

## Silicon NPN Power Transistors

## MJE1320

## DESCRIPTION

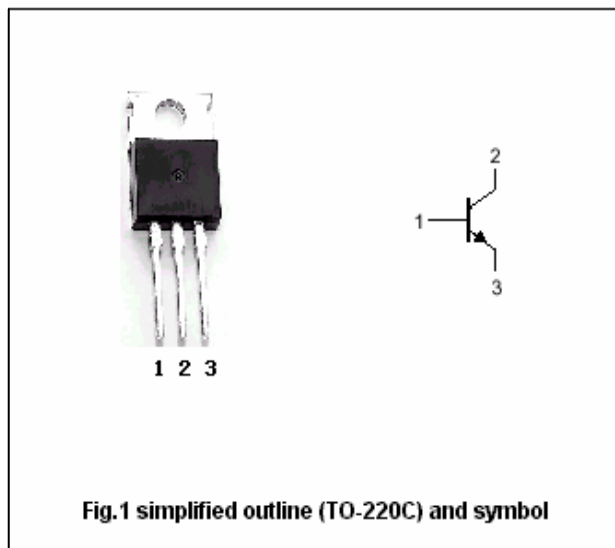
- With TO-220 package
- High voltage
- Low collector saturation voltage

## APPLICATIONS

- For high-voltage ,power switching in inductive circuits and line operated switchmode applications

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

Absolute maximum ratings( $T_c=25^\circ\text{C}$ )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	1800	V
$V_{CEO}$	Collector-emitter voltage	Open base	900	V
$V_{EBO}$	Emitter-base voltage	Open collector	9	V
$I_C$	Collector current		2	A
$I_{CM}$	Collector current-Peak		5	A
$I_B$	Base current		1.5	A
$I_{BM}$	Base current-Peak		2.5	A
$P_D$	Total power dissipation	$T_c=25^\circ\text{C}$ $T_c=100^\circ\text{C}$	80 32	W
$T_j$	Junction temperature		-65~150	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-65~150	$^\circ\text{C}$

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{thj-c}$	Thermal resistance junction to case	1.56	$^\circ\text{C}/\text{W}$

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## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEQ(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =50mA; I <sub>B</sub> =0.	900			V
V <sub>CE(sat)-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =1A; I <sub>B</sub> =0.5A T <sub>C</sub> =100 °C		0.18 0.3	1.0 1.5	V
V <sub>CE(sat)-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =2A; I <sub>B</sub> =1A		0.3	2.5	V
V <sub>BE(sat)-1</sub>	Base-emitter saturation voltage	I <sub>C</sub> =1A; I <sub>B</sub> =0.5A T <sub>C</sub> =100 °C		0.2 0.15	1.5 1.5	V
V <sub>BE(sat)-2</sub>	Base-emitter saturation voltage	I <sub>C</sub> =2A; I <sub>B</sub> =1A		0.9	2.8	V
I <sub>CEV</sub>	Collector cut-off current	V <sub>CEV</sub> =RatedV <sub>al ue</sub> ; V <sub>BE(off)</sub> =1.5V T <sub>C</sub> =100 °C			0.25 2.5	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =9V; I <sub>C</sub> =0			0.25	mA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =2A; V <sub>CE</sub> =5V	2.5			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =1A; V <sub>CE</sub> =5V	3			
C <sub>OB</sub>	Collector outoput capacitance	I <sub>E</sub> =0; V <sub>CB</sub> =10V; f=1.0MHz		80		pF

Switching times resistive load, Duty Cycle ≤ 2%, t<sub>p</sub>=25 μs

t <sub>d</sub>	Delay time	V <sub>CC</sub> =250V; I <sub>C</sub> =1A I <sub>B1</sub> =I <sub>B2</sub> =0.5A		0.1		μs
t <sub>r</sub>	Rise time			0.8		μs
t <sub>s</sub>	Storage time			4.0		μs
t <sub>f</sub>	Fall time			0.8		μs

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PACKAGE OUTLINE

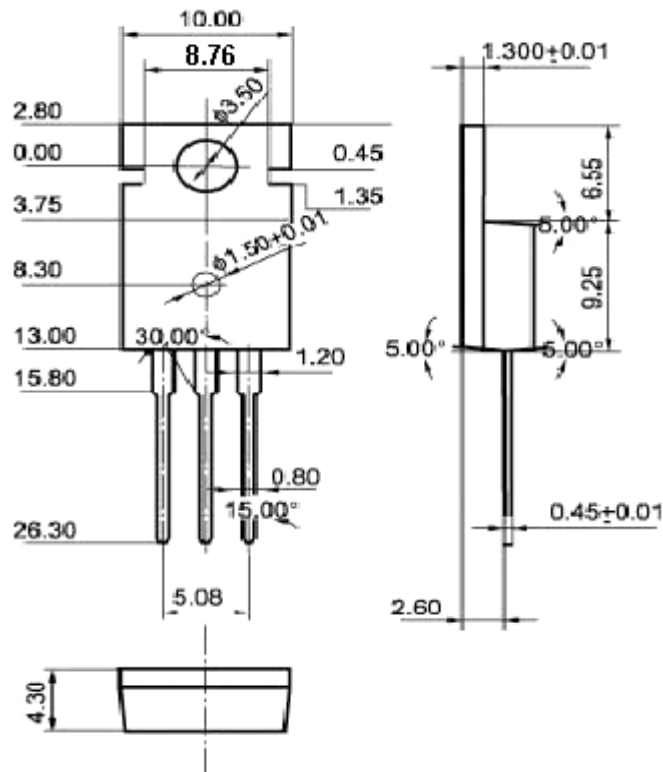


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.10$ mm)