



NPN BD201 – BD203

SILICON EPITAXIAL-BASE POWER TRANSISTORS

The BD201 and BD203 are NPN transistors mounted in Jedec TO-220 plastic package. They are primarily intended for use in if-hi equipment delivering an output of 15 to 25 W into 4Ω or 8Ω load.

PNP complements are BD202 and BD204

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V_{CEO}	Collector-Emitter Voltage	BD201	45	V
		BD203	60	
V_{CBO}	Collector-Base Voltage	BD201	60	V
		BD203	60	
V_{EBO}	Emitter-Base Voltage		5.0	V
I_C	Collector Current	I_C	8	A
		I_{CM}	12	A
I_{CSM}	Collector Current (non-repetitive peak value, t_p max. 2 ms)		25	A
I_B	Base Current		3	A
P_D	Total Device Dissipation	@ $T_C = 25^\circ$	60	W
T_J	Junction Temperature		150	$^\circ\text{C}$
T_{Stg}	Storage Temperature range		-65 to +200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJ-a}	Thermal Resistance, Junction to mounting base	70	K/W
R_{thJ-mb}	Thermal Resistance, Junction to ambient in free air	2.08	K/W

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

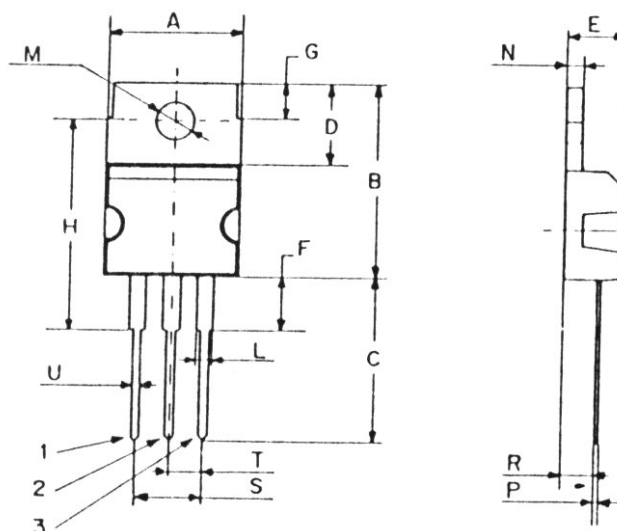
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
I_{CEO}	Collector Cutoff Current	$V_{CE}=30\text{ V}$, $I_B=0\text{ V}$	BD201 BD203	-	-	0.2 mA
I_{CBO}	Collector Cutoff Current	$V_{CB}=40\text{ V}$, $I_E=0\text{ V}$ $T_j=150^\circ\text{C}$	BD201 BD203	-	-	1 mA
I_{EBO}	Emitter Cutoff Current	$V_{BE}=5\text{ V}$, $I_C=0$	BD201 BD203	-	-	0.5 mA
V_{CBO}	Collector-Base Breakdown Voltage	$I_C=1\text{ m A}$, $I_E=0$	BD201 BD203	60	-	- V
V_{CEO}	Collector Emitter Breakdown Voltage (*)	$I_C=200\text{ m A}$, $I_B=0$	BD201 BD203	45 60	- -	- V
V_{EBO}	Emitter Base Breakdown Voltage	$I_E=1\text{ mA}$, $I_C=0$	BD201 BD203	5	-	- V
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=3\text{ A}$, $I_B=300\text{ mA}$	BD201 BD203	-	-	1 V
		$I_C=6\text{ A}$, $I_B=600\text{ mA}$	BD201 BD203	-	-	1.5 V
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	$I_C=6\text{ A}$, $I_B=600\text{ mA}$	BD201 BD203	-	-	2 V
V_{BE}	Base Emitter Voltage (*)	$I_C=3\text{ A}$, $V_{CE}=2\text{ V}$	BD201 BD203	-	-	1.5 V
h_{FE}	DC Current Gain (*)	$I_C=3\text{ A}$, $V_{CE}=2\text{ V}$	BD201	30	-	-
		$I_C=2\text{ A}$, $V_{CE}=2\text{ V}$	BD203	30	-	-
f_{hfe}	Cut-off frequency	$I_C=300\text{ mA}$, $V_{CE}=3\text{ V}$	BD201 BD203	25	-	- KHz
f_T	Transition frequency	$I_C=300\text{ mA}$, $V_{CE}=3\text{ V}$ $f=1\text{ MHz}$	BD201 BD203	7	-	- MHz
$I_{s/b}$	Forward bias second breakdown collector current	$V_{CE}=40\text{ V}$, $t_p=0.1\text{ s}$ $T_{amb}=25^\circ\text{C}$	BD201 BD203	1.5	-	- A
h_{FE1}/h_{FE2}	DC current gain	$I_C=1\text{ A}$, $V_{CE}=2\text{ V}$	BD201 BD203	2.5	-	-
t_{on}	Turn-on time	$I_{Con}=2\text{ A}$	BD201 BD203	-	-	1 μs
T_{off}	Turn-off time	$I_{Bon} = -I_{Boff} = 200\text{ mA}$	BD201 BD203	-	-	4 μs

(*) Pulse conditions : $t_p < 300\text{ }\mu\text{s}$, $\delta = 2\%$

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MECHANICAL DATA CASE TO-220

DIMENSIONS (mm)		
	Min.	Max.
A	9,90	10,30
B	15,65	15,90
C	13,20	13,40
D	6,45	6,65
E	4,30	4,50
F	2,70	3,15
G	2,60	3,00
H	15,75	17,15
L	1,15	1,40
M	3,50	3,70
N	-	1,37
P	0,46	0,55
R	2,50	2,70
S	4,98	5,08
T	2,49	2,54
U	0,70	0,90



Pin 1 :	Base
Pin 2 :	Collector
Pin 3 :	Emitter
Case :	Collector

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