 mA L = 25mH	700			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 2 A I_B = 0.9 A			5	V
$V_{BE(sat)}$*	Base-emitter Saturation Voltage	I_C = 2 A I_B = 0.9 A			1.3	V
$I_{s/b}$	Second Breakdown Current	V_{CE} = 120 V t = 200 µs	2			A
 t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	V_{Clamp} = 250 V I_C = 2 A I_{B1} = 0.7 A $V_{be(off)}$ = -5V R_{bb} = 0 L = 200µH		 2 350		 µs ns

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

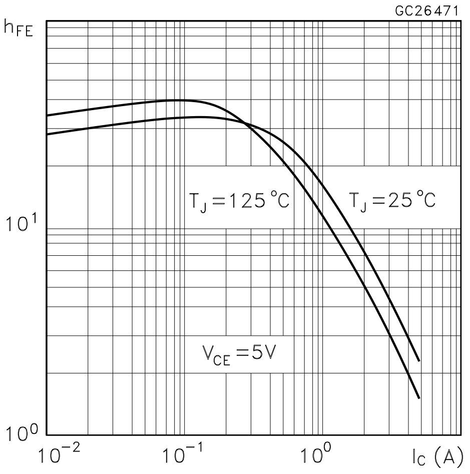
Safe Operating Area



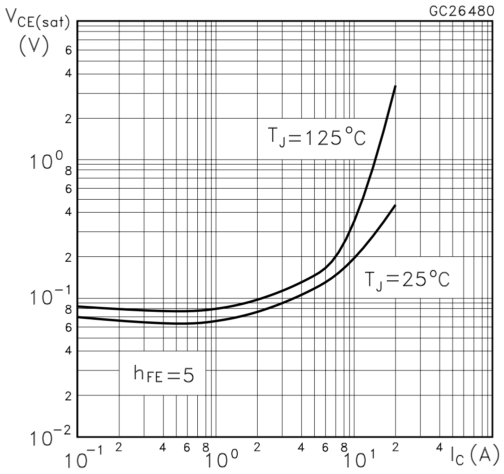
Derating Curve



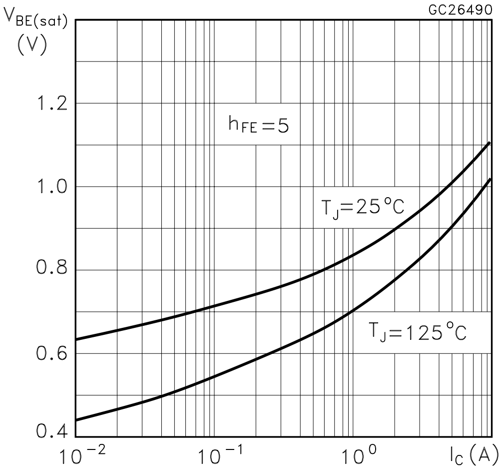
DC Current Gain



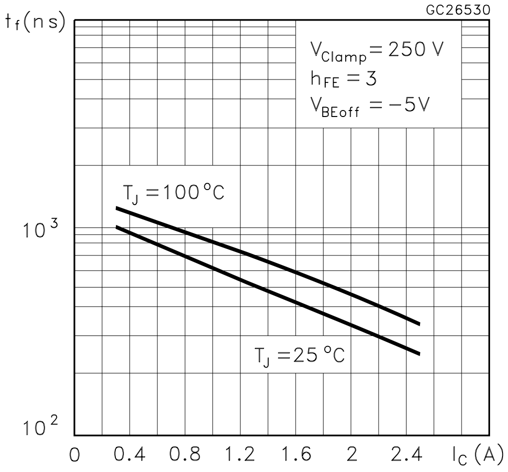
Collector Emitter Saturation Voltage



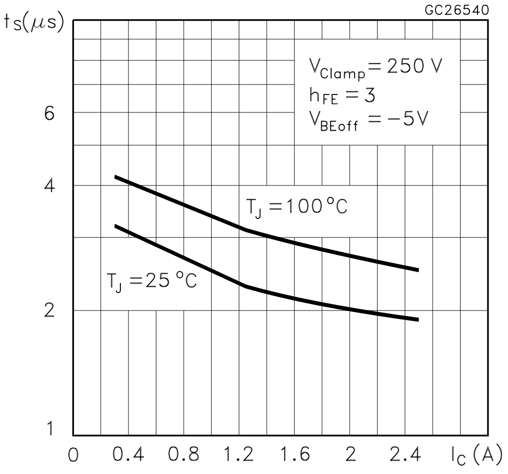
Base Emitter Saturation Voltage



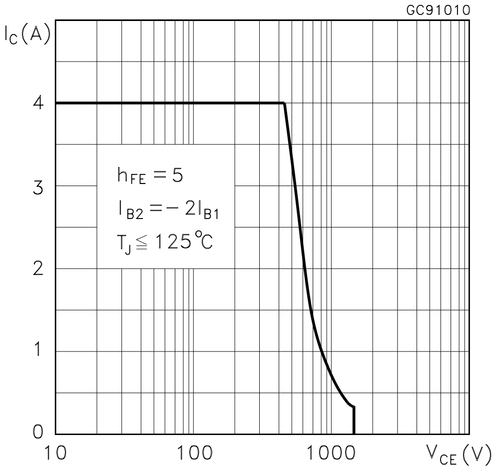
Inductive Fall Time



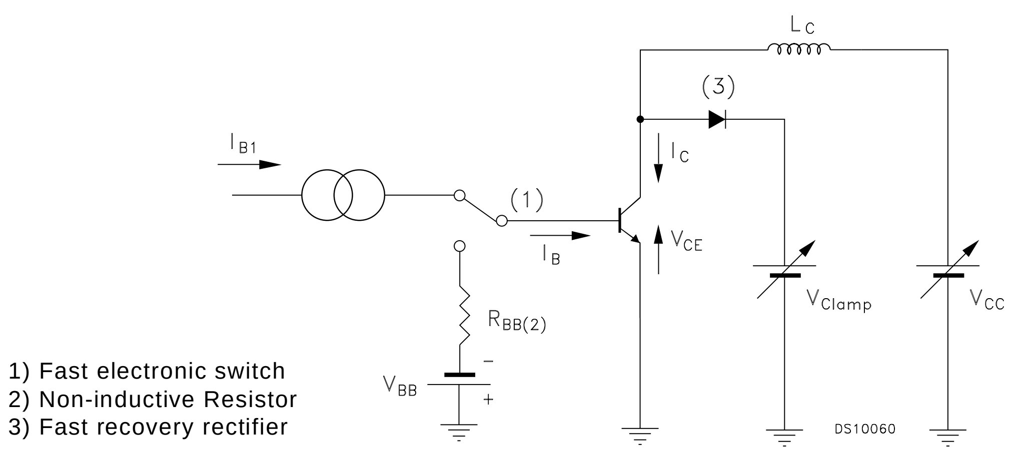
Inductive Storage Time



Reverse Biased SOA



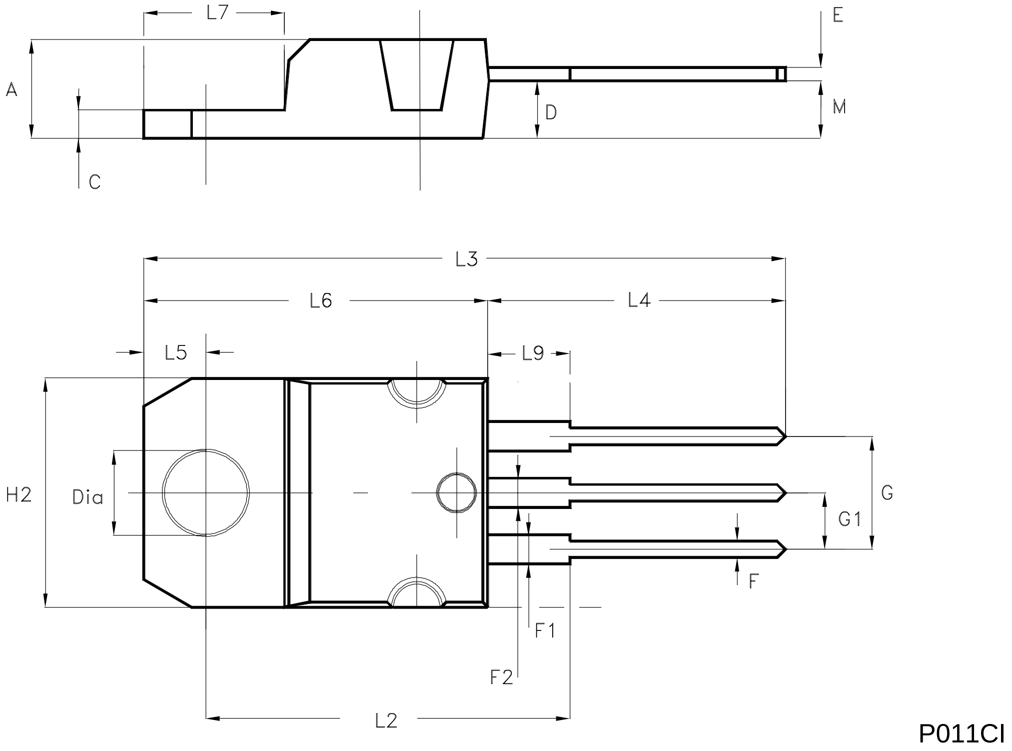
Inductive Load Switching Test Circuits



1) Fast electronic switch
2) Non-inductive Resistor
3) Fast recovery rectifier

TO-220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	**TYP.**	**MAX.**	**MIN.**	**TYP.**	**MAX.**
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.052
D	2.40		2.72	0.094		0.107
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.202
G1	2.40		2.70	0.094		0.106
H2	10.00		10.40	0.394		0.409
L2		16.40			0.645	
L4	13.00		14.00	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.20		6.60	0.244		0.260
L9	3.50		3.93	0.137		0.154
M		2.60			0.102	
DIA.	3.75		3.85	0.147		0.151



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