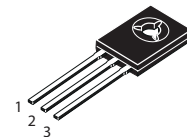


NPN Epitaxial Planar Transistors

 Lead(Pb)-Free

1. EMITTER
2. COLLECTOR
3. BASE



TO-126

ABSOLUTE MAXIMUM RATINGS(TA=25°C)

| Rating | Symbol | BD233 | BD235 | BD237 | Unit |
|---------------------------|-----------|-------------|-------|-------|------|
| Collector-Emitter Voltage | V_{CBO} | 45 | 60 | 100 | V |
| Collector-Base Voltage | V_{CEO} | 45 | 60 | 80 | V |
| Emitter-Base Voltage | V_{EBO} | 5.0 | 5.0 | 5.0 | V |
| Collector Current | I_C | 2.0 | | | A |
| Power Dissipation | P_D | 1.25 | | | W |
| Junction Temperature | T_j | 150 | | | °C |
| Storage , Temperature | T_{stg} | -65 to +150 | | | °C |

Device Marking

BD233 = BD233 , BD235 = BD235 , BD237 = BD237

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted) (Continued)

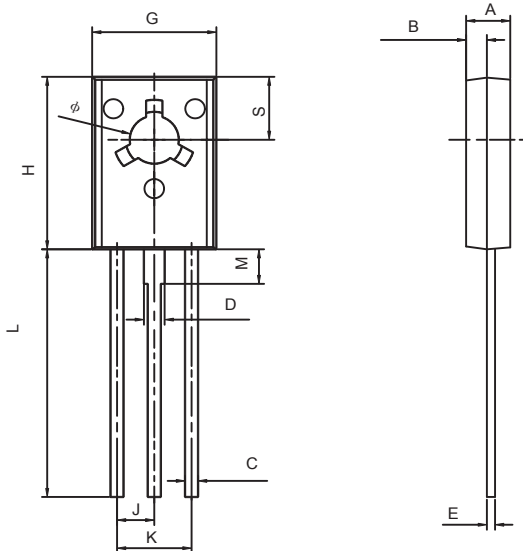
| Characteristics | Symbol | Min | Max | Unit |
|---|--|-----------------|-----|---------------|
| Collector-Emitter Breakdown Voltage $I_C = 100\mu\text{A}, I_E = 0$ | BD233 BD235 BD237 $V_{(BR)CBO}$ | 45 60 100 | - | V |
| Collector-Base Breakdown Voltage $I_C = 10\text{mA}, I_B = 0$ | BD233 BD235 BD237 $V_{(BR)CEO}$ | 45 60 80 | - | V |
| Emitter-Base Breakdown Voltage $I_C = 0, I_E = 100\mu\text{A}$ | $V_{(BR)EBO}$ | 5.0 | - | V |
| Collector Cutoff Current $V_{CB} = 45\text{V}, I_E = 0$ $V_{CB} = 60\text{V}, I_E = 0$ $V_{CB} = 100\text{V}, I_E = 0$ | BD233 BD235 BD237 I_{CBO} | - | 100 | μA |
| Emitter Cutoff Current $V_{EB} = 5.0\text{V}, I_C = 0$ | I_{EBO} | - | 1.0 | mA |

ON CHARACTERISTICS

| | | | | |
|--|----------------------------|----------|-----|-----|
| DC Current Gain $V_{CE} = 2.0\text{V}, I_C = 150\text{mA}$ $V_{CE} = 2.0\text{V}, I_C = 1.0\text{A}$ | $h_{FE(1)}$ $h_{FE(2)}$ | 40 25 | - | - |
| Collector-Emitter Saturation Voltage $I_C = 1.0\text{A}, I_B = 100\text{mA}$ | $V_{CE(sat)}$ | - | 0.6 | V |
| Transition frequency $V_{CE} = 10\text{V}, I_C = 250\text{mA}, f = 10\text{MHz}$ | f_T | 3.0 | - | MHz |

TO-126 Outline Dimensions

unit:mm



| TO-126 | | |
|--------|----------|--------|
| Dim | Min | MAX |
| A | 2.500 | 2.900 |
| B | 1.100 | 1.500 |
| C | 0.660 | 0.860 |
| D | 1.170 | 1.370 |
| E | 0.450 | 0.600 |
| G | 7.400 | 7.800 |
| H | 10.600 | 11.000 |
| J | 2.290TYP | |
| K | 4.480 | 4.680 |
| L | 15.300 | 15.700 |
| M | 2.100 | 2.300 |
| S | 3.900 | 4.100 |
| φ | 3.000 | 3.200 |