

BU505

High Voltage NPN Multiepitaxial Fast-Switching Transistor

Features

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

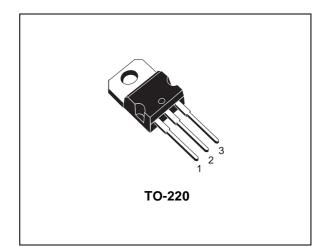
Applications

- ELECTRONIC BALLASTS FOR FLUORESCENT LIGHTING
- SWITCH MODE POWER SUPPLIES

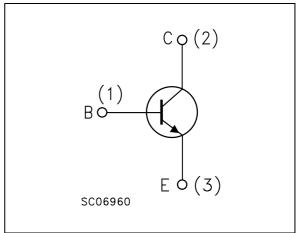
Description

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

It's characteristics make also ideal for power supplies.



Internal Schematic Diagram



Order Codes

August 2005

Part Number	Marking	Package	Packing
BU505	BU505 BU505		TUBE

1 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
۱ _C	Collector Current	2.5	А
I _{CM}	Collector Peak Current (t _P < 5ms)	4	А
Ι _Β	Base Current	1	А
I _{BM}	Base Peak Current (t _P < 5ms)	2	А
P _{TOT}	Total dissipation at $T_c = 25^{\circ}C$	75	W
T _{STG}	Storage Temperature	-65 to 150	ĉ
Τ _J	Max. Operating Junction Temperature	150	C

Table 1. Absolute Maximum Rating

Table 2.Thermal Data

Symbol	Parameter	Value	Unit
R _{thJ-case}	Thermal Resistance Junction-Case Max	1.67	℃/W

57

2 Electrical Characteristics

Table 3.Electrical Characteristics ($T_{CASE} = 25$ °C; unless otherwise specified)

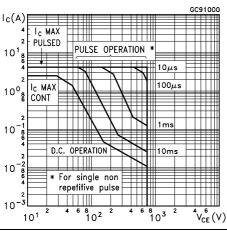
Symbol	Parameter	Test Conditions		Min.	Тур.	Max.	Unit
I _{CES}	Collector Cut-off Current	V _{CE} = 1500V				0.15	mA
	(V _{BE} = 0)	V _{CE} = 1500V	T _C = 125℃			1	mA
I _{EBO}	Emitter Cut-off Current $(I_{C} = 0)$	V _{EB} = 5V				1	mA
V _{CEO(SUS)}	Collector-Emitter	I _C = 10mA		700			V
Note: 1	Sustaining Voltage (I _B = 0)	L = 25mH					
V _{CE(sat)} Note: 1	Collector-Emitter Saturation Voltage	I _C = 2A	I _B = 0.9A			1	V
V _{BE(sat)} Note: 1	Base-Emitter Saturation Voltage	I _C = 2A	I _B = 0.9A			1.3	V
I _{s/b}	Second Breakdown Current	V _{CE} = 120V	t = 220µs	2			А
	INDUCTIVE LOAD	I _C = 2A	$V_{clamp} = 250V$				
t _s	Storage Time	I _{B1} = 0.7A	$V_{be(off)} = -5A$		2		μs
t _f	Fall Time	$R_{bb} = 0$	L = 200 μH		350		ns

Note: 1 Pulsed duration = $300 \ \mu s$, duty cycle $\leq 1.5\%$.

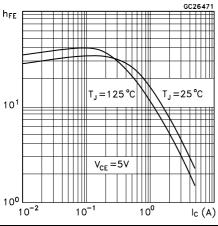


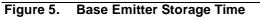
2.1 Typical Characteristics

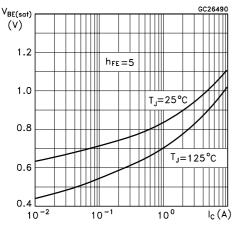












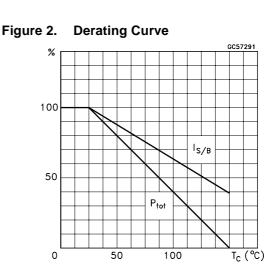
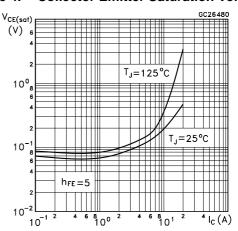
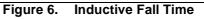
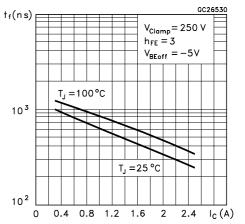
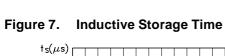


Figure 4. Collector Emitter Saturation Voltage









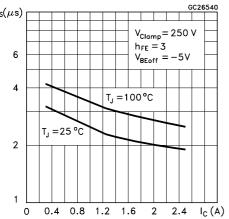
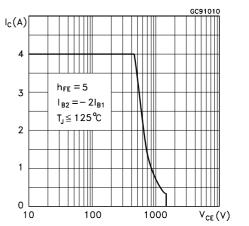
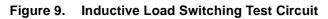


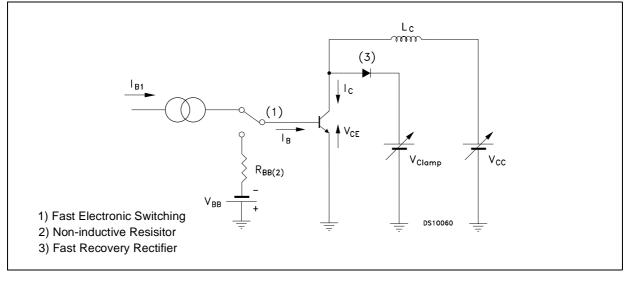
Figure 8. Reverse Biased SOA





3 Test Circuits







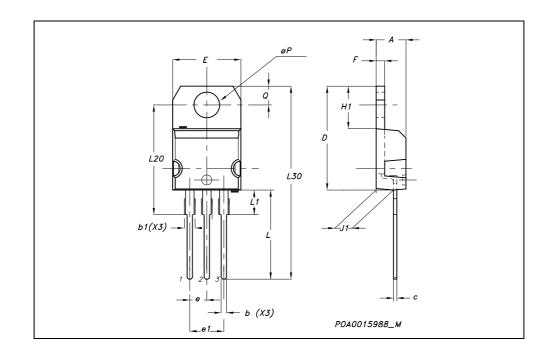
4 Package Mechanical Data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect. The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com



		TO-220 I	MECHANIC	AL DATA		
5.14	ľ	mm.			inch	
DIM.	MIN.	ТҮР	MAX.	MIN.	TYP.	MAX.
А	4.40		4.60	0.173		0.181
b	0.61		0.88	0.024		0.034
b1	1.15		1.70	0.045		0.066
С	0.49		0.70	0.019		0.027
D	15.25		15.75	0.60		0.620
Е	10		10.40	0.393		0.409
е	2.40		2.70	0.094		0.106
e1	4.95		5.15	0.194		0.202
F	1.23		1.32	0.048		0.052
H1	6.20		6.60	0.244		0.256
J1	2.40		2.72	0.094		0.107
L	13		14	0.511		0.551
L1	3.50		3.93	0.137		0.154
L20		16.40			0.645	
L30		28.90			1.137	
øP	3.75		3.85	0.147		0.151
Q	2.65		2.95	0.104		0.116







5 Revision History

Date	Revision	Changes
05-Sep-2001	1	Initial release.
06-Jul-2005	2	Some value change in <i>Table 3</i> .
25-Jul-2005	3	New Template
19-Aug-2005	4	New ECOPACK® label



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