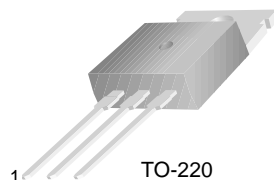


TIP32 Series(TIP32/32A/32B/32C)

Medium Power Linear Switching Applications

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



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

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 : TIP32 : TIP32A : TIP32B : TIP32C | - 40 | V |
| | | - 60 | V |
| | | - 80 | V |
| | | - 100 | V |
| V_{CEO} | Collector-Emitter Voltage : TIP32 : TIP32A : TIP32B : TIP32C | - 40 | V |
| | | - 60 | V |
| | | - 80 | V |
| | | -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 |
| 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 : TIP32 : TIP32A : TIP32B : TIP32C | $I_C = -30\text{mA}, I_B = 0$ | -40 | | V |
| | | | -60 | | V |
| | | | -80 | | V |
| | | | -100 | | V |
| I_{CEO} | Collector Cut-off Current : TIP32/32A : TIP32B/32C | $V_{CE} = -30\text{V}, I_B = 0$ | | - 0.3 | mA |
| | | $V_{CE} = -60\text{V}, I_B = 0$ | | - 0.3 | mA |
| I_{CES} | Collector Cut-off Current : TIP32 : TIP32A : TIP32B : TIP32C | $V_{CE} = -40\text{V}, V_{EB} = 0$ | | - 200 | μA |
| | | $V_{CE} = -60\text{V}, V_{EB} = 0$ | | - 200 | μA |
| | | $V_{CE} = -80\text{V}, V_{EB} = 0$ | | - 200 | μA |
| | | $V_{CE} = -100\text{V}, V_{CE} = 0$ | | - 200 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = -5\text{V}, I_C = 0$ | | - 1 | mA |
| h_{FE} | * DC Current Gain | $V_{CE} = -4\text{V}, I_C = -1\text{A}$ | 25 | | |
| | | $V_{CE} = -4\text{V}, I_C = -3\text{A}$ | 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 | $V_{CE} = -10\text{V}, I_C = -500\text{mA}$ | 3.0 | | MHz |

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

Typical Characteristics

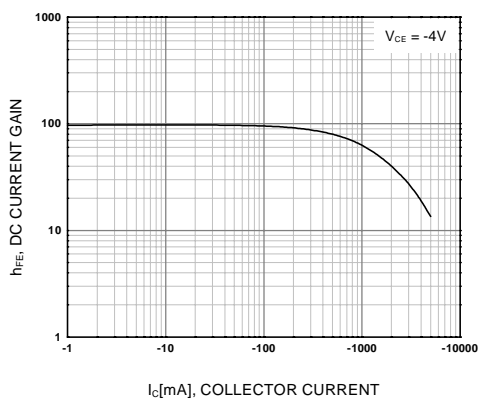


Figure 1. DC current Gain

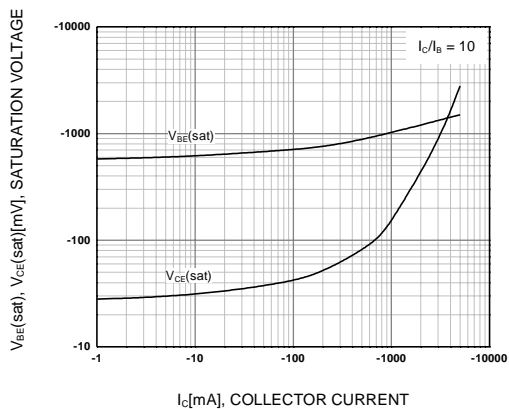


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

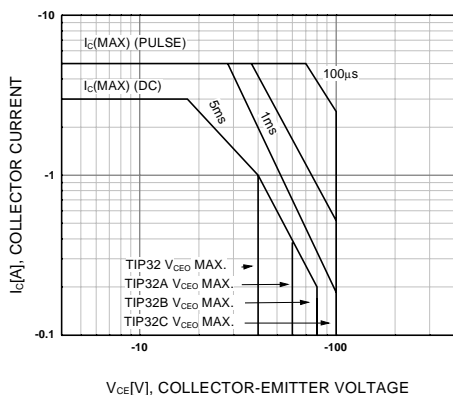


Figure 3. Safe Operating Area

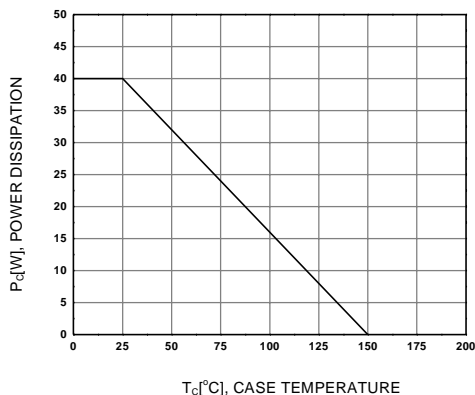
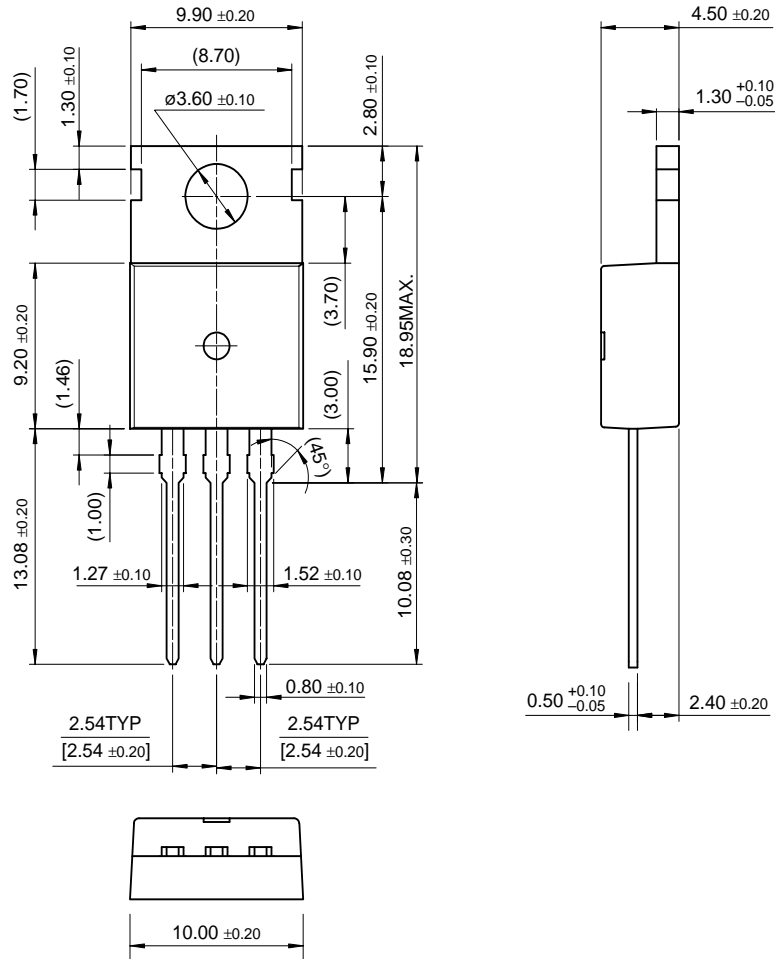


Figure 4. Power Derating

Package Dimensions

TO-220



TIP32 Series (TIP32/32A/32B/32C)

Dimensions in Millimeters

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| Product | Product status | Pricing* | Package type | Leads | Packing method |
|----------|-----------------|----------|--------------|-------|----------------|
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| Product | Product status | Pricing* | Package type | Leads | Packing method |
|------------|-----------------|----------|--------------|-------|----------------|
| TIP32C | Full Production | \$0.319 | TO-220 | 3 | BULK |
| TIP32CTSTU | Full Production | \$0.319 | TO-220 | 3 | RAIL |

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| TIP32A | Full Production | \$0.32 | TO-220 | 3 | BULK |

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| Product | Product status | Pricing* | Package type | Leads | Packing method |
|---------|-----------------|----------|--------------|-------|----------------|
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| TIP32TU | Full Production | \$0.319 | TO-220 | 3 | RAIL |

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