

## Silicon NPN Power Transistors

BD203

## DESCRIPTION

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- With TO-220C package
- Low saturation voltage
- Complement to type BD204
- 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

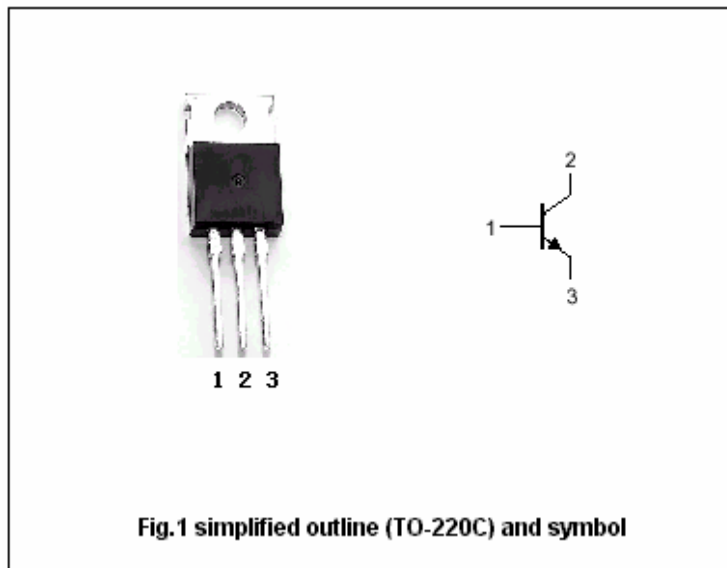


Fig.1 simplified outline (TO-220C) and symbol

## Absolute maximum ratings (Ta=25°C)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CB0</sub>	Collector-base voltage	Open emitter	60	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	60	V
V <sub>EB0</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

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 $T_j=25^\circ\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=0.2\text{A}; I_B=0$	60			V
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C=1\text{mA}; I_E=0$	60			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=1\text{mA}; I_C=0$	5			V
$V_{CEsat-1}$	Collector-emitter saturation voltage	$I_C=3\text{A}; I_B=0.3\text{A}$			1.0	V
$V_{CEsat-2}$	Collector-emitter saturation voltage	$I_C=6\text{A}; I_B=0.6\text{A}$			1.5	V
$V_{BEsat}$	Base-emitter saturation voltage	$I_C=6\text{A}; I_B=0.6\text{A}$			2.0	V
$I_{CEO}$	Collector cut-off current	$V_{CE}=30\text{V}; I_B=0;$			0.2	mA
$I_{CBO}$	Collector cut-off current	$V_{CB}=40\text{V}; I_E=0; T_j=150^\circ\text{C}$			1.0	mA
$I_{EBO}$	Emitter cut-off current	$V_{EB}=5\text{V}; I_C=0$			0.5	mA
$h_{FE}$	DC current gain	$I_C=2\text{A}; V_{CE}=2\text{V}$	30			
$f_T$	Transition frequency	$I_C=0.3\text{A}; V_{CE}=3\text{V}$	7.0			MHz
$V_{BE}$	Base-emitter on voltage	$I_C=3\text{A}; V_{CE}=2\text{V}$			1.5	V

## Switching times

$t_{on}$	Turn-on time	$I_C=2\text{A}$ $I_{B1}=-I_{B2}=0.2\text{A};$			1.0	$\mu\text{s}$
$t_{off}$	Turn-off time				4.0	$\mu\text{s}$

PACKAGE OUTLINE

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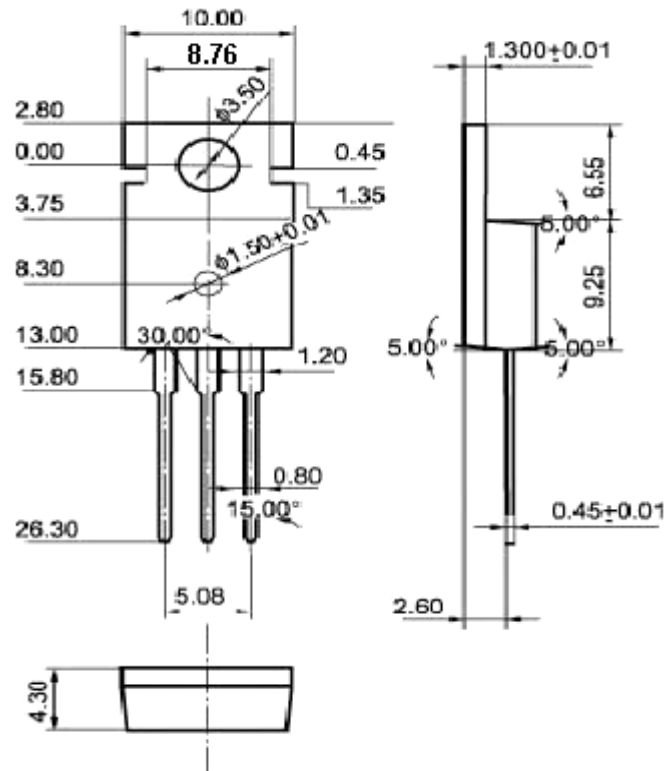


Fig.2 Outline dimensions (unindicated tolerance:±0.10 mm)