



PNP BD202 – BD204
NPN BD201 – BD203

SILICON EPITAXIAL-BASE POWER TRANSISTORS

The BD202 and BD204 are PNP 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.
 NPN complements are BD201 and BD203

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
$-V_{CEO}$	Collector-Emitter Voltage	BD202	45	V
		BD204	60	
$-V_{CBO}$	Collector-Base Voltage	BD202	60	V
		BD204	60	
$-V_{EBO}$	Emitter-Base Voltage	BD202	5.0	V
		BD204		
$-I_C$	Collector Current	$-I_C$	8	A
		BD202		
		$-I_{CM}$	12	A
$-I_{CSM}$	Collector Current (non-repetitive peak value, t_p max.2 ms)	BD202	25	A
		BD204		
$-I_B$	Base Current	BD202	3	A
		BD204		
P_D	Total Device Dissipation @ $T_C = 25^\circ$	BD202	60	Watts
		BD204		
T_J	Junction Temperature	BD202	150	$^\circ C$
		BD204		
T_{Stg}	Storage Temperature range	BD202	-65 to +200	$^\circ C$
		BD204		

THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
R_{thJ-a}	Thermal Resistance, Junction to mounting base	BD202	70	K/W
		BD204		
R_{thJ-mb}	Thermal Resistance, Junction to ambient in free air	BD202	2.08	K/W
		BD204		

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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	$-V_{CE}=30\text{ V}, I_B=0\text{ V}$	BD202 BD204	-	-	0.2 mA
$-I_{CBO}$	Collector Cutoff Current	$-V_{CB}=40\text{ V}, I_E=0\text{ V}, T_j=150^\circ\text{C}$	BD202 BD204	-	-	1 mA
$-I_{EBO}$	Emitter Cutoff Current	$-V_{BE}=5.0\text{ V}, I_C=0$	BD202 BD204	-	-	0.5 mA
$-V_{CEO}$	Collector Emitter Breakdown Voltage	$I_C=0.2\text{ A}, I_B=0\text{ V}$	BD202 BD204	45 60	- -	- - V
$-V_{BE}$	Base Emitter Voltage (1)	$-I_C=3\text{ A}, -V_{CE}=2.0\text{ V}$	BD202 BD204	-	-	1.5 V
$-V_{CEK}$	Knee Voltage (1)	$-I_C=3\text{ A}, -I_B=$ value for which $-I_C=3.3\text{ A}$ at $-V_{CE}=2.0\text{ V}$	BD202 BD204	-	1	- V
h_{FE}	DC Current Gain (1)	$-I_C=3\text{ A}, -V_{CE}=2.0\text{ V}$ $-I_C=2\text{ A}, -V_{CE}=20\text{ V}$	BD202 BD204	30 30	- -	- -
$-V_{CE(SAT)}$	Collector-Emitter saturation Voltage (1)	$-I_C=3\text{ A}, -I_B=0.3\text{ A}$ $-I_C=6\text{ A}, -I_B=0.6\text{ A}$	BD202 BD204 BD202 BD204	- -	- -	1 1.5 V
$-V_{BE(SAT)}$	Base-Emitter saturation Voltage (1)	$-I_C=6\text{ A}, -I_B=0.6\text{ A}$	BD202 BD204	-	-	2

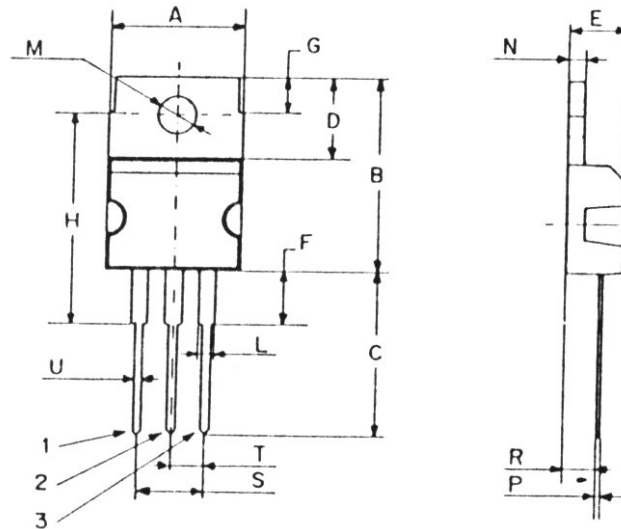
Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit
f_{hfe}	Cut-off frequency	$-I_C=0.3\text{ A}, -V_{CE}=3.0\text{ V}$	BD201 BD203	25	-	- KHz
f_T	Transition frequency	$-I_C=0.3\text{ A}, -V_{CE}=3.0\text{ V}$ $f=1\text{ MHz}$	BD201 BD203	7	-	- MHz
$I_{s/b}$	Forward bias second breakdown collector current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

 (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.