

## Silicon NPN Power Transistors

## MJE180/181/182

**DESCRIPTION**

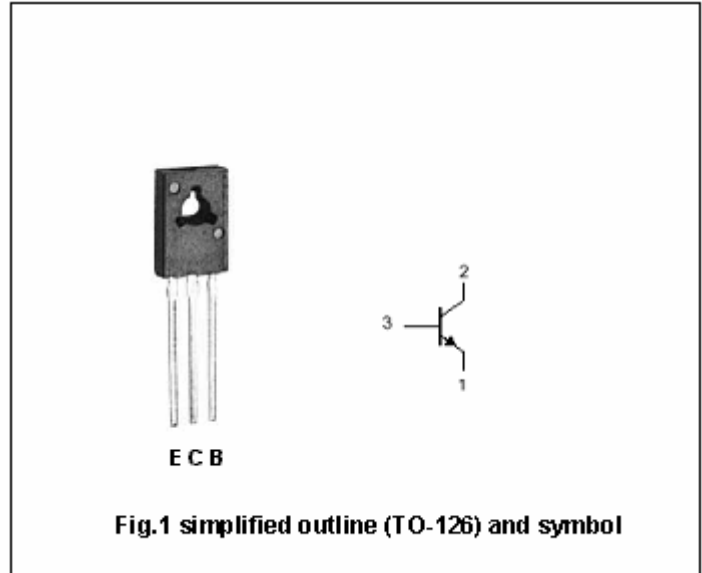
- With TO-126 package
- Complement to type MJE170/171/172

**APPLICATIONS**

- For low power audio amplifier and low current high speed switching applications

**PINNING (see Fig.2)**

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

**ABSOLUTE MAXIMUM RATINGS( $T_c=25^\circ\text{C}$ )**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	MJE180	60	V
		MJE181	80	
		MJE182	100	
$V_{CEO}$	Collector-emitter voltage	MJE180	40	V
		MJE181	60	
		MJE182	80	
$V_{EBO}$	Emitter-base voltage	Open collector	7	V
$I_C$	Collector current		3	A
$I_{CM}$	Collector current-peak		6	A
$I_B$	Base current		1	A
$P_C$	Collector power dissipation	$T_a=25^\circ\text{C}$	1.5	W
		$T_c=25^\circ\text{C}$	12.5	
$T_j$	Junction temperature		150	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-65~150	$^\circ\text{C}$

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## CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	MJE180	I <sub>C</sub> =10mA; I <sub>B</sub> =0	40			V
		MJE181		60			
		MJE182		80			
V <sub>CE(sat)-1</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =500mA ; I <sub>B</sub> =50mA			0.3	V
V <sub>CE(sat)-2</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =1.5A ; I <sub>B</sub> =150mA			0.9	V
V <sub>CE(sat)-3</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =3A ; I <sub>B</sub> =600mA			1.7	V
V <sub>BE(sat)-1</sub>	Base-emitter saturation voltage		I <sub>C</sub> =1.5A ; I <sub>B</sub> =150mA			1.5	V
V <sub>BE(sat)-2</sub>	Base-emitter saturation voltage		I <sub>C</sub> =3A ; I <sub>B</sub> =600mA			2.0	V
V <sub>BE</sub>	Base-emitter on voltage		I <sub>C</sub> =500mA ; V <sub>CE</sub> =1V			1.2	V
I <sub>CBO</sub>	Collector cut-off current	MJE180	V <sub>CB</sub> =60V; I <sub>E</sub> =0 T <sub>C</sub> =150 °C			0.1 0.1	μA mA
		MJE181	V <sub>CB</sub> =80V; I <sub>E</sub> =0 T <sub>C</sub> =150 °C			0.1 0.1	μA mA
		MJE182	V <sub>CB</sub> =100V; I <sub>E</sub> =0 T <sub>C</sub> =150 °C			0.1 0.1	μA mA
I <sub>EBO</sub>	Emitter cut-off current		V <sub>EB</sub> =7V; I <sub>C</sub> =0			0.1	μA
h <sub>FE-1</sub>	DC current gain		I <sub>C</sub> =100mA ; V <sub>CE</sub> =1V	50		250	
h <sub>FE-2</sub>	DC current gain		I <sub>C</sub> =500mA ; V <sub>CE</sub> =1V	30			
h <sub>FE-3</sub>	DC current gain		I <sub>C</sub> =1.5A ; V <sub>CE</sub> =1V	12			
f <sub>T</sub>	Transition frequency		I <sub>C</sub> =100mA ; V <sub>CE</sub> =10V	50			MHz
C <sub>OB</sub>	Output capacitance		I <sub>E</sub> =0 ; V <sub>CB</sub> =10V, f=0.1MHz			30	pF

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PACKAGE OUTLINE

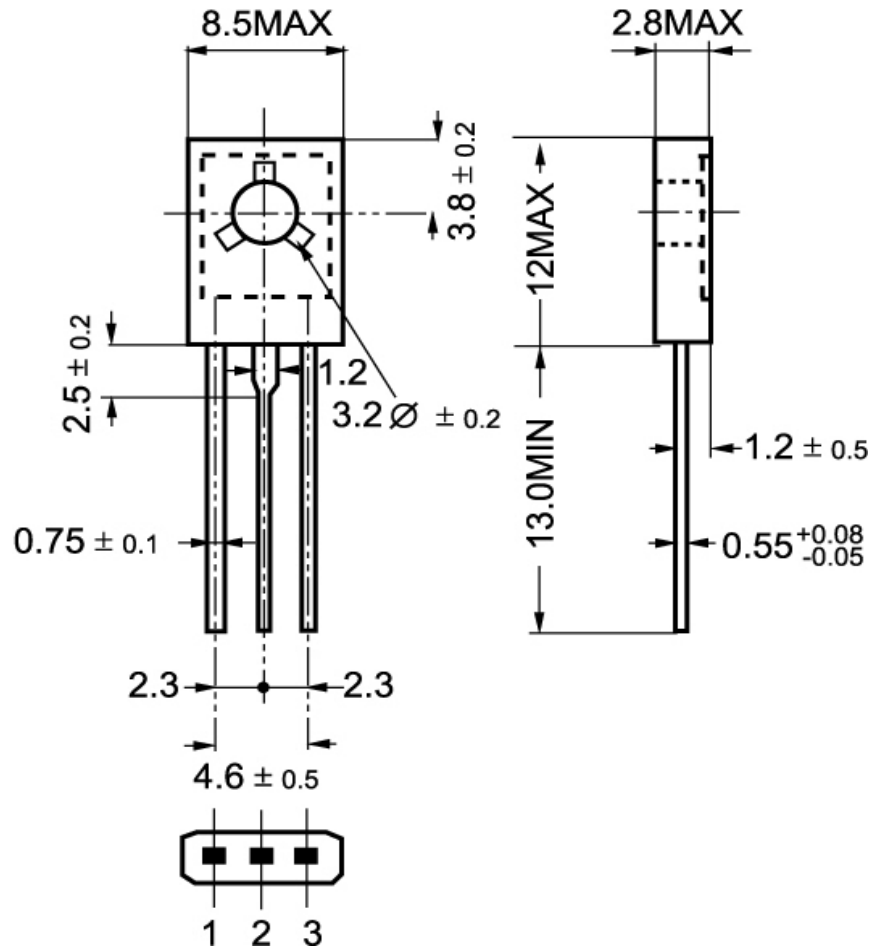


Fig.2 Outline dimensions