BU810

MEDIUM VOLTAGE NPN FAST-SWITCHING DARLINGTON TRANSISTOR

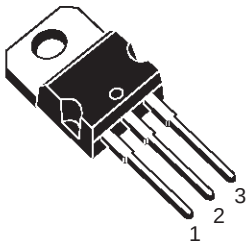
- STMicroelectronics PREFERRED SALESTYPE
- NPN DARLINGTON
- LOW BASE-DRIVE REQUIREMENTS
- FAST SWITCHING SPEED
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

APPLICATIONS

- HORIZONTAL DEFLECTION FOR MONOCHROME TVs
- GENERAL PURPOSE SWITCHING

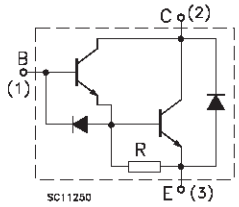
DESCRIPTION

The BU810 is a Multiepitaxial Planar NPN Transistor in TO-220 package. It is intended for use in high frequency and efficency converters, switching regulators and motor control.



TO-220

INTERNAL SCHEMATIC DIAGRAM



R = 200 Ω

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	600	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	400	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5	V
I_C	Collector Current	7	A
I_{CM}	Collector Peak Current	10	A
I_B	Base Current	2	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25\ ^oC$	75	W
T_{stg}	Storage Temperature	-65 to 150	^oC
T_j	Junction Temperature	150	^oC

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	1.66	$^oC/W$

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} = 600 V			200	µA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 400 V			1	mA
I_{EBO}*	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			150	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 0.1 A	400			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 2 A I_B = 20 mA I_C = 4 A I_B = 200 mA I_C = 7 A I_B = 0.7 A			2 2.5 3	V V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 2 A I_B = 20 mA I_C = 4 A I_B = 200 mA			2.2 3	V V
V_F	Diode Forward Voltage	I_F = 7 A			3	V

RESISTIVE SWITCHING TIMES

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_{on} t_s t_f	Turn-on Time Storage Time Fall Time	V_{Clamp} = 250V I_C = 2A I_{B1} = 20mA $V_{BE(off)}$ = -5 V			0.6 1.5 0.5	µs µs µs

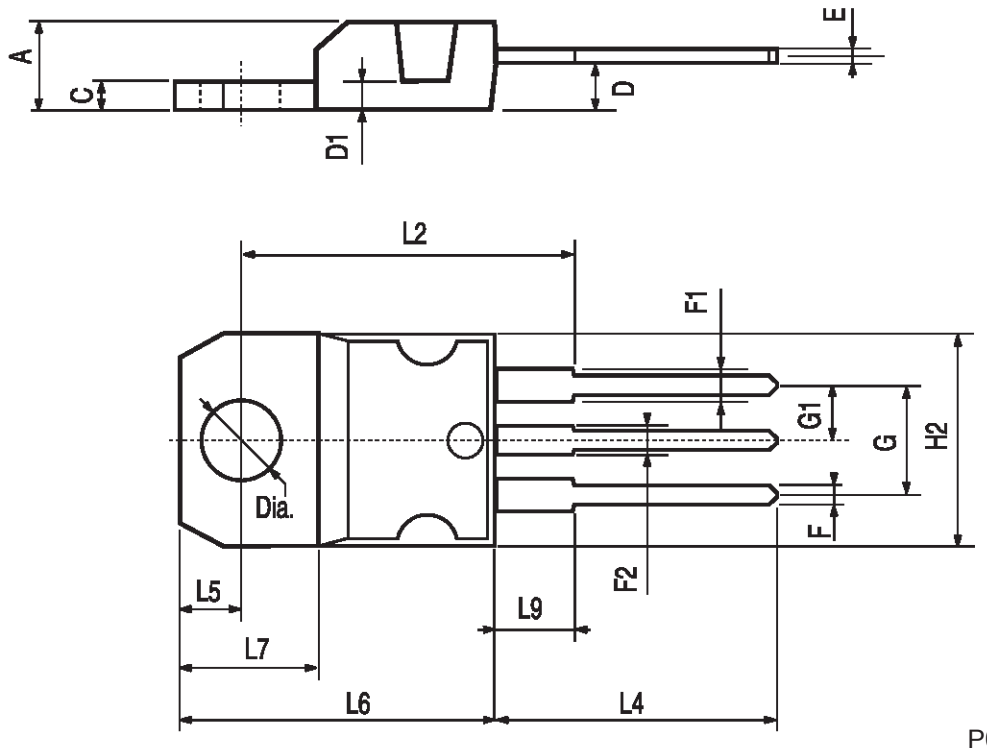
INDUCTIVE SWITCHING TIMES

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_s t_f	Storage Time Fall Time	V_{Clamp} = 250V I_C = 2A I_{B1} = 20mA $V_{BE(off)}$ = -5 V L = 500µH			1.5 0.4	µs µs
t_s t_f	Storage Time Fall Time	V_{Clamp} = 250V I_C = 7A I_{B1} = 0.7A $V_{BE(off)}$ = -5 V L = 500µH			1.5 0.4	µs µs

* Pulsed : Pulse duration = 300 µs, duty cycle = 2%

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		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
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		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



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