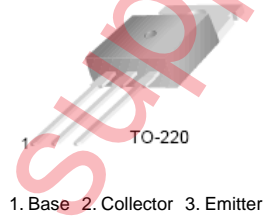


# TIP32/TIP32A/TIP32B/TIP32C

## PNP Epitaxial Silicon Transistor

### Features

- Complementary to TIP31/TIP31A/TIP31B/TIP31C



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

| Symbol    | Parameter  | Value      | Units            |
|-----------|--|------------|------------------|
| $V_{CBO}$ | Collector-Base Voltage : TIP32                   | - 40       | V                |
|           | : TIP32A   | - 60       | V                |
|           | : TIP32B   | - 80       | V                |
|           | : TIP32C   | - 100      | V                |
| $V_{CEO}$ | Collector-Emitter Voltage : TIP32                | - 40       | V                |
|           | : TIP32A   | - 60       | V                |
|           | : TIP32B   | - 80       | V                |
|           | : TIP32C   | -100       | V                |
| $V_{EBO}$ | Emitter-Base Voltage                             | - 5        | V                |
| $I_C$     | Collector Current (DC)                           | - 3        | A                |
| $I_{CP}$  | Collector Current (Pulse)                        | - 5        | A                |
| $I_B$     | Base Current                                     | - 3        | A                |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ\text{C}$ ) | 40         | W                |
|           | 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<br>: TIP32<br>: TIP32A<br>: TIP32B<br>: TIP32C | $I_C = -30\text{mA}, I_B = 0$   | -40<br>-60<br>-80<br>-100 |                              | V<br>V<br>V<br>V   |
| $I_{CEO}$      | Collector Cut-off Current<br>: TIP32/32A<br>: TIP32B/32C                              | $V_{CE} = -30\text{V}, I_B = 0$<br>$V_{CE} = -60\text{V}, I_B = 0$  |                           | -0.3<br>-0.3                 | mA<br>mA   |
| $I_{CES}$      | Collector Cut-off Current<br>: TIP32<br>: TIP32A<br>: TIP32B<br>: TIP32C              | $V_{CE} = -40\text{V}, V_{EB} = 0$<br>$V_{CE} = -60\text{V}, V_{EB} = 0$<br>$V_{CE} = -80\text{V}, V_{EB} = 0$<br>$V_{CE} = -100\text{V}, V_{CE} = 0$ |                           | -200<br>-200<br>-200<br>-200 | $\mu\text{A}$<br>$\mu\text{A}$<br>$\mu\text{A}$<br>$\mu\text{A}$ |
| $I_{EBO}$      | Emitter Cut-off Current   | $V_{EB} = -5\text{V}, I_C = 0$  |                           | -1                           | mA   |
| $h_{FE}$       | * DC Current Gain   | $V_{CE} = -4\text{V}, I_C = -1\text{A}$<br>$V_{CE} = -4\text{V}, I_C = -3\text{A}$  | 25<br>10                  | 50                           |  |
| $V_{CE(sat)}$  | * Collector-Emitter Saturation Voltage  | $I_C = -3\text{A}, I_B = -375\text{mA}$   |                           | -1.2                         | V  |
| $V_{BE(sat)}$  | * Base-Emitter Saturation Voltage   | $V_{CE} = -4\text{V}, I_C = -3\text{A}$   |                           | -1.8                         | V  |
| $f_T$          | Current Gain Bandwidth Product  | $V_{CE} = -10\text{V}, I_C = -500\text{mA}, f = 1\text{MHz}$  | 3.0                       |                              | MHz  |

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

# Typical Characteristics

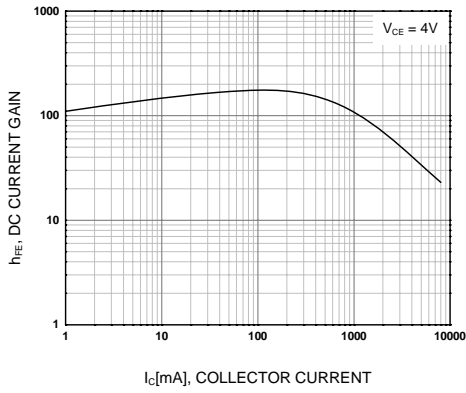


Figure 1. DC current Gain

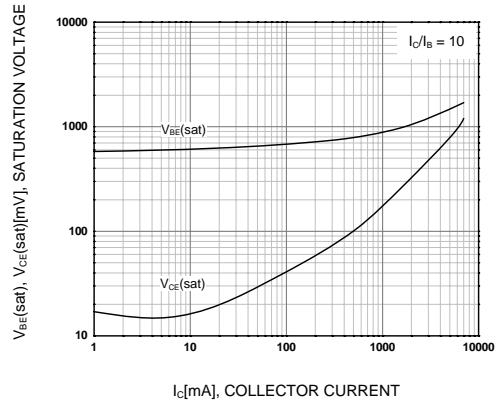


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

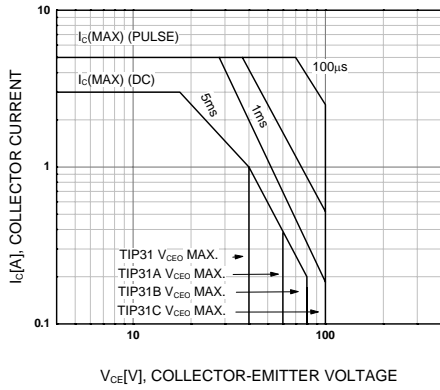


Figure 3. Safe Operating Area

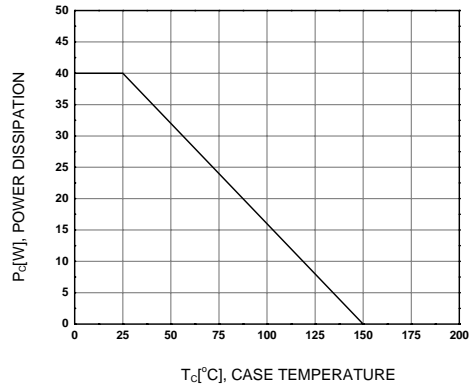
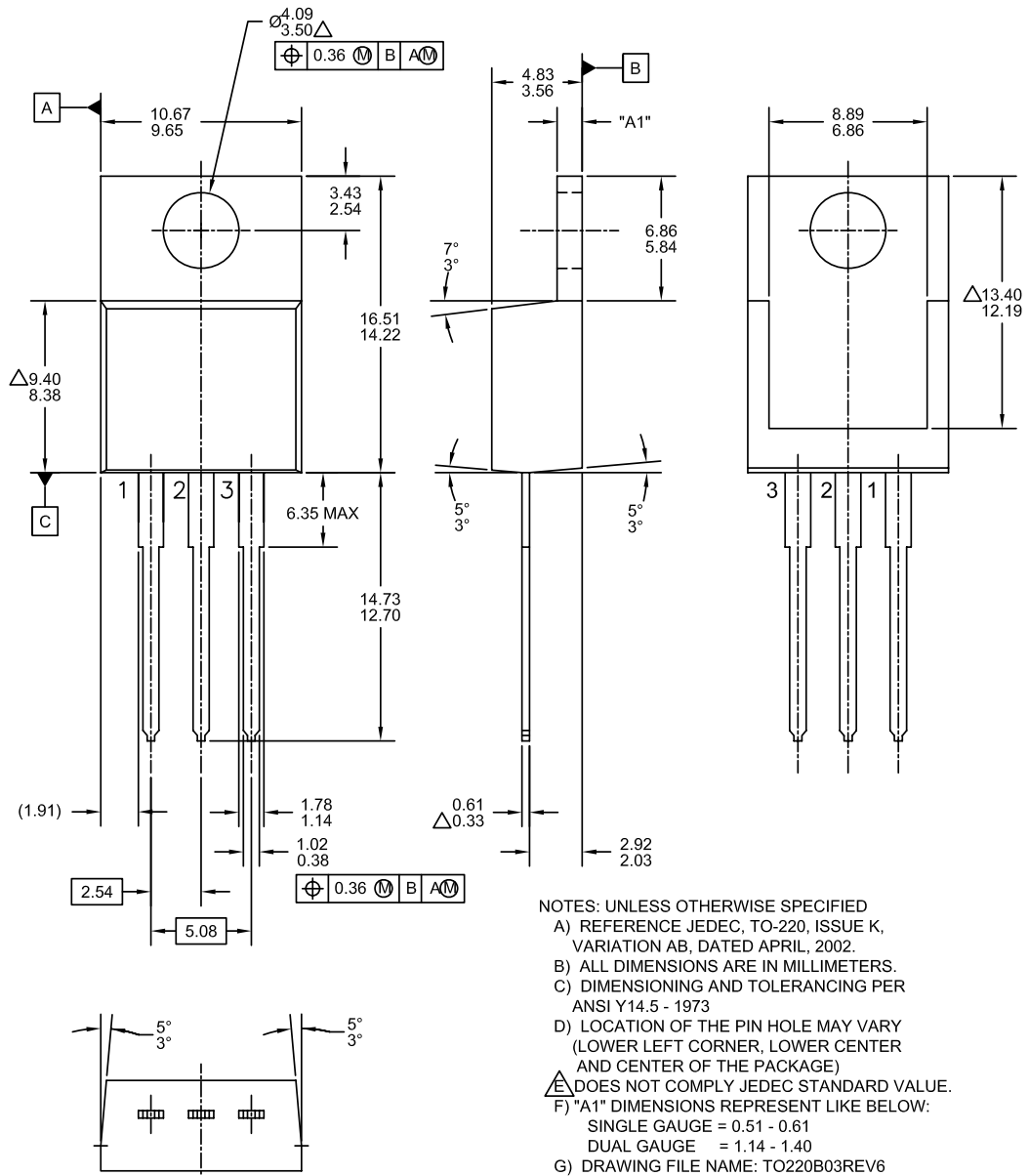


Figure 4. Power Derating

Mechanical Dimensions

TO220





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