

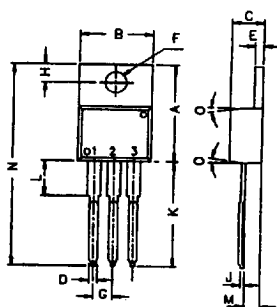
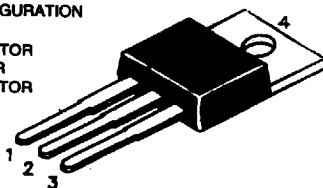
BD201, BD203, BDX77 NPN PLASTIC POWER TRANSISTORS

Complementary BD202, BD204 and BDX78

Medium Power Switching and Amplifier Applications

PIN CONFIGURATION

1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR



ALL DIMENSIONS ARE IN M.M.

DIM	MIN	MAX
A	14,42	16,51
B	9,63	10,67
C	3,56	4,83
D	—	0,90
E	1,15	1,40
F	3,75	3,88
G	2,29	2,79
H	2,54	3,43
J	—	0,58
K	12,70	14,73
L	—	6,35
M	2,03	2,92
N	—	31,24
O	7	DEG

ABSOLUTE MAXIMUM RATINGS

		201	203	BDX77	
Collector-base voltage (open emitter)	V_{CBO}	max. 60	60	100	V
Collector-emitter voltage (open base)	V_{CEO}	max. 45	60	80	V
Collector current (DC)	I_C	max.	8.0		A
Total power dissipation up to $T_{mb} = 25^\circ\text{C}$	P_{tot}	max.	60		W
Junction temperature	T_j	max.	150		$^\circ\text{C}$
Collector-emitter saturation voltage	V_{CEsat}	max.	1.0		V
$I_C = 3\text{ A}; I_B = 0.3\text{ A}$					
D.C. current gain	h_{FE}	min.	—	—	30
$I_C = 1\text{ A}; V_{CE} = 2\text{ V}$					
$I_C = 2\text{ A}; V_{CE} = 2\text{ V}$					
$I_C = 3\text{ A}; V_{CE} = 2\text{ V}$					

RATINGS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Limiting values		201	203	BDX77	
Collector-base voltage (open emitter)	V_{CBO}	max. 60	60	100	V
Collector-emitter voltage (open base)	V_{CEO}	max. 45	60	80	V
Emitter-base voltage (open collector)	V_{EBO}	max.	5.0		V
Collector current (DC)	I_C	max.	8.0		A

Collector current (peak $t_p = 10$ ms)	I_{CM}	max.	12	A
Collector current (non-repetitive peak $t_p = 2$ ms)	I_{CSM}	max.	25	A
Base current	I_B	max.	3.0	A
Total power dissipation up to $T_{mb} = 25^\circ\text{C}$	P_{tot}	max.	60	W
Junction temperature	T_j	max.	150	$^\circ\text{C}$
Storage temperature	T_{stg}		-65 to +150	$^\circ\text{C}$

THERMAL RESISTANCE

From junction to ambient	$R_{th\ j-a}$		70	K/W
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CHARACTERISTICS

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

			201	203	BDX77	
Collector cutoff current						
$I_B = 0$; $V_{CE} = 30$ V	I_{CEO}	max.		0.2		mA
$I_B = 0$; $V_{CB} = 40$ V; $T_j = 150^\circ\text{C}$	I_{CBO}	max.		1.0		mA
Emitter cut-off current						
$I_C = 0$; $V_{EB} = 5$ V	I_{EBO}	max.		0.5		mA
Breakdown voltages						
$I_C = 0.2$ A; $I_B = 0$	V_{CEO}	min.	45	60	80	V
$I_C = 1$ mA; $I_E = 0$	V_{CBO}	min.	60	60	100	V
$I_E = 1$ mA; $I_C = 0$	V_{EBO}	min.		5.0		V
Saturation voltages						
$I_C = 3$ A; $I_B = 0.3$ A	V_{CEsat}^*	max.		1.0		V
$I_C = 6$ A; $I_B = 0.6$ A	V_{CEsat}^*	max.		1.5		V
	V_{BEsat}^*	max.		2.0		V
Base-emitter on voltage						
$I_C = 3$ A; $V_{CE} = 2$ V	$V_{BE(on)}^*$	max.		1.5		V
D.C. current gain						
$I_C = 1$ A; $V_{CE} = 2$ V	h_{FE}^*	min.	-	-	30	
$I_C = 2$ A; $V_{CE} = 2$ V	h_{FE}^*	min.	-	30	-	
$I_C = 3$ A; $V_{CE} = 2$ V	h_{FE}^*	min.	30	-	-	
Common emitter small						
$I_C = 0.3$ A; $V_{CE} = 3$ V	f_{hfe}	min.		25		KHz
Transition frequency						
$I_C = 0.3$ A; $V_{CE} = 3$ V; $f = 1$ MHz	f_T	min.		7.0		MHz
Second breakdown collector current with base forward biased (non-repetitive)						
$V_{CE} = 40$ V; $t_p = 0.1$ s	$I_{S/b}$	min.		1.5		A
Switching time						
$I_{Con} = 2$ A; $I_{Bon} = -I_{Boff} = 0.2$ A						
Turn on time	t_{on}	max.		1.0		μs
Turn off time	t_{off}	max.		4.0		μs

* Pulse test: $t_p \leq 300$ μs ; duty cycle $\leq 2\%$