

TIP32/32A/32B/32C

SemiHow
Know-How for Semiconductor

TIP32/32A/32B/32C

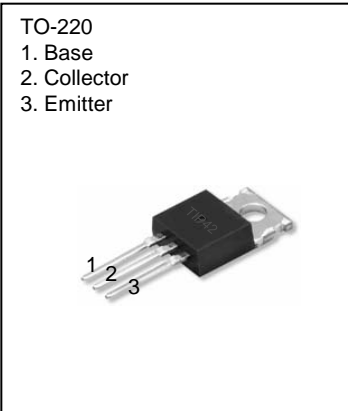
Medium Power Linear Switching Applications

- Complement to TIP31/31A/31B/31C

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

| CHARACTERISTICS | SYMBOL | RATING | UNIT |
|---|-----------|---------------------------|------------------|
| Collector-Base Voltage : TIP32 : TIP32A : TIP32B : TIP32C | V_{CBO} | -40 -60 -80 -100 | V V V V |
| Collector-Emitter Voltage : TIP32 : TIP32A : TIP32B : TIP32C | V_{CEO} | -40 -60 -80 -100 | V V V V |
| Emitter-Base Voltage | V_{EBO} | -5 | V |
| Collector Current(DC) | I_C | -3 | A |
| Collector Current(Pulse) | I_{CP} | -5 | A |
| Base Current | I_B | -1 | A |
| Collector Dissipation($T_a=25^\circ\text{C}$) | P_C | 2 | W |
| Collector Dissipation($T_c=25^\circ\text{C}$) | P_C | 40 | W |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -65~150 | $^\circ\text{C}$ |

PNP Epitaxial Silicon Darlington Transistor



- TO-220
1. Base
2. Collector
3. Emitter

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

| CHARACTERISTICS | SYMBOL | Test Condition | Min | Max | Unit |
|---|----------------|---|---------------------------|------------------------------|--|
| Collector-Emitter Sustaining Voltage : TIP32 : TIP32A : TIP32B : TIP32C | $V_{CEO(SUS)}$ | $I_C=-30\text{mA}, I_B=0$ | -40 -60 -80 -100 | | V V V V |
| Collector Cut-off Current : TIP32/32A : TIP32B/32C | I_{CEO} | $V_{CE}=-30\text{V}, I_B=0$ $V_{CE}=-60\text{V}, I_B=0$ | | -0.3 -0.3 | mA mA |
| Collector Cut-off Current : TIP32 : TIP32A : TIP32B : TIP32C | I_{CES} | $V_{CE}=-40\text{V}, V_{EB}=0$ $V_{CE}=-60\text{V}, V_{EB}=0$ $V_{CE}=-80\text{V}, V_{EB}=0$ $V_{CE}=-100\text{V}, V_{EB}=0$ | | -200 -200 -200 -200 | μA μA μA μA |
| Emitter Cut-off Current | I_{EBO} | $V_{EB}=-5\text{V}, I_C=0$ | | -1 | mA |
| *DC Current Gain | h_{FE} | $V_{CE}=-4\text{V}, I_C=-1\text{A}$ $V_{CE}=-4\text{V}, I_C=-3\text{A}$ | 25 10 | 50 | |
| *Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=-3\text{A}, I_B=-375\text{mA}$ | | -1.2 | V |
| *Base-Emitter ON Voltage | $V_{BE(on)}$ | $V_{CE}=-4\text{V}, I_C=-3\text{A}$ | | -1.8 | V |
| Output Capacitance | f_T | $V_{CE}=-10\text{V}, I_C=-500\text{mA}$ $f=1\text{MHz}$ | 3.0 | | MHz |

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

Typical Characteristics

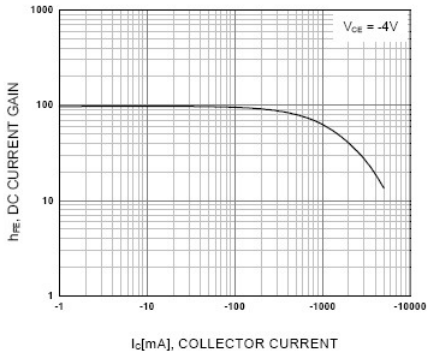


Figure 1. DC current Gain

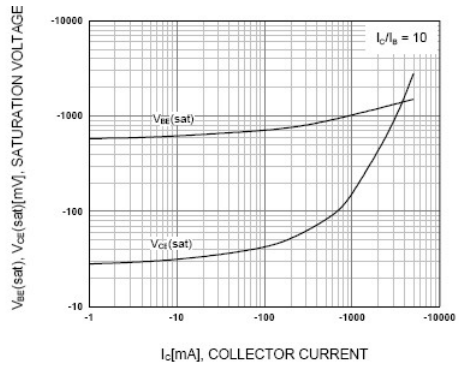


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

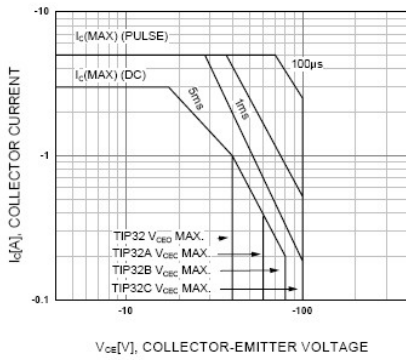


Figure 3. Safe Operating Area

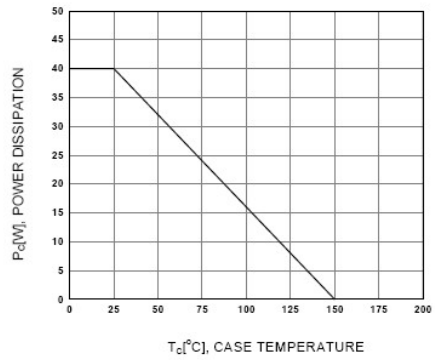
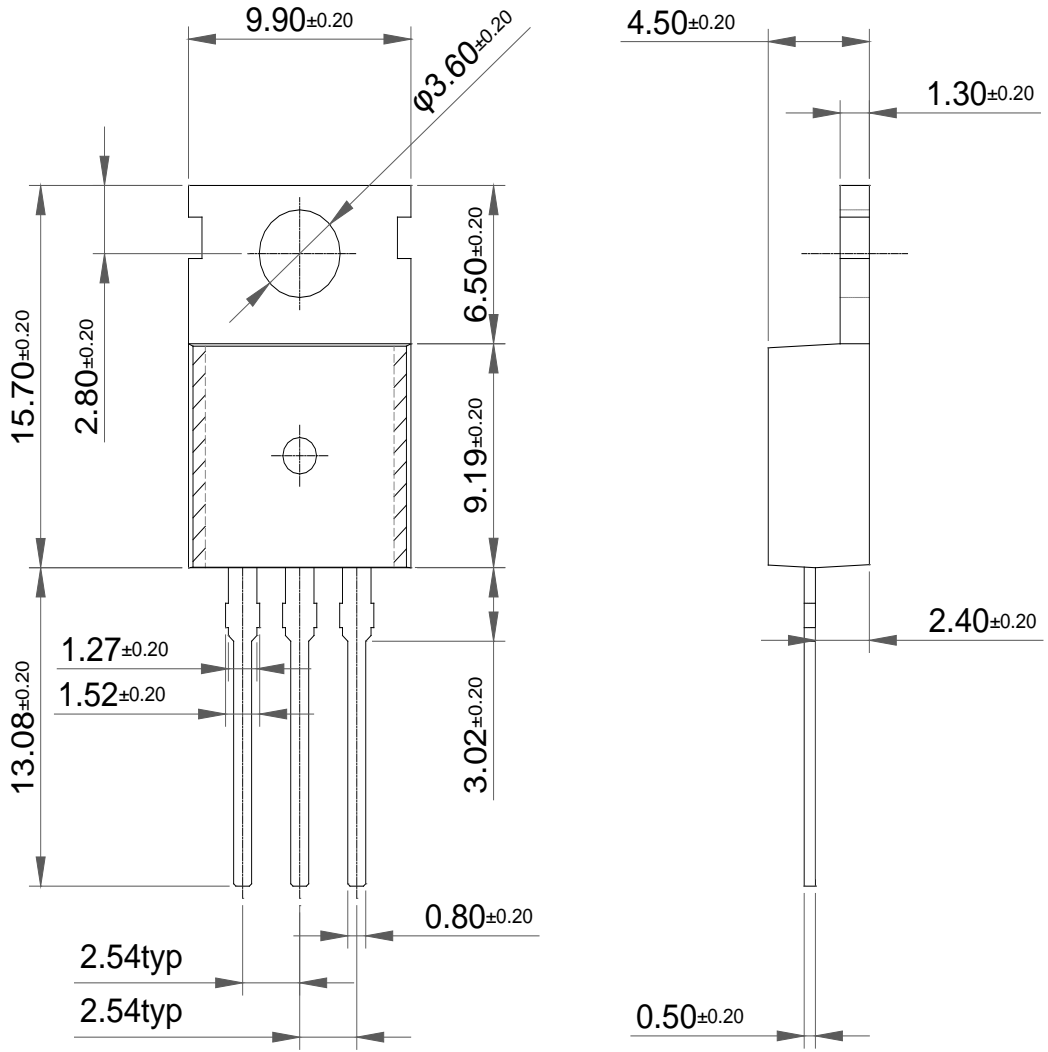


Figure 4. Power Derating

Package Dimension

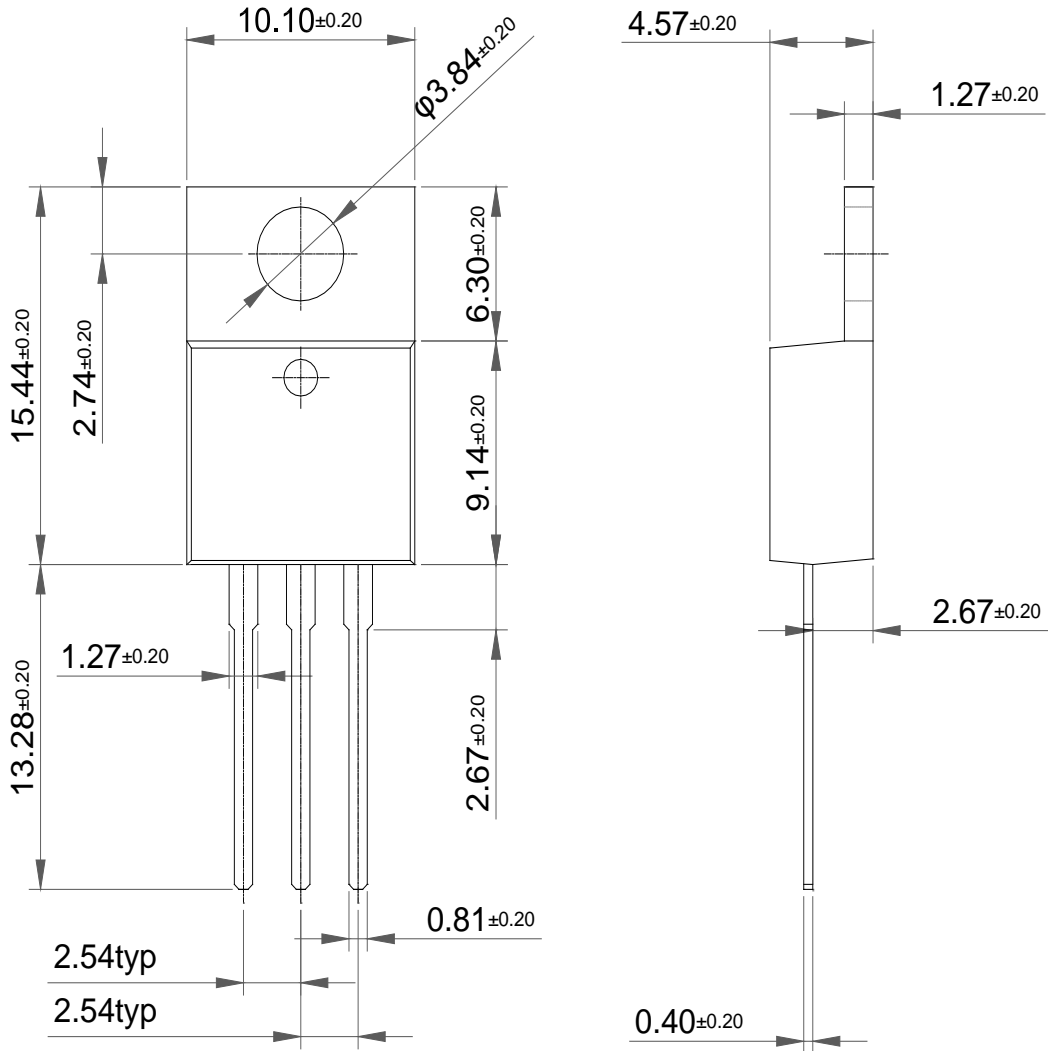
TO-220 (A)



Dimensions in Millimeters

Package Dimension

TO-220 (B)



Dimensions in Millimeters