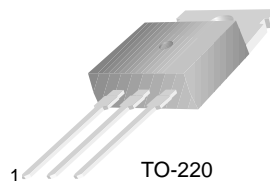


BD239/A/B/C

Medium Power Linear and Switching Applications

- Complement to BD240/A/B/C respectively



TO-220

1.Base 2.Collector 3.Emitter

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------|--|------------|------------------|
| V_{CEO} | Collector-Emitter Voltage | | |
| | : BD239 | 45 | V |
| | : BD239A | 60 | V |
| | : BD239B | 80 | V |
| | : BD239C | 100 | V |
| V_{CER} | Collector-Emitter Voltage | | |
| | : BD239 | 55 | V |
| | : BD239A | 70 | V |
| | : BD239B | 90 | V |
| | : BD239C | 115 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current (DC) | 2 | A |
| I_{CP} | *Collector Current (Pulse) | 4 | A |
| I_B | Base Current | 0.6 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 30 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | - 65 ~ 150 | $^\circ\text{C}$ |

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|----------------|---------------------------------------|---|----------|------|------------|----------|
| $V_{CEO(sus)}$ | *Collector-Emitter Sustaining Voltage | | | | | |
| | : BD239 | $I_C = 30\text{mA}, I_B = 0$ | 45 | | | V |
| | : BD239A | | 60 | | | V |
| | : BD239B | | 80 | | | V |
| | : BD239C | | 100 | | | V |
| | | | | | | |
| I_{CEO} | Collector Cut-off Current | | | | | |
| | : BD239/A : BD239B/C | $V_{CE} = 30\text{V}, I_B = 0$ $V_{CE} = 60\text{V}, I_B = 0$ | | | 0.3 0.3 | mA mA |
| I_{CES} | Collector Cut-off Current | | | | | |
| | : BD239 | $V_{CE} = 45\text{V}, V_{BE} = 0$ $V_{CE} = 60\text{V}, V_{BE} = 0$ $V_{CE} = 80\text{V}, V_{BE} = 0$ $V_{CE} = 100\text{V}, V_{BE} = 0$ | | | 0.2 | mA |
| | : BD239A | | | | 0.2 | mA |
| | : BD239B | | | | 0.2 | mA |
| | : BD239C | | | | 0.2 | mA |
| | | | | | | |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 5\text{V}, I_C = 0$ | | | 1 | mA |
| h_{FE} | *DC Current Gain | $V_{CE} = 4\text{V}, I_C = 0.2\text{A}$ $V_{CE} = 4\text{V}, I_C = 1\text{A}$ | 40 15 | | | |
| $V_{CE(sat)}$ | *Collector-Emitter Saturation Voltage | $I_C = 1\text{A}, I_B = 0.2\text{A}$ | | | 0.7 | V |
| $V_{BE(on)}$ | *Base-Emitter ON Voltage | $V_{CE} = 4\text{V}, I_C = 1\text{A}$ | | | 1.3 | V |

* Pulse Test: PW=350 μs , duty Cycles \leq 2.0% Pulsed

Package Dimensions

BD239/A/B/C

TO-220



Dimensions in Millimeters

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| CROSSVOLT™ | POP™ | UHC™ |
| E ² CMOS™ | PowerTrench® | VCX™ |
| FACT™ | QFET™ | |
| FACT Quiet Series™ | QS™ | |
| FAST® | Quiet Series™ | |
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| GTO™ | SuperSOT™-6 | |

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|--------------------------|------------------------|---|
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