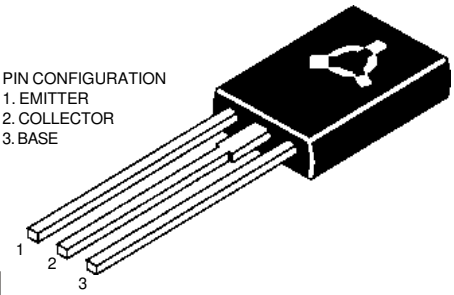
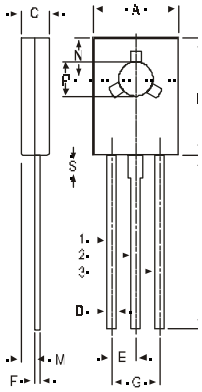
TO-126 (SOT-32) Plastic Package **BD135, BD137, BD139**

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

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished on the CDIL Web Site/ CD is believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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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