

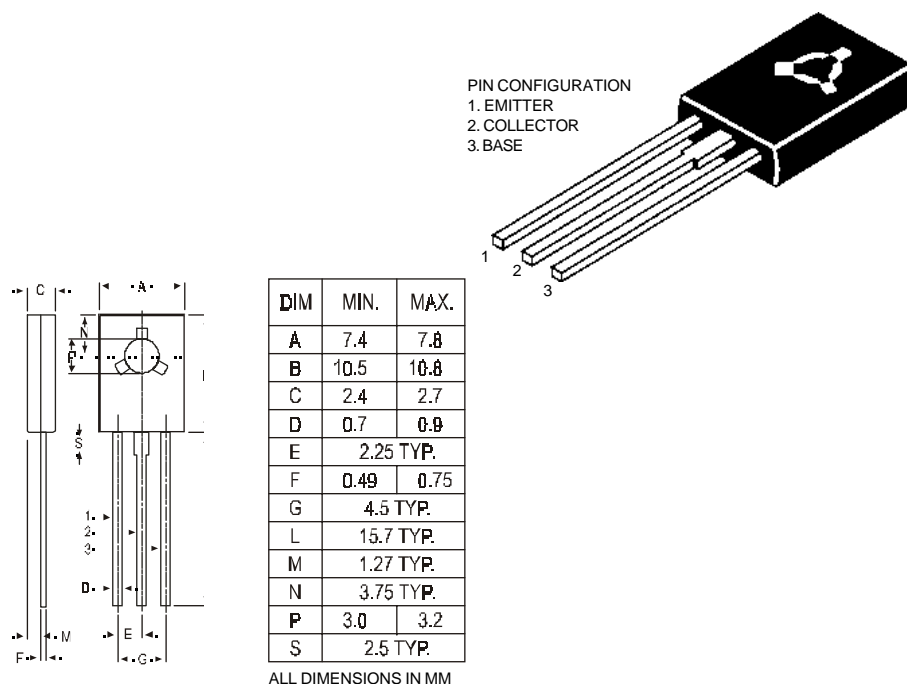
TO-126 (SOT-32) Plastic Package

BD135, BD137, BD139

BD135, 137, 139 NPN PLASTIC POWER TRANSISTORS

Complementary BD136, 138, 140

Medium Power Linear and Switching Applications



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 $T_C = 25^\circ\text{C}$	P_{tot}	max.		12.5		W
Junction temperature	T_j	max.		150		$^\circ\text{C}$
Collector-emitter saturation voltage						
$I_C = 0.5\text{ A}; I_B = 0.05\text{ A}$	V_{CEsat}	max.		0.5		V
D.C. current gain						
$I_C = 0.15\text{ A}; V_{CE} = 2\text{ V}$	h_{FE}	min.		40		
		max.		250		

RATINGS (at $T_A=25^\circ\text{C}$ 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

BD135, BD137, BD139

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/°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/°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

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

			135	137	139	
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 $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

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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