



PNP BD240 – A – B – C

MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS.

The BD239, A, B, C are mounted in Jedec TO-220 plastic package.
 They are the silicon epitaxial-base Power Transistors for use in medium power linear and switching applications.
 The NPN complements are BD239, A, B, C.
 Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

| Symbol | Ratings | | Value | Unit |
|-----------|---|---------------------------|-------------|------------|
| V_{CEO} | Collector-Emitter Voltage | BD240 | -45 | V |
| | | BD240A | -60 | |
| | | BD240B | -80 | |
| | | BD240C | -100 | |
| V_{CER} | Collector-Emitter Voltage ($R_{BE} = 100 \Omega$) | BD240 | -55 | V |
| | | BD240A | -70 | |
| | | BD240B | -90 | |
| | | BD240C | -115 | |
| V_{CBO} | Collector-Base Voltage | BD240 | -45 | V |
| | | BD240A | -60 | |
| | | BD240B | 80 | |
| | | BD240C | -100 | |
| V_{EBO} | Emitter-Base Voltage | | -5.0 | V |
| I_C | Collector Current | I_C | -3 | A |
| | | I_{CM} | -7 | |
| I_B | Base Current | | 0.5 | A |
| P_T | Power Dissipation | @ $T_{amb} = 25^\circ C$ | 30 | W |
| | | @ $T_{case} = 25^\circ C$ | 30 | W |
| T_J | Junction Temperature | | 150 | $^\circ C$ |
| T_S | Storage Temperature | | -65 to +150 | |

THERMAL CHARACTERISTICS

| Symbol | Ratings | Value | Unit |
|----------------|--------------------------------------|-------|--------------|
| $R_{thJ-amb}$ | Thermal Resistance, Junction-ambient | 70 | $^\circ C/W$ |
| $R_{thJ-case}$ | Thermal Resistance, Junction-case | 4.17 | $^\circ C/W$ |

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

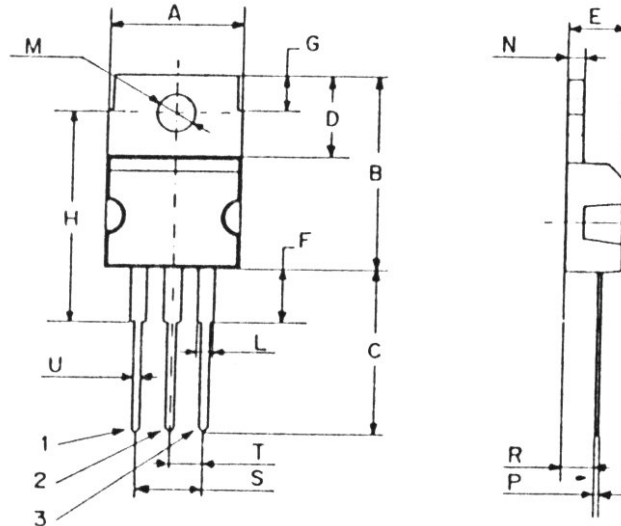
| Symbol | Ratings | Test Condition(s) | | Min | Typ | Max | Unit |
|----------------|--|--|--------|------|-----|------|------|
| I_{CEO} | Collector Cutoff Current | $V_{CE}=-30\text{ V}$ | BD240 | - | - | -0.3 | mA |
| | | $V_{CE}=-30\text{ V}$ | BD240A | - | - | | |
| | | $V_{CE}=-60\text{ V}$ | BD240B | - | - | | |
| | | $V_{CE}=-60\text{ V}$ | BD240C | - | - | | |
| I_{EBO} | Emitter Cutoff Current | $V_{BE}=-5\text{ V}$ | BD240 | - | - | -1.0 | mA |
| | | | BD240A | - | - | | |
| | | | BD240B | - | - | | |
| | | | BD240C | - | - | | |
| I_{CES} | Collector Cutoff Current ($V_{BE} = 0$) | $V_{CE}=-45\text{ V}$ | BD240 | - | - | -0.2 | mA |
| | | $V_{CE}=-60\text{ V}$ | BD240A | - | - | | |
| | | $V_{CE}=-80\text{ V}$ | BD240B | - | - | | |
| | | $V_{CE}=-100\text{ V}$ | BD240C | - | - | | |
| $V_{CEO(sus)}$ | Collector-Emitter Sustaining Voltage ($I_B = 0$) (*) | $I_C = -30\text{mA}$ | BD240 | -45 | | | V |
| | | | BD240A | -60 | | | |
| | | | BD240B | -80 | | | |
| | | | BD240C | -100 | | | |
| h_{FE} | DC Current Gain (*) | $V_{CE}=-4\text{ V}$ $I_C=-0.2\text{ A}$ | BD240 | 40 | - | - | - |
| | | | BD240A | | | | |
| | | | BD240B | | | | |
| | | | BD240C | | | | |
| | | $V_{CE}=-4\text{ V}$ $I_C=-1\text{ A}$ | BD240 | 15 | - | - | |
| | | | BD240A | | | | |
| | | | BD240B | | | | |
| | | | BD240C | | | | |
| $V_{CE(SAT)}$ | Collector-Emitter saturation Voltage (*) | $I_C=-1\text{ A}$ $I_B=-200\text{ mA}$ | BD240 | - | - | 0.6 | V |
| | | | BD240A | | | | |
| | | | BD240B | | | | |
| | | | BD240C | | | | |
| $V_{BE(on)}$ | Base-Emitter Voltage (*) | $V_{CE}=-4\text{ V}$ $I_C=-1\text{ A}$ | BD240 | - | - | 1.3 | V |
| | | | BD240A | | | | |
| | | | BD240B | | | | |
| | | | BD240C | | | | |
| h_{fe} | Small Signal Current Gain | $V_{CE}=10\text{ V}$ $I_C=0.2\text{ A}$ $f = 1\text{KHz}$ | BD240 | 20 | - | - | - |
| | | | BD240A | | | | |
| | | | BD240B | | | | |
| | | | BD240C | | | | |
| | | $V_{CE}=-10\text{ V}$ $I_C=0.2\text{ A}$ $f = 1\text{MHz}$ | BD240 | 3 | - | - | |
| | | | BD240A | | | | |
| | | | BD240B | | | | |
| | | | BD240C | | | | |
| f_T | Transistor frequency | $V_{CE}=-10\text{ V}, I_C=-0.2\text{ A}, f = 1\text{MHz}$ | | 3 | - | - | MHz |

(*) Pulse Width $\approx 300\ \mu\text{s}$, Duty Cycle $\angle 2.0\%$

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MECHANICAL DATA CASE TO-220

| DIMENSIONS (mm) | | |
|-----------------|-------|-------|
| | Min. | Max. |
| A | 9,90 | 10,30 |
| B | 15,65 | 15,90 |
| C | 13,20 | 13,40 |
| D | 6,45 | 6,65 |
| E | 4,30 | 4,50 |
| F | 2,70 | 3,15 |
| G | 2,60 | 3,00 |
| H | 15,75 | 17,15 |
| L | 1,15 | 1,40 |
| M | 3,50 | 3,70 |
| N | - | 1,37 |
| P | 0,46 | 0,55 |
| R | 2,50 | 2,70 |
| S | 4,98 | 5,08 |
| T | 2,49 | 2,54 |
| U | 0,70 | 0,90 |



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

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