

BUL216 HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH VOLTAGE CAPABILITY
- VERY HIGH SWITCHING SPEED
- HIGH OPERATING JUNCTION TEMPERATURE
- HIGH RUGGEDNESS

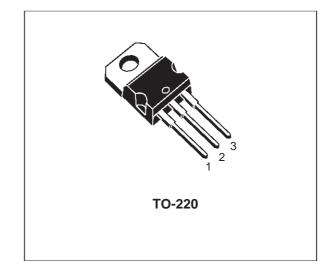
APPLICATIONS

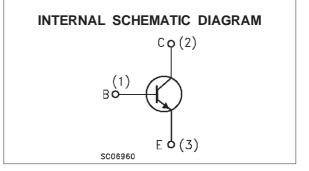
- ELECTRONIC BALLASTS FOR
 FLUORESCENT LIGHTING
- SWITCH MODE POWER SUPPLIES

DESCRIPTION

The BUL216 is manufactured using high voltage Multiepitaxial Mesa technology for cost-effective high performance. It uses a Hollow Emitter structure to enhance switching speeds.

The BUL series is designed for use in lighting applications and low cost switch-mode power supplies.





Symbol	Parameter	Value	Unit
V _{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	1600	V
Vceo	Collector-Emitter Voltage $(I_B = 0)$	800	V
V _{EBO}	Emitter-Base Voltage (I _C = 0)	9	V
lc	Collector Current	4	А
Ісм	Collector Peak Current (t _p < 5 ms)	6	А
lв	Base Current	2	А
I _{BM}	Base Peak Current (t _p < 5 ms)	4	А
Ptot	Total Dissipation at $T_c = 25$ °C	90	W
T _{stg}	Storage Temperature	-65 to 150	°C
Tj	Max. Operating Junction Temperature	150	°C

ABSOLUTE MAXIMUM RATINGS

THERMAL DATA

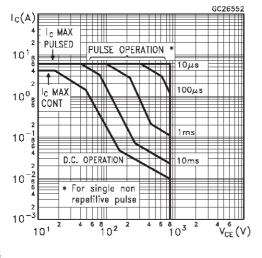
R _{thj-case}	Thermal Resistance Junction-Case	Max	1.39	°C/W
R _{thj-amb}	Thermal Resistance Junction-Ambient	Max	62.5	°C/W

ELECTRICAL CHARACTERISTICS ($T_{case} = 25 \, {}^{\circ}C$ unless otherwise specified)

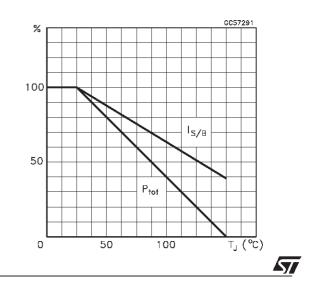
Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
I _{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 1600 V$ $V_{CE} = 1600 V$ $T_j = 125 \ ^{o}C$			100 500	μΑ μΑ
ICEO	Collector Cut-off Current ($I_B = 0$)	V _{CE} = 800 V			250	μA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	I _C = 100 mA L = 25 mH	800			V
V_{EBO}	Emitter-Base Voltage (I _C = 0)	I _E = 10 mA	9			V
V _{CE(sat)} *	Collector-Emitter Saturation Voltage				1 3	V V
$V_{BE(sat)^*}$	Base-Emitter Saturation Voltage				1.2 1.2	V V
h _{FE} *	DC Current Gain		12 10		40	
t _s t _f	INDUCTIVE LOAD Storage Time Fall Time			2.1 450	3.3 720	μs ns
t _s t _f	INDUCTIVE LOAD Storage Time Fall Time			3 600		μs ns

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

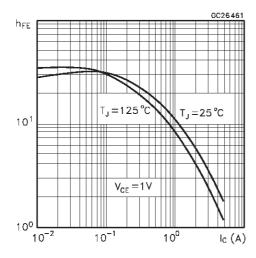
Safe Operating Areas



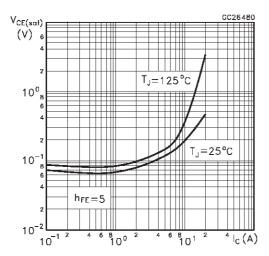
Derating Curve



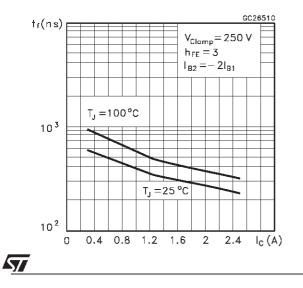
DC Current Gain



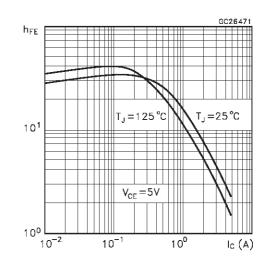
Collector Emitter Saturation Voltage



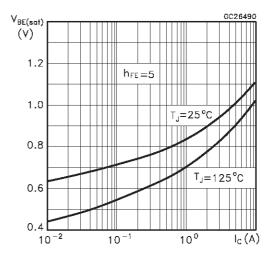
Inductive Fall Time



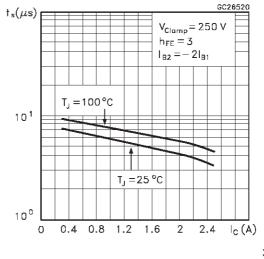
DC Current Gain



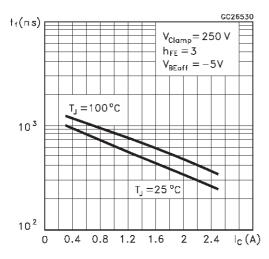
Base Emitter Saturation Voltage



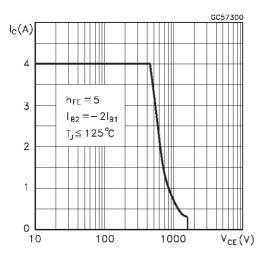




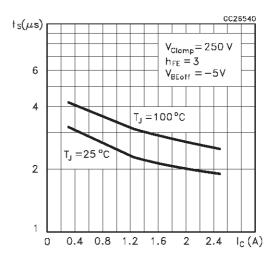
Inductive Fall Time



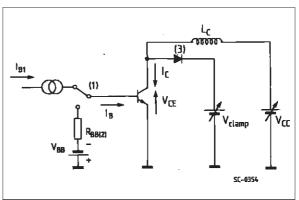
Reverse Biased SOA



Inductive Storage Time



RBSOA and Inductive Load Switching Test Circuits

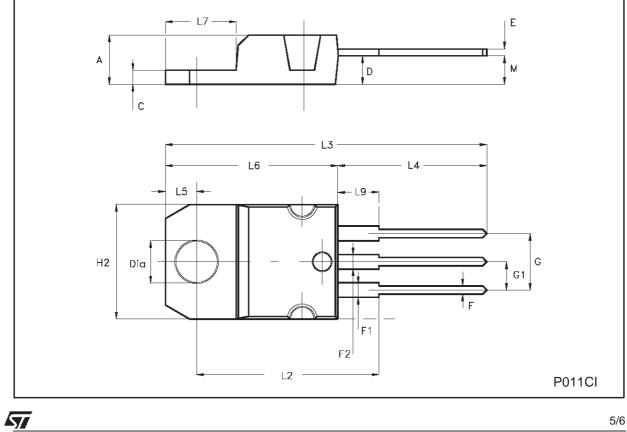


(1) Fast electronic switch(2) Non-inductive Resistor

(3) Fast recovery rectifier

DIM.	mm		inch			
DIW.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
А	4.40		4.60	0.173		0.181
С	1.23		1.32	0.048		0.052
D	2.40		2.72	0.094		0.107
Е	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
М		2.60			0.102	
DIA.	3.75		3.85	0.147		0.151





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