NPN BD201 – BD203

SILCON 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°		60	W
T_J	*Junction Temperature*			150	°C
T_{Stg}	Storage Temperature range			-65 to +200	°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 V, I_B=0V	BD201	-	-	0.2	mA
			BD203				
I_{CBO}	Collector Cutoff Current	V_{CB}=40 V, I_E=0V T_j=150°C	BD201	-	-	1	mA
			BD203				
I_{EBO}	Emitter Cutoff Current	V_{BE}=5 V, I_C=0	BD201	-	-	0.5	mA
			BD203				
V_{CBO}	Collector-Base Breakdown Voltage	I_C=1 m A, I_E= 0	BD201	60	-	-	V
			BD203				
V_{CEO}	Collector Emitter Breakdown Voltage (*)	I_C=200 m A, I_B= 0	BD201	45	-	-	V
			BD203	60	-	-	
V_{EBO}	Emitter Base Breakdown Voltage	I_E =1 mA, I_C =0	BD201	5	-	-	V
			BD203				
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	I_C=3 A, I_B=300 mA	BD201	-	-	1	V
			BD203				
		I_C=6 A, I_B=600 mA	BD201	-	-	1.5	
			BD203				
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	I_C=6 A, I_B=600 mA	BD201	-	-	2	
			BD203				
V_{BE}	Base Emitter Voltage (*)	I_C=3 A, V_{CE}=2 V	BD201	-	-	1.5	V
			BD203				
h_{FE}	DC Current Gain (*)	I_C=3 A, V_{CE}=2 V	BD201	30	-	-	-
		I_C=2 A, V_{CE}=2 V	BD203	30	-	-	
f_{hfe}	Cut-off frequency	I_C=300 mA, V_{CE}=3 V	BD201	25	-	-	KHz
			BD203				
f_T	Transition frequency	I_C=300 mA, V_{CE}=3 V f= 1MHz	BD201	7	-	-	MHz
			BD203				
$I_{s/b}$	Forward bias second breakdown collector current	V_{CE}=40 V,t_p= 0.1 s T_{amb}= 25 °C	BD201	1.5	-	-	A
			BD203				
h_{FE1}/h_{FE2}	DC current gain	I_C=1 A, V_{CE}=2 V	BD201	2.5	-	-	-
			BD203				
t_{on}	Turn-on time	I_{Con}=2 A I_{Bon} = -I_{Boff} =200 mA	BD201	-	-	1	µs
			BD203				
T_{off}	Turn-off time		BD201	-	-	4	
			BD203				

(*) Pulse conditions : tp < 300 µs, δ =2%

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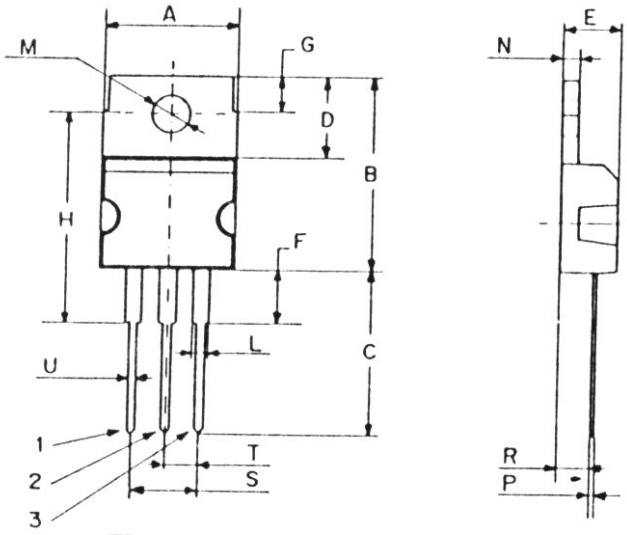
MECHANICAL DATA CASE TO-220

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

Revised September 2012