



NPN BD201 – BD203
PNP BD202 – BD204

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

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	BD201	5.0	V	
		BD203			
I_C	Collector Current	I_C	BD201	8	A
			BD203		
		I_{CM}	BD201	12	A
			BD203		
I_{CSM}	Collector Current (non-repetitive peak value, t_p max.2 ms)	BD201	25	A	
		BD203			
I_B	Base Current	BD201	3	A	
		BD203			
P_D	Total Device Dissipation	@ $T_C = 25^\circ$	BD201	60	Watts
			BD203		
T_J	Junction Temperature	BD201	150	°C	
		BD203			
T_{Stg}	Storage Temperature range	BD201	-65 to +200	°C	
		BD203			

THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
R_{thJ-a}	Thermal Resistance, Junction to mounting base	BD201	70	K/W
		BD203		
R_{thJ-mb}	Thermal Resistance, Junction to ambient in free air	BD201	2.08	K/W
		BD203		

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
I_{CEO}	Collector Cutoff Current	$V_{CE}=30\text{ V}, I_B=0\text{ V}$	BD201	-	-	0.2	mA
			BD203				
I_{CBO}	Collector Cutoff Current	$V_{CB}=40\text{ V}, I_E=0\text{ V}, T_J=150^\circ\text{C}$	BD201	-	-	1	mA
			BD203				
I_{EBO}	Emitter Cutoff Current	$V_{BE}=5.0\text{ V}, I_C=0$	BD201	-	-	0.5	mA
			BD203				
V_{BE}	Base Emitter Voltage (1)	$I_C=3\text{ A}, V_{CE}=2.0\text{ V}$	BD201	-	-	1.5	V
			BD203				
V_{CEK}	Knee Voltage (1)	$I_C=3\text{ A}, I_B=$ value for which $I_C=3.3\text{ A}$ at $V_{CE}=2.0\text{ V}$	BD201	-	1	-	V
			BD203				
h_{FE}	DC Current Gain (1)	$I_C=3\text{ A}, V_{CE}=2.0\text{ V}$	BD201	30	-	-	-
		$I_C=2\text{ A}, V_{CE}=20\text{ V}$	BD203				
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (1)	$I_C=3\text{ A}, I_B=0.3\text{ A}$	BD201	-	-	1	V
		$I_C=6\text{ A}, I_B=0.6\text{ A}$	BD203				
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (1)	$I_C=6\text{ A}, I_B=0.6\text{ A}$	BD201	-	-	2	
			BD203				

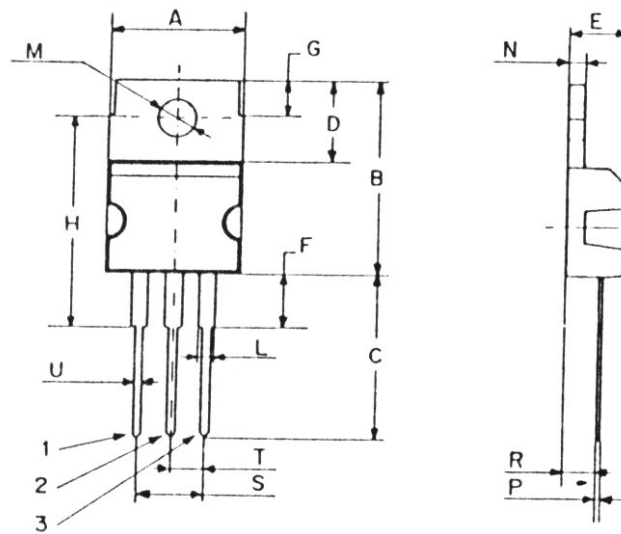
Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
f_{hfe}	Cut-off frequency	$I_C=0.3\text{ A}, V_{CE}=3.0\text{ V}$	BD201	25	-	-	KHz
			BD203				
f_T	Transition frequency	$I_C=0.3\text{ A}, V_{CE}=3.0\text{ V}$ $f=1\text{ MHz}$	BD201	7	-	-	MHz
			BD203				
$I_{s/b}$	Forward bias second breakdown collector current	$V_{CE}=40\text{ V}, t_p=0.1\text{ s}$ $T_{amb}=25^\circ\text{C}$	BD201	1.5	-	-	A
			BD203				
h_{FE1}/h_{FE2}	DC current gain ration of matched complementary pairs	$I_C=1\text{ A}, V_{CE}=2.0\text{ V}$	BD201	2.5	-	-	-
			BD203				
t_{on}	Turn-on time	$I_{Con}=2\text{ A}$ $I_{Bon}=-I_{Boff}=0.2\text{ A}$	BD201	-	-	1	μs
T_{off}	Turn-off time		BD203				

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

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MECHANICAL DATA CASE TO-220

DIMENSIONS		
	mm	inches
A	9,86	0,39
B	15,73	0,62
C	13,37	0,52
D	6,67	0,26
E	4,44	0,17
F	4,21	0,16
G	2,99	0,11
H	17,21	0,68
L	1,29	0,05
M	3,6	0,14
N	1,36	0,05
P	0,46	0,02
R	2,1	0,08
S	5	0,19
T	2,52	0,098
U	0,79	0,03



Pin 1 :	base
Pin 2 :	Collector
Pin 3 :	emitter

Information furnished is believed to be accurate and reliable. However, CS assumes no responsibility for the consequences of use of such information nor for errors that could appear.

Data are subject to change without notice.