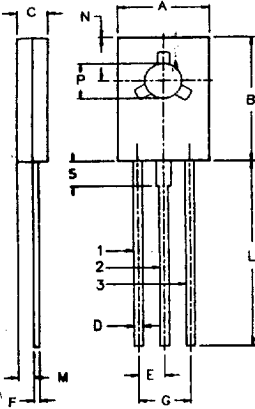
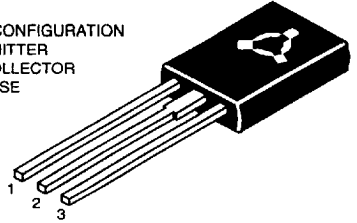


BD136, 138, 140 PNP PLASTIC POWER TRANSISTORS
 Complementary BD135, 137, 139
 Medium Power Linear and Switching Applications

PIN CONFIGURATION
 1. EMITTER
 2. COLLECTOR
 3. BASE



DIM	MIN.	MAX.
A	7.4	7.8
B	10.5	10.8
C	2.4	2.7
D	0.7	0.9
E	2.25 TYP.	
F	0.49	0.75
G	4.5 TYP.	
L	15.7 TYP.	
M	1.27 TYP.	
N	3.75 TYP.	
P	3.0	3.2
S	2.5 TYP.	

ALL DIMENSIONS IN MM

ABSOLUTE MAXIMUM RATINGS

Collector-base voltage (open emitter)	V_{CBO}	max.	136	138	140	V
Collector-emitter voltage (open base)	V_{CEO}	max.	45	60	100	V
Collector current	I_C	max.		1.5		A
Total power dissipation up to $T_C = 25^\circ C$	P_{tot}	max.		12.5		W
Junction temperature	T_j	max.		150		$^\circ C$
Collector-emitter saturation voltage $I_C = 0.5 A; I_B = 0.05 A$	V_{CEsat}	max.		0.5		V
D.C. current gain $I_C = 0.15 A; V_{CE} = 2 V$	h_{FE}	min.		40		
		max.		250		

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

Limiting values			136	138	140	
Collector-base voltage (open emitter)	V_{CBO}	max.	45	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	I_C	max.	1.5	A
Base current	I_B	max.	0.5	A
Total power dissipation up to $T_A = 25^\circ\text{C}$	P_{tot}	max.	1.25	W
Derate above 25°C		max	10	mW/ $^\circ\text{C}$
Total power dissipation up to $T_C = 25^\circ\text{C}$	P_{tot}	max.	12.5	W
Derate above 25°C		max	100	mW/ $^\circ\text{C}$
Junction temperature	T_j	max.	150	$^\circ\text{C}$
Storage temperature	T_{stg}		-65 to +150	$^\circ\text{C}$

THERMAL RESISTANCE

From junction to case	$R_{th\ jc}$		10	$^\circ\text{C}/\text{W}$
From junction to ambient	$R_{th\ ja}$		100	$^\circ\text{C}/\text{W}$

CHARACTERISTICS

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

			136	138	140	
Collector cutoff current						
$I_E = 0; V_{CB} = 30\text{ V}$	I_{CBO}	max.		0.1		μA
$I_E = 0; V_{CB} = 30\text{ V}; T_C = 125^\circ\text{C}$	I_{CBO}	max.		10		μA
Emitter cut-off current						
$I_C = 0; V_{EB} = 5\text{ V}$	I_{EBO}	max.		10		μA
Breakdown voltages						
$I_C = 0.03\text{ A}; I_B = 0$	$V_{CEO(sus)}^*$	min.	45	60	80	V
$I_C = 1\text{ mA}; I_E = 0$	V_{CBO}	min.	45	60	100	V
$I_E = 1\text{ mA}; I_C = 0$	V_{EBO}	min.		5.0		V
Saturation voltage						
$I_C = 0.5\text{ A}; I_B = 0.05\text{ A}$	V_{CEsat}^*	max.		0.5		V
Base-emitter on voltage						
$I_C = 0.5\text{ A}; V_{CE} = 2\text{ V}$	$V_{BE(on)}^*$	max.		1.0		V
D.C. current gain						
$I_C = 0.005\text{ A}; V_{CE} = 2\text{ V}^*$	h_{FE}^*	min.		25		
$I_C = 0.15\text{ A}; V_{CE} = 2\text{ V}^{**}$	h_{FE}^*	min.		40		
		max.		250		
$I_C = 0.5\text{ A}; V_{CE} = 2\text{ V}^*$	h_{FE}^*	min.		25		
** h_{FE} classification:	-6	min.	40			
		max.	100			
	-10	min.	63			
		max.	160			
	-16	min.	100			
		max.	250			
	-25	min.	160			
		max.	400			

* Pulse test: pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.