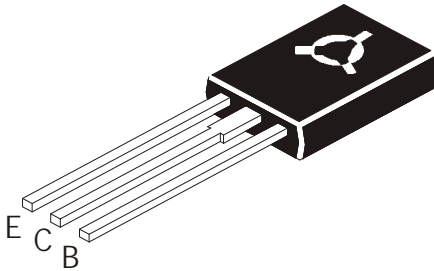


PNP EPITAXIAL SILICON POWER TRANSISTORS

**BD136 BD138
BD140**

**TO126
Plastic Package**



Designed for use as Audio Amplifier and Drivers Utilizing

Complementary BD135, BD137, BD139

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	BD136	BD138	BD140	UNIT
Collector -Emitter Voltage	V_{CEO}	45	60	80	V
Collector -Emitter Voltage ($R_{BE}=1kW$)	V_{CER}	45	60	100	V
Collector -Base Voltage	V_{CBO}	45	60	100	V
Emitter Base Voltage	V_{EBO}	5.0			V
Collector Current	I_C	1.5			A
Collector Peak Current	I_{CM}	2.0			A
Base Current	I_B	0.5			A
Power Dissipation @ $T_a=25^{\circ}C$	P_D	1.25			W
Derate above $25^{\circ}C$		10			mW/ $^{\circ}C$
Power Dissipation @ $T_c=25^{\circ}C$	P_D	12.5			W
Derate above $25^{\circ}C$		100			mW/ $^{\circ}C$
Power Dissipation @ $T_c=70^{\circ}C$	P_D	8.0			W
Operating and Storage Junction Temperature Range	T_j, T_{stg}	- 55 to +150			$^{\circ}C$

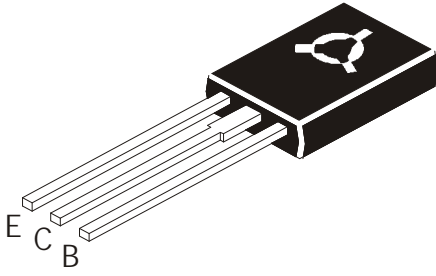
THERMAL CHARACTERISTICS

Junction to Ambient in free air	$R_{th(j-a)}$	100	$^{\circ}C/W$
Junction to Case	$R_{th(j-c)}$	10	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS ($T_c=25^{\circ}C$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Collector Emitter Sustaining Voltage	* $V_{CEO(sus)}$	$I_C=30mA, I_B=0$			
		BD136	45		V
		BD138	60		V
		BD140	80		V
Collector Cut Off Current	I_{CBO}	$V_{CB}=30V, I_E=0$		0.1	μA
		$V_{CB}=30V, I_E=0, T_c=125^{\circ}C$		10	μA
Emitter Cut Off Current	I_{EBO}	$V_{EB}=5V, I_C=0$		10	μA
DC Current Gain	* h_{FE}	$I_C=0.005A, V_{CE}=2V$	25		
		$I_C=0.15A, V_{CE}=2V$	40	250	
		$I_C=0.5A, V_{CE}=2V$	25		

*Pulse test:- Pulse width=300ms, duty cycle=2%

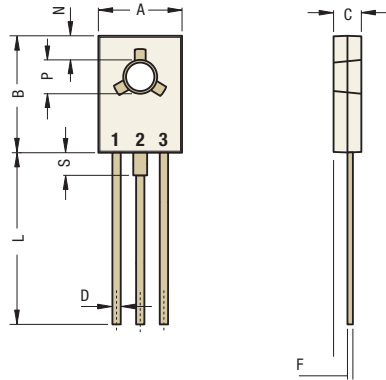
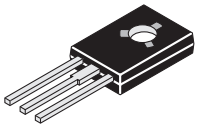
ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
DC Current Gain	* h_{FE} Group	$I_C=0.15\text{A}$, $V_{CE}=2\text{V}$			
		- 6	40	100	
		- 10	63	160	
		- 16	100	250	
		- 25	160	400	
Collector Emitter Saturation Voltage	* $V_{CE(sat)}$	$I_C=0.5\text{A}$, $I_B=0.05\text{A}$		0.5	V
Base Emitter On Voltage	* $V_{BE(on)}$	* $I_C=0.5\text{A}$, $V_{CE}=2\text{V}$		1.0	V

*Pulse test:- Pulse width=300ms, duty cycle=2%

TO126
Plastic Package

TO-126
Leaded Plastic
Package

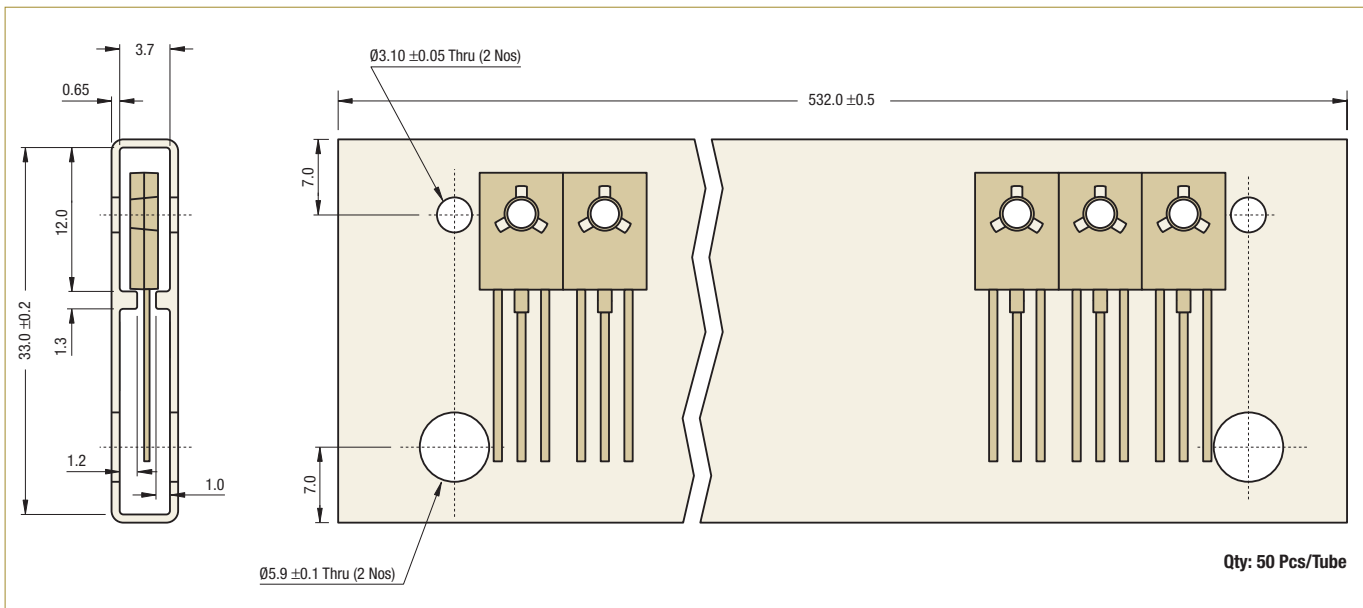


DIM	Min	Max	DIM	Min	Max
A	7.12	8.38	G	4.07	5.08
B	10.16	11.43	L	15.00	16.63
C	2.29	3.04	M	0.89	1.65
D	0.64	0.88	N	3.31	4.44
E	2.040	2.285	P	2.54	3.30
F	0.39	0.63	S	—	2.54

Pin Configurations

Pin 1: Emitter Pin 2: Collector Pin 3: Base

TO-126 Series Packaging Tube



Packaging Specifications ...

T & A: Tape and Ammo Pack; T & R: Tape and Reel; Bulk: Loose in Poly Bags; Tube: Tube and Carton; K: 1,000

Package / Case Type	Packaging Type	Std. Packing		Inner Carton		Outer Carton		
		Qty	Qty	Size L x W x H (cm)	Gross Weight (Kg)	Qty	Size L x W x H (cm)	Gross Weight (Kg)
TO-126	Bulk	2,000	2K	19 x 19 x 8	1.4	20K	46 x 38 x 22	15.6
	Tube	1,000 (50 pcs/tube)	1K	55 x 8 x 10	1.5	10K	55 x 35 x 27	16.3

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's 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 in the Data Sheet and on the CDIL Web Site/CD are 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 Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems 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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