

## Silicon NPN Power Transistors

BUL381

## DESCRIPTION

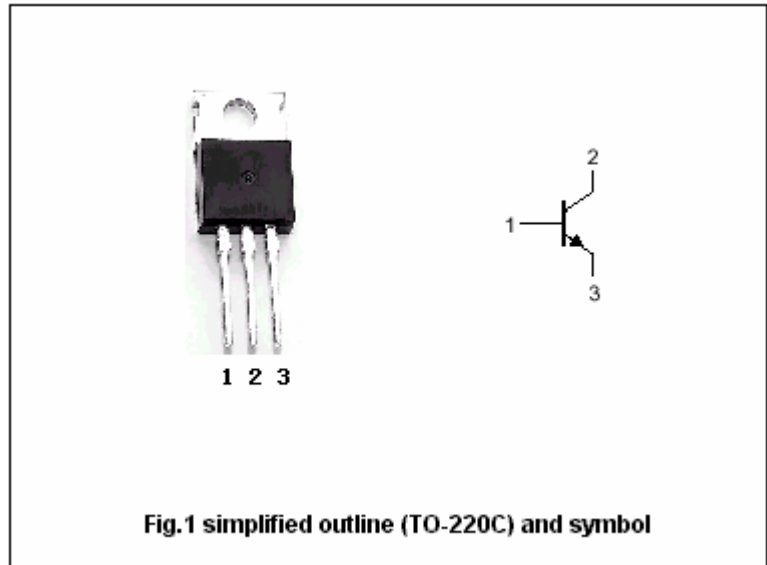
- With TO-220C package
- High voltage capability
- Very high switching speed

## APPLICATIONS

- Designed for use in lighting applications and low cost switch-mode power supplies.

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector;connected to mounting base
3	Emitter



## Absolute maximum ratings (Ta=25 )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	800	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	400	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	9	V
I <sub>C</sub>	Collector current		5	A
I <sub>CM</sub>	Collector current-Peak (t <sub>p</sub> <5 ms)		8	A
I <sub>B</sub>	Base current		2	A
I <sub>BM</sub>	Base current-Peak (t <sub>p</sub> <5 ms)		4	A
P <sub>T</sub>	Total power dissipation	T <sub>C</sub> =25	70	W
T <sub>j</sub>	Junction temperature		150	
T <sub>stg</sub>	Storage temperature		-65~150	

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th j-c</sub>	Thermal resistance from junction to case	1.78	/W

## Silicon NPN Power Transistors

## BUL381

## CHARACTERISTICS

T<sub>j</sub>=25 unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =100mA; L=25mH	400			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =10mA; I <sub>C</sub> =0				
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =1A ; I <sub>B</sub> =0.2A			0.5	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =2A ; I <sub>B</sub> =0.4A			0.7	V
V <sub>CEsat-3</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =3A ; I <sub>B</sub> =0.8A			1.1	V
V <sub>BEsat-1</sub>	Base-emitter saturation voltage	I <sub>C</sub> =1A ; I <sub>B</sub> =0.2A			1.1	V
V <sub>BEsat-2</sub>	Base-emitter saturation voltage	I <sub>C</sub> =2A ; I <sub>B</sub> =0.4A			1.2	V
I <sub>CES</sub>	Collector cut-off current	V <sub>CE</sub> =800V V <sub>BE</sub> =0 T <sub>j</sub> =125			100 500	μ A
I <sub>CEO</sub>	Collector cut-off current	V <sub>CE</sub> =400V; I <sub>B</sub> =0			250	μ A
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =2A ; V <sub>CE</sub> =5V	8			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =10mA ; V <sub>CE</sub> =5V	10			

## Switching times resistive load

t <sub>on</sub>	Turn-on time	V <sub>CC</sub> =250V , I <sub>C</sub> =2A I <sub>B1</sub> =- I <sub>B2</sub> =0.4A t <sub>p</sub> =30 μ s			1	μ s
t <sub>s</sub>	Storage time		1.4		2.2	μ s
t <sub>f</sub>	Fall time				0.8	μ s

Silicon NPN Power Transistors

BUL381

PACKAGE OUTLINE

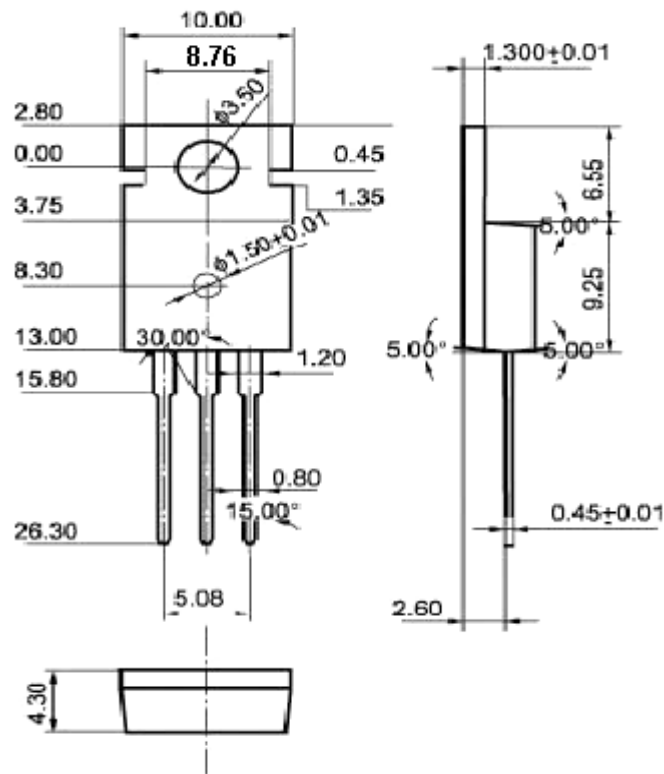


Fig.2 Outline dimensions (unindicated tolerance: 0.1mm)