

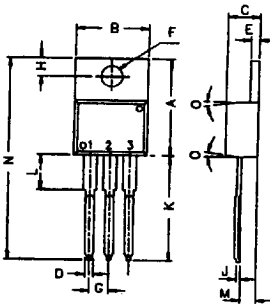
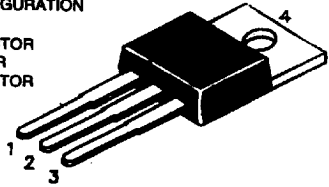
BD201, BD203, BDX77 NPN PLASTIC POWER TRANSISTORS

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 $T_{mb} = 25^\circ C$	P_{tot}	max.	60		W
Junction temperature	T_j	max.	150		$^\circ C$
Collector-emitter saturation voltage	V_{CEsat}	max.	1.0		V
$I_C = 3 A; I_B = 0.3 A$					
D.C. current gain	h_{FE}	min.	-	-	30
$I_C = 1 A; V_{CE} = 2 V$	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	-	-

RATINGS (at $T_A = 25^\circ C$ 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: $t_p \leq 300 \mu\text{s}$; duty cycle $\leq 2\%$