

**Silicon NPN Power Transistors**

**BDX77**

**DESCRIPTION**

- With TO-220C package
- Low saturation voltage
- Complement to type BDX78
- Wide area of safe operation

**APPLICATIONS**

- For medium power switching and amplifier applications

**PINNING**

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

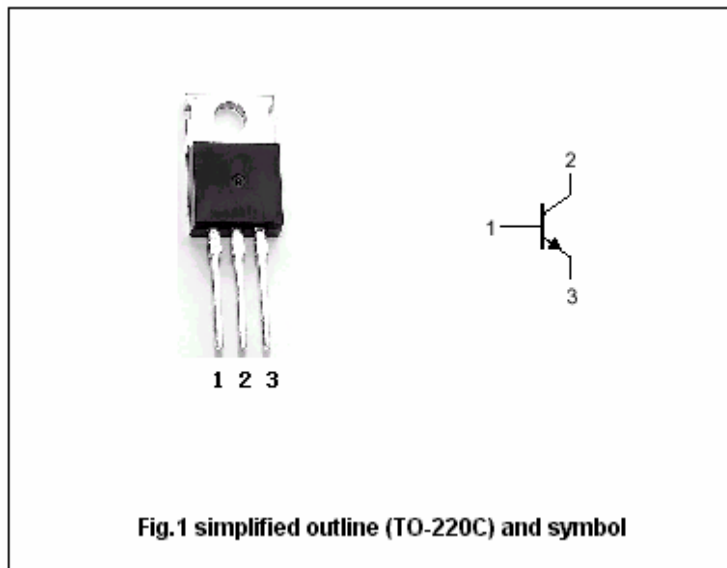


Fig.1 simplified outline (TO-220C) and symbol

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CB0</sub>	Collector-base voltage	Open emitter	100	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	80	V
V <sub>EBO</sub>	Emitter -base voltage	Open collector	5	V
I <sub>C</sub>	Collector current (DC)		8	A
I <sub>CM</sub>	Collector current-Peak		12	A
I <sub>B</sub>	Base current		3	A
P <sub>T</sub>	Total power dissipation	T <sub>C</sub> =25°C	60	W
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-65~150	°C

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal resistance junction to case	2.08	°C/W

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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	I <sub>C</sub> =0.2A ; I <sub>B</sub> =0	80			V
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =1mA ; I <sub>E</sub> =0	100			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =1mA ; I <sub>C</sub> =0	5			V
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.3A			1.0	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =6A; I <sub>B</sub> =0.6A			1.5	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =6A; I <sub>B</sub> =0.6A			2.0	V
I <sub>CEO</sub>	Collector cut-off current	V <sub>CE</sub> =30V ; I <sub>B</sub> =0;			0.2	mA
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =40V ; I <sub>E</sub> =0; T <sub>j</sub> =150°C			1.0	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =5V; I <sub>C</sub> =0			0.5	mA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =1A ; V <sub>CE</sub> =2V	30			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =0.3A ; V <sub>CE</sub> =3V	7.0			MHz
V <sub>BE</sub>	Base-emitter on voltage	I <sub>C</sub> =3A; V <sub>CE</sub> =2V			1.5	V

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =2A I <sub>B1</sub> =-I <sub>B2</sub> =0.2A;			1.0	μs
t <sub>off</sub>	Turn-off time				4.0	μs

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PACKAGE OUTLINE

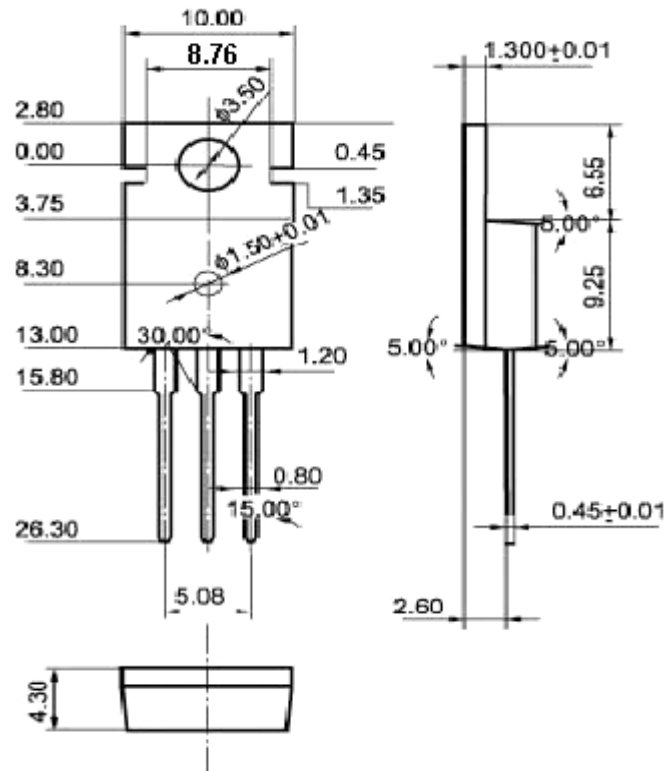


Fig.2 Outline dimensions (unindicated tolerance:±0.10 mm)