



NPN BD136 – BD138 – BD140

SILICON PLANAR EPITAXIAL POWER TRANSISTORS.

The BD136-BD138-BD140 are PNP Transistors
 They are recommended for driver stages in hi-fi amplifiers and television circuits.
 They are mounted in Jedec TO-126 plastic package.
 NPN complements are BD135-BD137-BD139.
 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 kΩ) | BD135 | 45 | V |
| | | BD137 | 60 | |
| | | BD139 | 100 | |
| -V _{EBO} | Emitter-Base Voltage (I _E = 0) | 5 | V | |
| -I _C | Collector Current | -I _C | 1.5 | A |
| | | -I _{CM} | 2 | |
| -I _B | Base current | 0.5 | A | |
| P _T | Total power Dissipation @ T _{mb} = 70°C | 8 | Watts | |
| T _J | Junction Temperature | 150 | °C | |
| T _{Stg} | Storage Temperature | -65 to +150 | °C | |

THERMAL CHARACTERISTICS

| Symbol | Ratings | Value | Unit |
|---------------------|---|-------|------|
| R _{thJ-mb} | Thermal Resistance, Junction to mounting base | 10 | K/W |
| R _{thJ-a} | Thermal Resistance, Junction to ambient in free air | 100 | K/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 (*) | $I_B=0, -I_C=30\text{ mA}$ | BD135 | 45 | - | - | V | |
| | | | BD137 | 60 | - | - | | |
| | | | BD139 | 80 | - | - | | |
| $-V_{CE(SAT)}$ | Collector-Emitter saturation Voltage (*) | $-I_C=0.5\text{ A}, -I_B=50\text{ mA}$ | - | - | 0,5 | V | | |
| h_{FE} | DC Current Gain (*) | $-V_{CE}=2\text{ V}, -I_C=5\text{ mA}$ | BDxxx | 25 | - | - | | |
| | | | $-V_{CE}=2\text{ V}$ $-I_C=150\text{ mA}$ | BDxxx -10 | 40 | - | | 250 |
| | | | | BDxxx -16 | 63 | - | | 160 |
| | | | $-V_{CE}=2\text{ V}, -I_C=500\text{ mA}$ | | 100 | - | | 250 |
| $-V_{BE}$ | Base-Emitter Voltage(*) | $-V_{CE}=2\text{ V}, -I_C=500\text{ mA}$ | - | - | 1 | V | | |
| f_T | Transition frequency | $-V_{CE}=5\text{ V}, -I_C=50\text{ mA}$ $f=35\text{ MHz}$ | - | 75 | - | MHz | | |

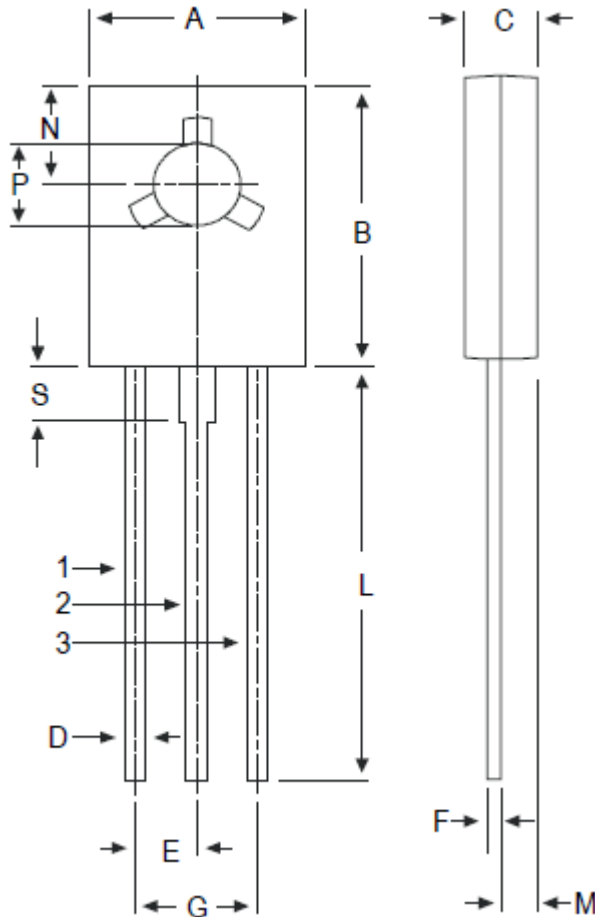
(*) Measured under pulse conditions : $t_p < 300\mu\text{s}$, $\delta < 2\%$.

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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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