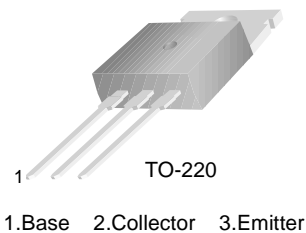


TIP42 SERIES(TIP42/42A/42B/42C)

Medium Power Linear Switching Applications

- Complement to TIP41/41A/41B/41C



PNP Epitaxial Silicon Transistor

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

| Symbol | Parameter | Value | Units |
|-----------|--|------------|------------------|
| V_{CBO} | Collector-Base Voltage : TIP42 | - 40 | V |
| | : TIP42A | - 60 | V |
| | : TIP42B | - 80 | V |
| | : TIP42C | - 100 | V |
| V_{CEO} | Collector-Emitter Voltage : TIP42 | - 40 | V |
| | : TIP42A | - 60 | V |
| | : TIP42B | - 80 | V |
| | : TIP42C | - 100 | V |
| V_{EBO} | Emitter-Base Voltage | - 5 | V |
| I_C | Collector Current (DC) | - 6 | A |
| I_{CP} | Collector Current (Pulse) | -10 | A |
| I_B | Base Current | -2 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 65 | W |
| P_C | Collector Dissipation ($T_a=25^\circ\text{C}$) | 2 | 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. | Max. | Units |
|----------------|--|---|------|------|---------------|
| $V_{CEO(sus)}$ | * Collector-Emitter Sustaining Voltage : TIP42 | $I_C = -30\text{mA}, I_B = 0$ | -40 | | V |
| | : TIP42A | | -60 | | V |
| | : TIP42B | | -80 | | V |
| | : TIP42C | | -100 | | V |
| I_{CEO} | Collector Cut-off Current : TIP42/42A | $V_{CE} = -30\text{V}, I_B = 0$ | | -0.7 | mA |
| | : TIP42B/42C | $V_{CE} = -60\text{V}, I_B = 0$ | | -0.7 | mA |
| I_{CES} | Collector Cut-off Current : TIP42 | $V_{CE} = -40\text{V}, V_{EB} = 0$ | | -400 | μA |
| | : TIP42A | $V_{CE} = -60\text{V}, V_{EB} = 0$ | | -400 | μA |
| | : TIP42B | $V_{CE} = -80\text{V}, V_{EB} = 0$ | | -400 | μA |
| | : TIP42C | $V_{CE} = -100\text{V}, V_{EB} = 0$ | | -400 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = -5\text{V}, I_C = 0$ | | -1 | mA |
| h_{FE} | * DC Current Gain | $V_{CE} = -4\text{V}, I_C = -0.3\text{A}$ | 30 | | |
| | | $V_{CE} = -4\text{V}, I_C = -3\text{A}$ | 15 | 75 | |
| $V_{CE(sat)}$ | * Collector-Emitter Saturation Voltage | $I_C = -6\text{A}, I_B = -600\text{mA}$ | | -1.5 | V |
| $V_{BE(sat)}$ | * Base-Emitter Saturation Voltage | $V_{CE} = -4\text{V}, I_C = -6\text{A}$ | | -2.0 | V |
| f_T | Current Gain Bandwidth Product | $V_{CE} = -10\text{V}, I_C = -500\text{mA}$ | 3.0 | | MHz |

* Pulse Test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

Typical Characteristics

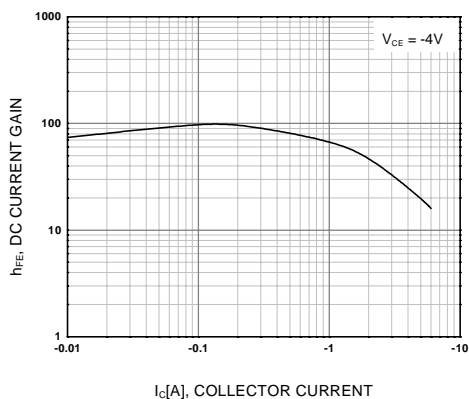


Figure 1. DC current Gain

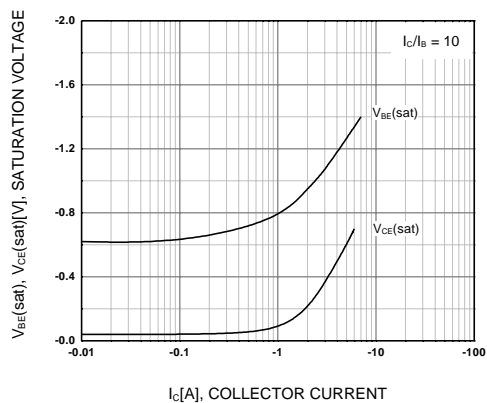


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

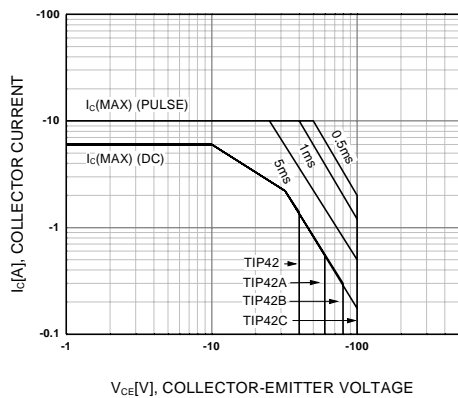


Figure 3. Safe Operating Area

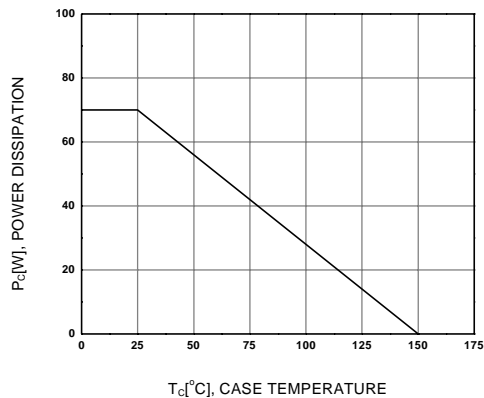
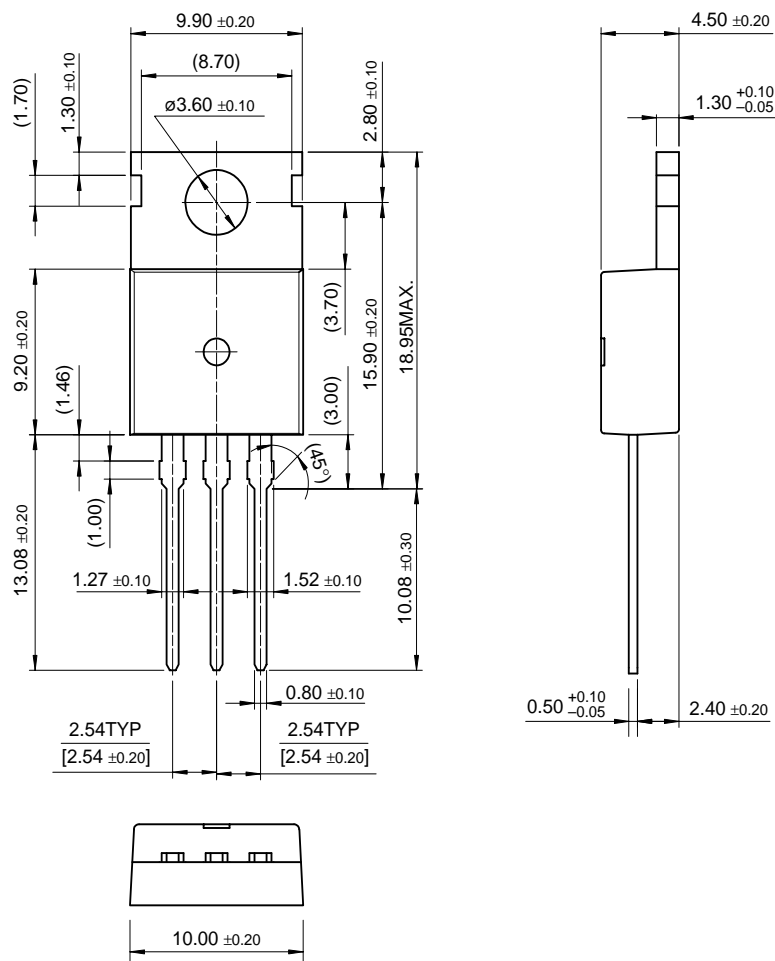


Figure 4. Power derating

Package Dimensions

TO-220



Dimensions in Millimeters

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