

**Silicon NPN Power Transistors**

**2SD1277 2SD1277A**

**DESCRIPTION**

- With TO-220Fa package
- Complement to type 2SB951/951A
- High DC current gain
- High-speed switching

**APPLICATIONS**

- For medium speed power switching

**PINNING**

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

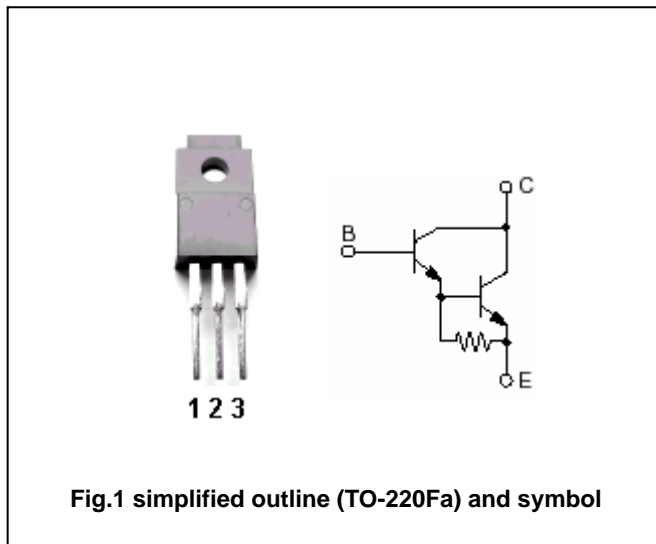


Fig.1 simplified outline (TO-220Fa) and symbol

**Absolute maximum ratings (Ta=25 )**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CB0</sub>	Collector-base voltage	2SD1277	60	V
		2SD1277A	80	
V <sub>CEO</sub>	Collector-emitter voltage	2SD1277	60	V
		2SD1277A	80	
V <sub>EBO</sub>	Emitter-base voltage	Open collector	7	V
I <sub>c</sub>	Collector current (DC)		8	A
I <sub>CM</sub>	Collector current-Peak		12	A
P <sub>C</sub>	Collector power dissipation	T <sub>c</sub> =25	45	W
		T <sub>a</sub> =25	2	
T <sub>j</sub>	Junction temperature		150	
T <sub>stg</sub>	Storage temperature		-55~150	

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## CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	2SD1277	I <sub>C</sub> =30mA, I <sub>B</sub> =0	60			V
		2SD1277A		80			
V <sub>CEsat</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =4A; I <sub>B</sub> =8mA			1.5	V
V <sub>BEsat</sub>	Base-emitter saturation voltage		I <sub>C</sub> =4A; I <sub>B</sub> =8mA			2	V
I <sub>CBO</sub>	Collector cut-off current	2SD1277	V <sub>CB</sub> =60V; I <sub>E</sub> =0			0.1	mA
		2SD1277A	V <sub>CB</sub> =80V; I <sub>E</sub> =0				
I <sub>EBO</sub>	Emitter cut-off current		V <sub>EB</sub> =7V; I <sub>C</sub> =0			2	mA
h <sub>FE-1</sub>	DC current gain		I <sub>C</sub> =8A; V <sub>CE</sub> =3V	500			
h <sub>FE-2</sub>	DC current gain		I <sub>C</sub> =4A; V <sub>CE</sub> =3V	2000		10000	
f <sub>T</sub>	Transition frequency		I <sub>C</sub> =0.5A; V <sub>CE</sub> =10V; f=1MHz	20			MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =4A; I <sub>B1</sub> =8mA I <sub>B2</sub> =-8mA; V <sub>CC</sub> =50V		0.5		μs
t <sub>stg</sub>	Storage time			4.0		μs
t <sub>f</sub>	Fall time			1.0		μs

◆ h<sub>FE-2</sub> Classifications

Q	R
2000-5000	4000-10000

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PACKAGE OUTLINE

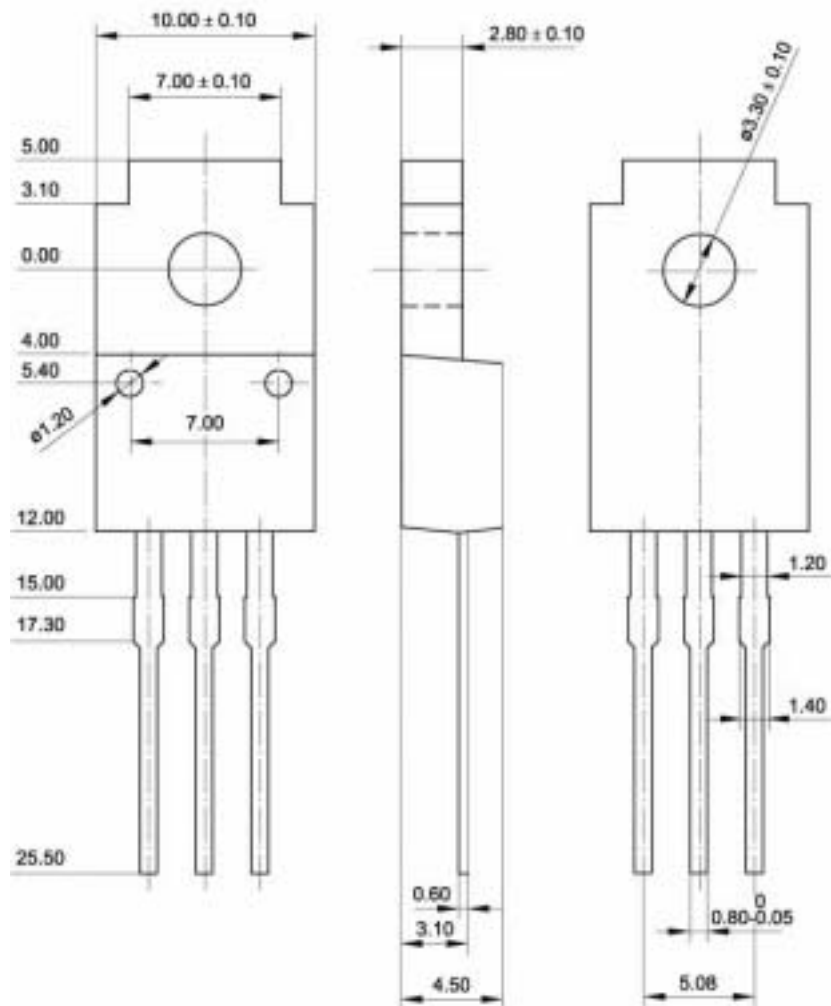


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.15$  mm)