

NPN SILICON TRANSISTOR

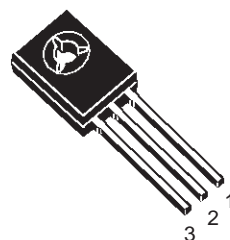
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR

APPLICATION

- GENERAL PURPOSE SWITCHING

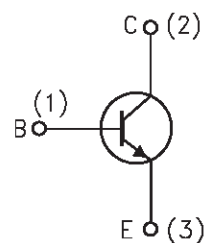
DESCRIPTION

The BD179 is a silicon epitaxial planar NPN transistor in Jedec SOT-32 plastic package, designed for medium power linear and switching applications.



SOT-32

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|--|------------|------------------|
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | 80 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 80 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 5 | V |
| I_C | Collector Current | 3 | A |
| I_B | Base Current | 7 | A |
| P_{tot} | Total Dissipation at $T_c \leq 25^\circ\text{C}$ | 30 | W |
| T_{stg} | Storage Temperature | -65 to 150 | $^\circ\text{C}$ |
| T_j | Max. Operating Junction Temperature | 150 | $^\circ\text{C}$ |

THERMAL DATA

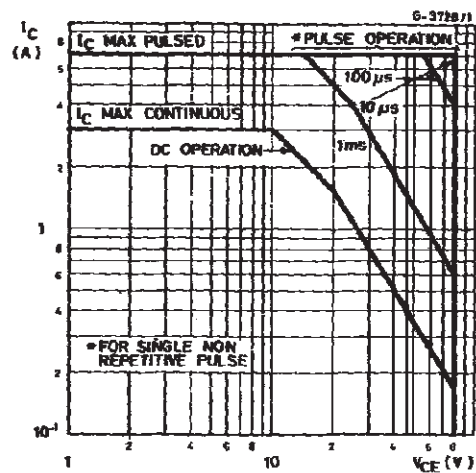
| | | | | |
|-----------------------|----------------------------------|-----|------|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 4.16 | °C/W |
|-----------------------|----------------------------------|-----|------|------|

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

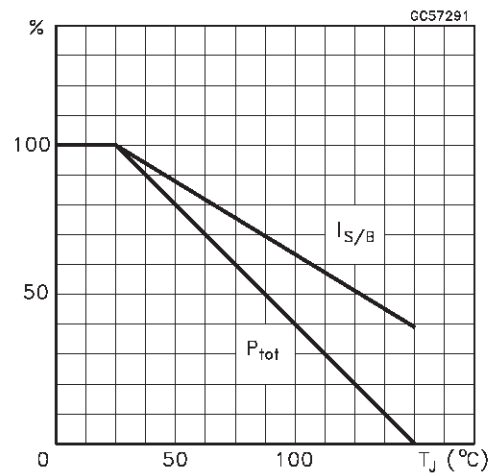
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------------|--|---|----------|------|------|------|
| I _{CBO} | Collector Cut-off Current (I _E = 0) | V _{CB} = 80 V | | | 100 | μA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 5 V | | | 1 | mA |
| V _{CEO(sus)*} | Collector-Emitter Sustaining Voltage | I _C = 100 mA | 80 | | | V |
| V _{CE(sat)*} | Collector-Emitter Saturation Voltage | I _C = 1 A I _B = 0.1 A | | | 0.8 | V |
| V _{BE*} | Base-Emitter Voltage | I _C = 1 A V _{CE} = 2 V | | | 1.3 | V |
| h _{FE*} | DC Current Gain | I _C = 150 mA V _{CE} = 2 V I _C = 1 A V _{CE} = 2 V | 40 15 | | | |
| h _{FE} | h _{FE} Groups | I _C = 150 mA V _{CE} = 2 V group 16 | 100 | | 250 | |
| f _T | Transition Frequency | I _C = 250 mA V _{CE} = 10 V | 3 | | | MHz |

* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

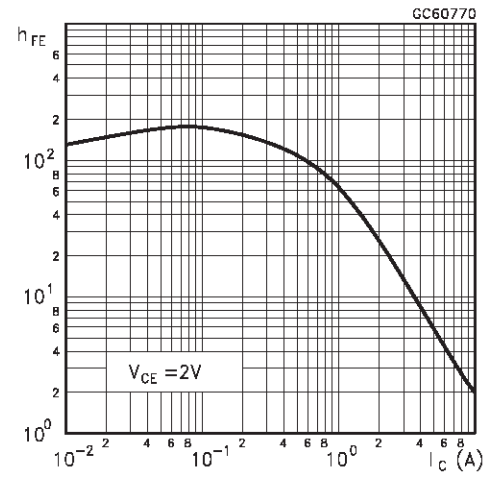
Safe Operating Area



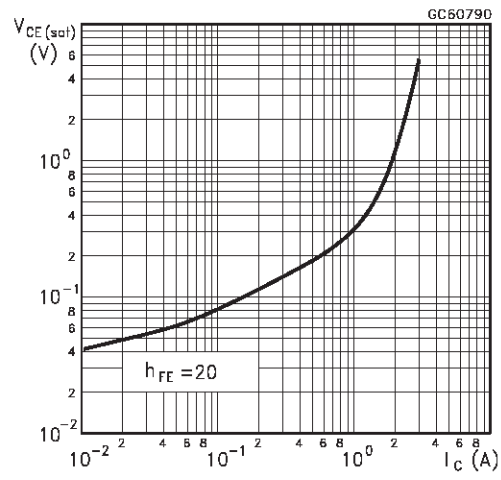
Derating Curves



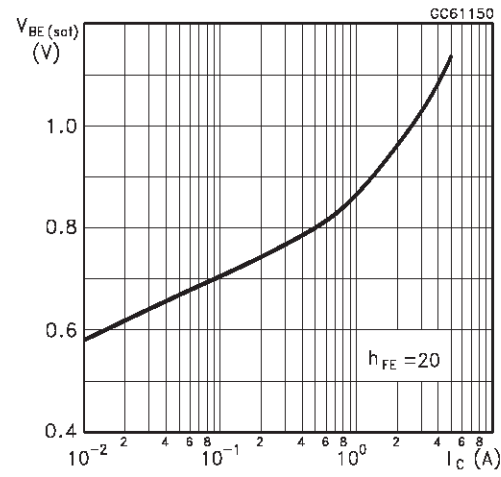
DC Current Gain



Collector-Emitter Saturation Voltage

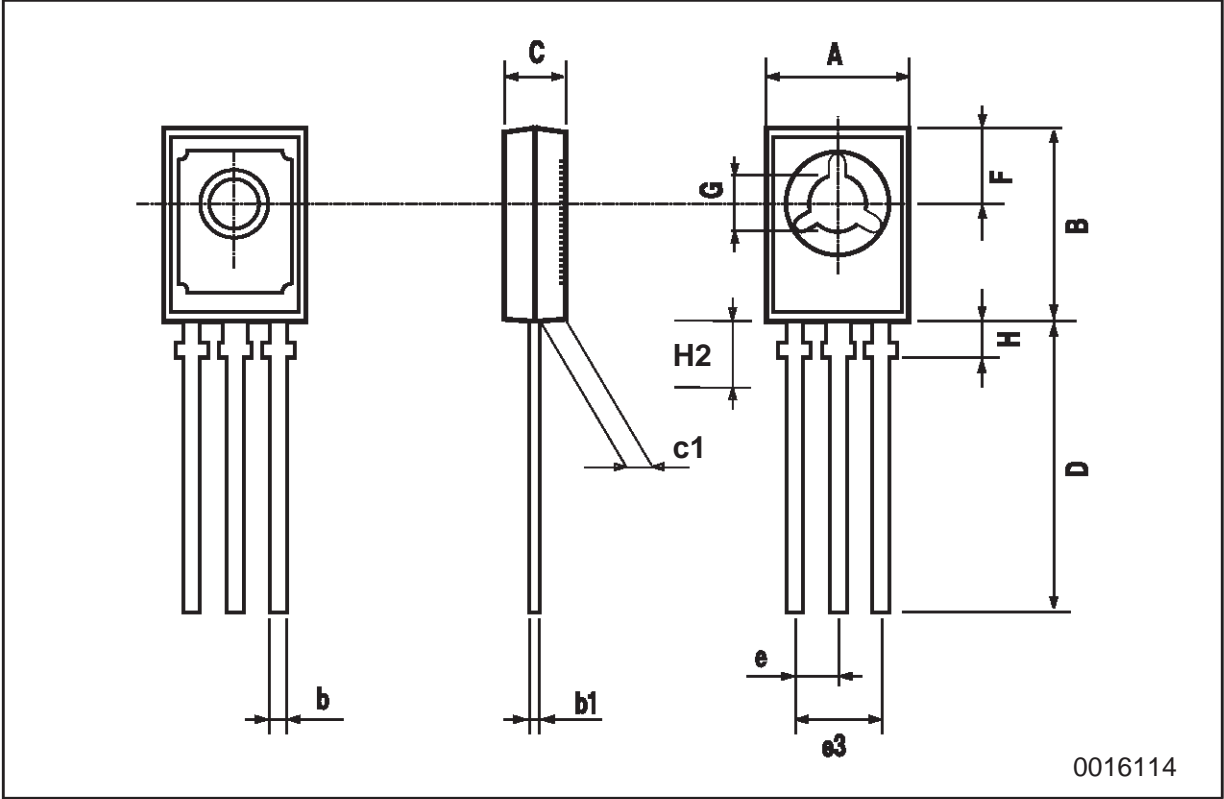


Base-Emitter Saturation Voltage



SOT-32 (TO-126) MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|------|------|------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 7.4 | | 7.8 | 0.291 | | 0.307 |
| B | 10.5 | | 10.8 | 0.413 | | 0.445 |
| b | 0.7 | | 0.9 | 0.028 | | 0.035 |
| b1 | 0.49 | | 0.75 | 0.019 | | 0.030 |
| C | 2.4 | | 2.7 | 0.040 | | 0.106 |
| c1 | 1.0 | | 1.3 | 0.039 | | 0.050 |
| D | 15.4 | | 16.0 | 0.606 | | 0.629 |
| e | | 2.2 | | | 0.087 | |
| e3 | 4.15 | | 4.65 | 0.163 | | 0.183 |
| F | | 3.8 | | | 0.150 | |
| G | 3 | | 3.2 | 0.118 | | 0.126 |
| H | | | 2.54 | | | 0.100 |



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