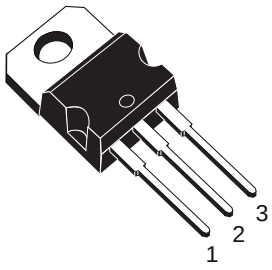
BUL654

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

PRELIMINARY DATA

- HIGH VOLTAGE CAPABILITY
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- LOW BASE-DRIVE REQUIREMENTS
- VERY HIGH SWITCHING SPEED
- FULLY CHARACTERIZED AT 125°C



TO-220

APPLICATIONS

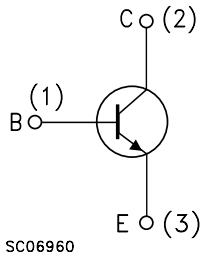
- ELECTRONIC TRANSFORMER FOR HALOGEN LAMPS
- SWITCH MODE POWER SUPPLIES

DESCRIPTION

The BUL654 is manufactured using high voltage Multi Epitaxial Planar 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.

INTERNAL SCHEMATIC DIAGRAM



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	12	A
I_{CM}	Collector Peak Current (t_p < 5 ms)	18	A
I_B	Base Current	6	A
I_{BM}	Base Peak Current (t_p < 5 ms)	9	A
P_{tot}	Total Dissipation at T_c = 25 °C	80	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-Case	Max	1.25	$^oC/W$

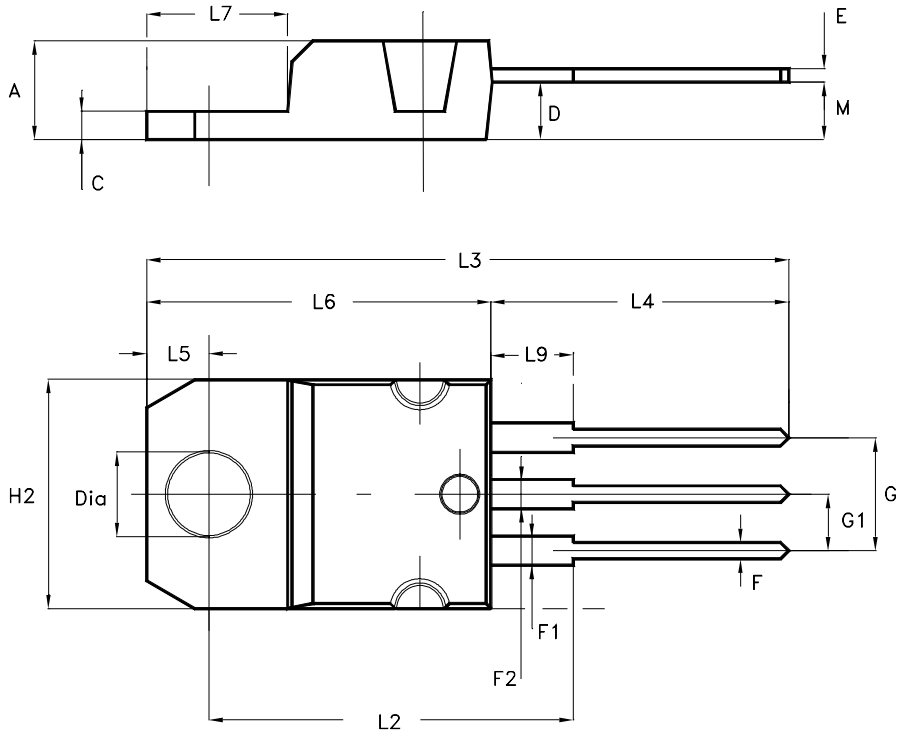
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = 700 V V_{CE} = 700 V T_c = 125 ^oC			50 500	µA µA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 400 V			100	µA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 100 mA L = 25 mH	400			V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	I_E = 10 mA	9			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 2 A I_B = 0.4 A I_C = 7 A I_B = 1.4 A		0.15 0.35	0.3 0.7	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 2 A I_B = 0.4 A I_C = 7 A I_B = 1.4 A		0.85 1	1 1.2	V V
h_{FE}*	DC Current Gain	I_C = 10 mA V_{CE} = 2 V I_C = 2 A V_{CE} = 2 V I_C = 6 A V_{CE} = 2 V I_C = 12 A V_{CE} = 5 V	15 15 7 4			

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

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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