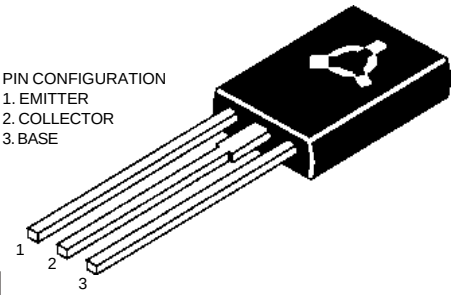
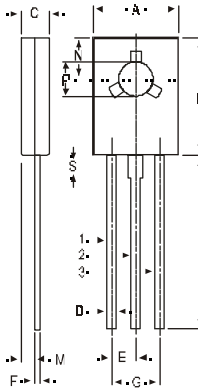
TO-126 (SOT-32) Plastic Package **BD135, BD137, BD139**

BD135, 137, 139 NPN PLASTIC POWER TRANSISTORS

Complementary BD136, 138, 140

Medium Power Linear and Switching Applications





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

			135	***137***	***139***	
Collector-base voltage (open emitter)	V_{CBO}	*max.*	*45*	*60*	*100*	*V*
Collector-emitter voltage (open base)	V_{CEO}	*max.*	*45*	*60*	*80*	*V*
Collector current	I_C	*max.*		*1.5*		*A*
Total power dissipation up to T_C = 25°C	P_{tot}	*max.*		*12.5*		*W*
Junction temperature	T_j	*max.*		*150*		*°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 C unless otherwise specified)

Limiting values			***135***	***137***	***139***	
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°C	P_{tot}	*max.*	*1.25*		*W*
Derate above 25°C		*max*	*10*		*mW/°C*
Total power dissipation up to T_C = 25°C	P_{tot}	*max.*	*12.5*		*W*
Derate above 25°C		*max*	*100*		*mW/°C*
Junction temperature	T_j	*max.*	*150*		*°C*
Storage temperature	T_{stg}		*–65 to +150*		*°C*

THERMAL RESISTANCE

From junction to case	$R_{th\ j-c}$	*10*		*°C/W*
From junction to ambient	$R_{th\ j-a}$	*100*		*°C/W*

CHARACTERISTICS

T_{amb} = 25°C unless otherwise specified

			135	***137***	***139***	
Collector cutoff current						
I_E = 0; V_{CB} = 30 V	I_{CBO}	*max.*		*0.1*		*µA*
I_E = 0; V_{CB} = 30 V; T_C = 125°C	I_{CBO}	*max.*		*10*		*µA*
Emitter cut-off current						
I_C = 0; V_{EB} = 5 V	I_{EBO}	*max.*		*10*		*µA*
Breakdown voltages						
I_C = 0.03 A; I_B = 0	$V_{CEO(sus)}$*	*min.*	*45*	*60*	*80*	*V*
I_C = 1 mA; I_E = 0	V_{CBO}	*min.*	*45*	*60*	*100*	*V*
I_E = 1 mA; I_C = 0	V_{EBO}	*min.*		*5.0*		*V*
Saturation voltage						
I_C = 0.5 A; I_B = 0.05 A	V_{CEsat}*	*max.*		*0.5*		*V*
Base-emitter on voltage						
I_C = 0.5A; V_{CE} = 2V	$V_{BE(on)}$*	*max.*		*1.0*		*V*
D.C. current gain						
*I_C = 0.005 A; V_{CE} = 2 V**	h_{FE}*	*min.*		*25*		
*I_C = 0.15 A; V_{CE} = 2 V***	h_{FE}*	*min.*		*40*		
		max.		*250*		
*I_C = 0.5 A; V_{CE} = 2 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 ≤ 300 µs, duty cycle ≤ 2%.*

Notes

Disclaimer

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CDIL is a registered Trademark of
Continental Device India Limited
C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-579 6150 Fax + 91-11-579 9569, 579 5290
e-mail sales@cdil.com www.cdil.com