



COMPLEMENTARY SILICON POWER TRANSISTORS

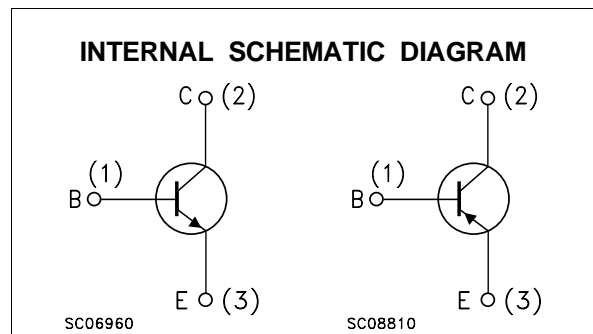
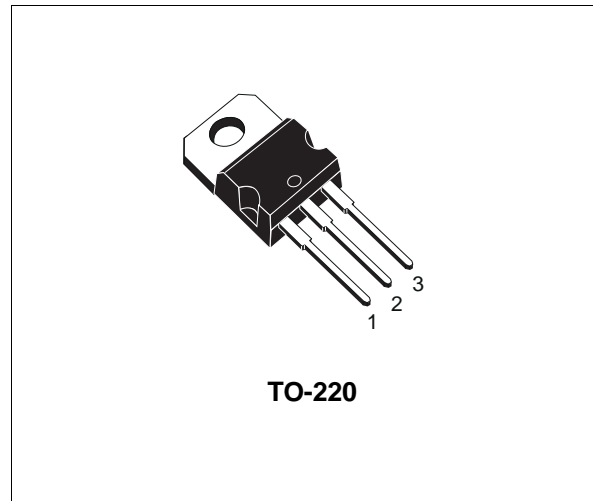
- STMicroelectronics PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES

DESCRIPTION

The BD241A, BD241B and BD241C are silicon epitaxial-base NPN transistors mounted in Jedec TO-220 plastic package.

They are intended for use in medium power linear and switching applications.

The complementary PNP types are BD242A, BD242B and BD242C respectively.



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | | | Unit | |
|-----------|--|-------|------------|--------|--------|------------|
| | | NPN | BD241A | BD241B | | BD241C |
| | | PNP | BD242A | BD242B | BD242C | |
| V_{CER} | Collector-Base Voltage ($R_{BE} = 100 \Omega$) | | 70 | 90 | 115 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | | 60 | 80 | 100 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | | 5 | | | V |
| I_C | Collector Current | | 3 | | | A |
| I_{CM} | Collector Peak Current | | 5 | | | A |
| I_B | Base Current | | 1 | | | A |
| P_{tot} | Total Dissipation at $T_c \leq 25^\circ C$ | | 40 | | | W |
| P_{tot} | Total Dissipation at $T_{amb} \leq 25^\circ C$ | | 2 | | | W |
| T_{stg} | Storage Temperature | | -65 to 150 | | | $^\circ C$ |

BD241A/B/C/BD242A/B/C

THERMAL DATA

| | | | | |
|-----------------------|-------------------------------------|-----|------|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 3.13 | °C/W |
| R _{thj-amb} | Thermal Resistance Junction-ambient | Max | 62.5 | °C/W |

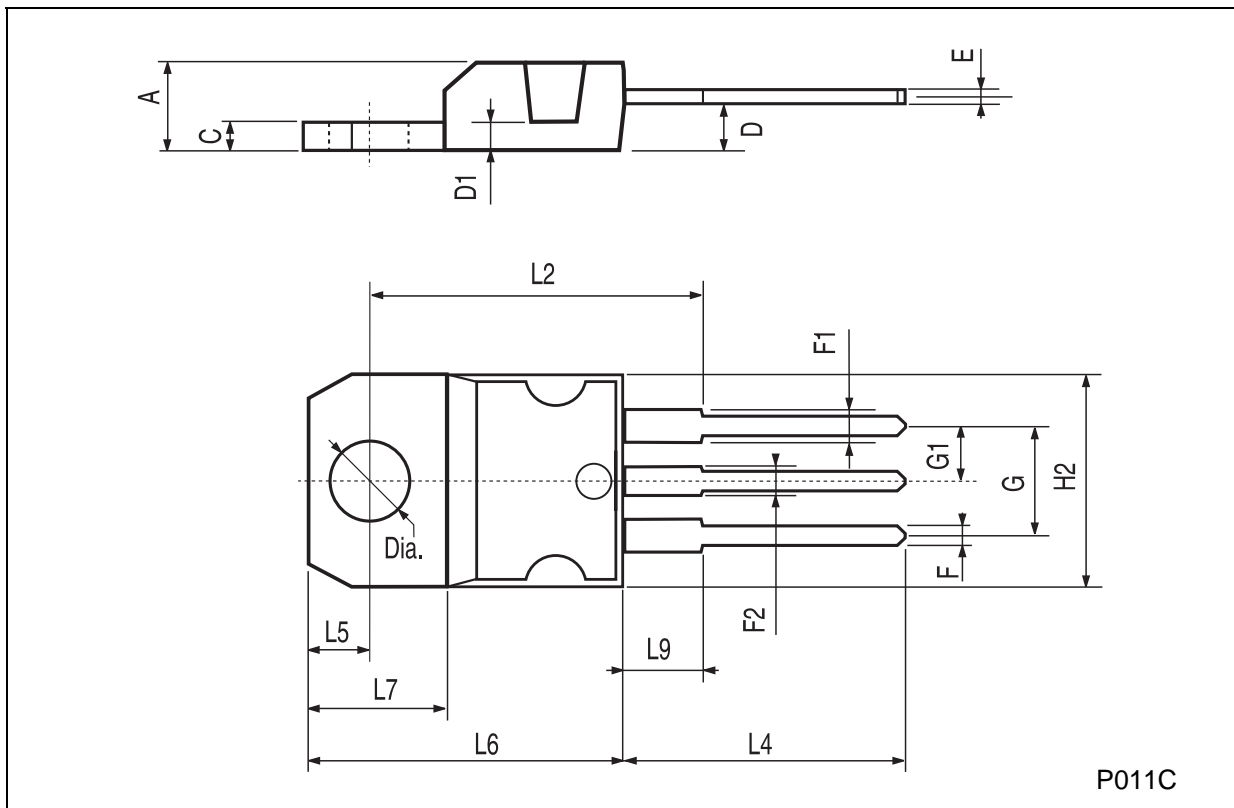
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------------|---|---|-----------------|------|-------------------|----------------|
| I _{CES} | Collector Cut-off Current (V _{BE} = 0) | V _{CE} = rated V _{CEO} | | | 0.2 | mA |
| I _{CEO} | Collector Cut-off Current (I _B = 0) | for BD241A/BD242A V _{CE} = 30 V for BD241B/BD242B V _{CE} = 60 V for BD241C/BD242C V _{CE} = 60 V | | | 0.3 0.3 0.3 | mA mA mA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 5 V | | | 1 | mA |
| V _{CEO(sus)*} | Collector-Emitter Sustaining Voltage | I _C = 30 mA for BD241A/BD242A for BD241B/BD242B for BD241C/BD242C | 60 80 100 | | | V V V |
| V _{CE(sat)*} | Collector-Emitter Saturation Voltage | I _C = 3 A I _B = 0.6 A | | | 1.2 | V |
| V _{BE*} | Base-Emitter Voltage | I _C = 3 A V _{CE} = 4 V | | | 1.8 | V |
| h _{FE*} | DC Current Gain | I _C = 1 A V _{CE} = 4 V I _C = 3 A V _{CE} = 4 V | 25 10 | | | |
| h _{fe} | Small Signal Current Gain | I _C = 0.5 A V _{CE} = 10 V f = 1MHz I _C = 0.5 A V _{CE} = 10 V f = 1KHz | 3 20 | | | |

* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %
For PNP types voltage and current values are negative.
For the characteristics curves see TIP31/TIP32 series.

TO-220 MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|-------|------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 4.40 | | 4.60 | 0.173 | | 0.181 |
| C | 1.23 | | 1.32 | 0.048 | | 0.051 |
| D | 2.40 | | 2.72 | 0.094 | | 0.107 |
| D1 | | 1.27 | | | 0.050 | |
| E | 0.49 | | 0.70 | 0.019 | | 0.027 |
| F | 0.61 | | 0.88 | 0.024 | | 0.034 |
| F1 | 1.14 | | 1.70 | 0.044 | | 0.067 |
| F2 | 1.14 | | 1.70 | 0.044 | | 0.067 |
| G | 4.95 | | 5.15 | 0.194 | | 0.203 |
| G1 | 2.4 | | 2.7 | 0.094 | | 0.106 |
| H2 | 10.0 | | 10.40 | 0.393 | | 0.409 |
| L2 | | 16.4 | | | 0.645 | |
| L4 | 13.0 | | 14.0 | 0.511 | | 0.551 |
| L5 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| L6 | 15.25 | | 15.75 | 0.600 | | 0.620 |
| L7 | 6.2 | | 6.6 | 0.244 | | 0.260 |
| L9 | 3.5 | | 3.93 | 0.137 | | 0.154 |
| DIA. | 3.75 | | 3.85 | 0.147 | | 0.151 |



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