



NPN BD135 – BD137 – BD139

SILICON PLANAR EPITAXIAL POWER TRANSISTORS.

The BD135-BD137-BD139 are NPN Transistors
 They are recommended for driver stages in hi-fi amplifiers and television circuits.
 They are mounted in Jedec TO-126 plastic package.
 PNP complements are BD136-BD138-BD140.
 Compliance to RoHS

ABSOLUTE MAXIMUM RATINGS

| Symbol | Ratings | Value | Unit | |
|-----------|---|-----------------------------|-------------|------------------|
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | BD135 | 45 | V |
| | | BD137 | 60 | |
| | | BD139 | 100 | |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | BD135 | 45 | V |
| | | BD137 | 60 | |
| | | BD139 | 80 | |
| V_{CER} | Collector-Emitter Voltage ($R_{BE} = 1\text{ k}\Omega$) | BD135 | 45 | V |
| | | BD137 | 60 | |
| | | BD139 | 100 | |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 5 | V | |
| I_C | Collector Current | I_C | 1.5 | A |
| | | I_{CM} | 2 | |
| I_B | Base current | I_B | 0.5 | A |
| P_T | Total power Dissipation | $T_{mb} = 70^\circ\text{C}$ | 8 | W |
| T_J | Junction Temperature | | 150 | $^\circ\text{C}$ |
| T_{Stg} | Storage Temperature | | -65 to +150 | $^\circ\text{C}$ |

THERMAL CHARACTERISTICS

| Symbol | Ratings | Value | Unit |
|-------------|--|-------|---------------------------|
| R_{thJ-c} | Thermal Resistance, Junction-Case | 10 | $^\circ\text{C}/\text{W}$ |
| R_{thJ-a} | Thermal Resistance, Junction-ambient in free air | 100 | $^\circ\text{C}/\text{W}$ |

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

| Symbol | Ratings | Test Condition(s) | Min | Typ | Max | Unit | |
|----------------|--|--|-----------|-----|-----|---------------|---------------|
| I_{CBO} | Collector cut-off current | $I_E=0, V_{CB}=30\text{ V}$ | BD135 | - | - | 0,1 | μA |
| | | | BD137 | - | - | 0,1 | |
| | | | BD139 | - | - | 0,1 | |
| | | $I_E=0, V_{CB}=30\text{ V}$ $T_j=125^\circ\text{C}$ | BD135 | - | - | 10 | |
| | | | BD137 | - | - | 10 | |
| | | | BD139 | - | - | 10 | |
| I_{EBO} | Emitter cut-off current | $I_C=0, V_{EB}=5\text{ V}$ | - | - | 10 | μA | |
| $V_{CEO(SUS)}$ | Collector-Emitter sustaining Voltage (1) | $I_B=0, I_C=30\text{ mA}$ | BD135 | 45 | - | - | V |
| | | | BD137 | 60 | - | - | |
| | | | BD139 | 80 | - | - | |
| $V_{CE(SAT)}$ | Collector-Emitter saturation Voltage (1) | $I_C=0.5\text{ A}, I_B=50\text{ mA}$ | - | - | 0,5 | V | |
| h_{FE} | DC Current Gain (1) | $V_{CE}=2\text{ V}, I_C=5\text{ mA}$ | | 25 | - | - | |
| | | | BDxxx | 40 | - | 250 | |
| | | $V_{CE}=2\text{ V}, I_C=150\text{ mA}$ | BDxxx -10 | 63 | - | 160 | |
| | | | BDxxx -16 | 100 | - | 250 | |
| | | $V_{CE}=2\text{ V}, I_C=500\text{ mA}$ | 25 | - | - | | |
| V_{BE} | Base-Emitter Voltage(1) | $V_{CE}=2\text{ V}, I_C=500\text{ mA}$ | - | - | 1 | V | |
| f_T | Transition frequency | $V_{CE}=5\text{ V}, I_C=50\text{ mA}, f=35\text{ MHz}$ | - | 250 | - | MHz | |

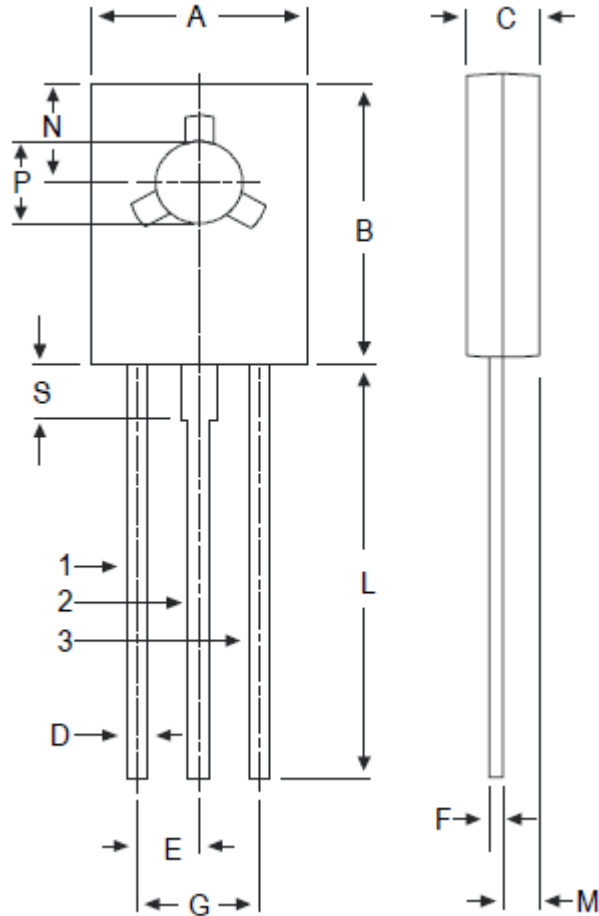
1. Measured under pulse conditions : $t_P < 300\mu\text{s}$, $\delta < 2\%$.

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MECHANICAL DATA CASE TO-126

| | DIMENSIONS | |
|---|------------|------|
| | 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 | 4.4 typ. | |
| L | 15.7 typ. | |
| M | 1.27 typ. | |
| N | 3.75 typ. | |
| P | 3.0 | 3.2 |
| S | 2.54 typ. | |

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



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