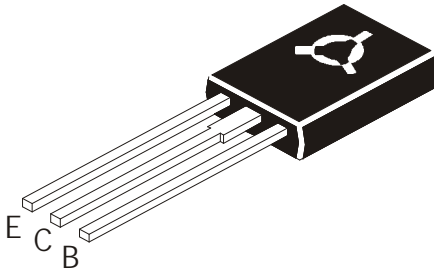


NPN EPITAXIAL SILICON POWER TRANSISTORS

**BD135 BD137
BD139**

**TO126
Plastic Package**



Designed for use as Audio Amplifier and Drivers Utilizing

Complementary BD136, BD138, BD140

ABSOLUTE MAXIMUM RATINGS

| DESCRIPTION | SYMBOL | BD135 | BD137 | BD139 | 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 | $^{\circ}C/W$ |

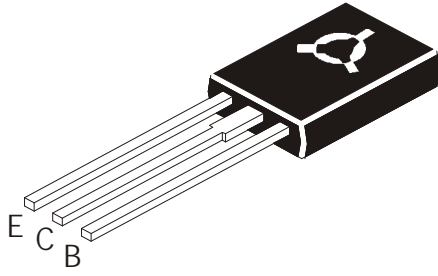
ELECTRICAL CHARACTERISTICS ($T_c=25^{\circ}C$ unless specified otherwise)

| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | MAX | UNIT | |
|--------------------------------------|------------------|---------------------------------------|-------|-----|---------|---|
| Collector Emitter Sustaining Voltage | * $V_{CEO(sus)}$ | $I_C=30mA, I_B=0$ | | | | |
| | | | BD135 | 45 | | V |
| | | | BD137 | 60 | | V |
| | | | BD139 | 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%

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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%

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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Continental Device India Limited

C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-2579 6150, 4141 1112 Fax + 91-11-2579 5290, 4141 1119
email@cdil.com www.cdilsemi.com