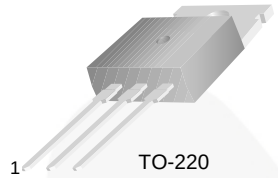
November 2014

# TIP41A / TIP41B / TIP41C
# NPN Epitaxial Silicon Transistor

## Features

- Medium Power Linear Switching Applications
- Complement to TIP42 Series




TO-220

1.Base 2.Collector 3.Emitter

## Ordering Information

| Part Number | Top Mark | Package | Packing Method |
|---|---|---|---|
| TIP41A | TIP41A | TO-220 3L (Single Gauge) | Bulk |
| TIP41B | TIP41B | TO-220 3L (Single Gauge) | Bulk |
| TIP41C | TIP41C | TO-220 3L (Single Gauge) | Bulk |
| TIP41CTU | TIP41C | TO-220 3L (Single Gauge) | Rail |

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_C$ = 25°C unless otherwise noted.

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | TIP41A | 60 | V |
| | | TIP41B | 80 | |
| | | TIP41C | 100 | |
| $V_{CEO}$ | Collector-Emitter Voltage | TIP41A | 60 | V |
| | | TIP41B | 80 | |
| | | TIP41C | 100 | |
| $V_{EBO}$ | 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 |
| $T_J$ | Junction Temperature | | 150 | °C |
| $T_{STG}$ | Storage Temperature Range | | -65 to 150 | °C |

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## Thermal Characteristics

Values are at $T_C$ = 25°C unless otherwise noted.

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $P_C$ | Collector Dissipation ($T_C$ = 25°C) | 65 | W |
| | Collector Dissipation ($T_A$ = 25°C) | 2 | |

## Electrical Characteristics

Values are at $T_C$ = 25°C unless otherwise noted.

| Symbol | Parameter | | Conditions | Min. | Max. | Unit |
|---|---|---|---|---|---|---|
| $V_{CEO}$(sus) | Collector-Emitter Sustaining Voltage[1] | TIP41A | $I_C$ = 30 mA, $I_B$ = 0 | 60 | | V |
| | | TIP41B | | 80 | | |
| | | TIP41C | | 100 | | |
| $I_{CEO}$ | Collector Cut-Off Current | TIP41A | $V_{CE}$ = 30 V, $I_B$ = 0 | | 0.7 | mA |
| | | TIP41B / TIP41C | $V_{CE}$ = 60 V, $I_B$ = 0 | | 0.7 | |
| $I_{CES}$ | Collector Cut-Off Current | TIP41A | $V_{CE}$ = 60 V, $V_{EB}$ = 0 | | 400 | µA |
| | | TIP41B | $V_{CE}$ = 80 V, $V_{EB}$ = 0 | | 400 | |
| | | TIP41C | $V_{CE}$ = 100 V, $V_{EB}$ = 0 | | 400 | |
| $I_{EBO}$ | Emitter Cut-Off Current | | $V_{EB}$ = 5 V, $I_C$ = 0 | | 1 | mA |
| $h_{FE}$ | DC Current Gain[1] | | $V_{CE}$ = 4 V, $I_C$ = 0.3 A | 30 | | |
| | | | $V_{CE}$ = 4 V, $I_C$ = 3 A | 15 | 75 | |
| $V_{CE}$(sat) | Collector-Emitter Saturation Voltage[1] | | $I_C$ = 6 A, $I_B$ = 600 mA | | 1.5 | V |
| $V_{BE}$(on) | Base-Emitter On Voltage[1] | | $V_{CE}$ = 4 V, $I_C$ = 6 A | | 2.0 | V |
| $f_T$ | Current Gain Bandwidth Product | | $V_{CE}$ = 10 V, $I_C$ = 500 mA, f = 1 MHz | 3.0 | | MHz |

**Note:**

1. Pulse test: pw ≤ 300 µs, duty cycle ≤ 2%.

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## Typical Performance Characteristics

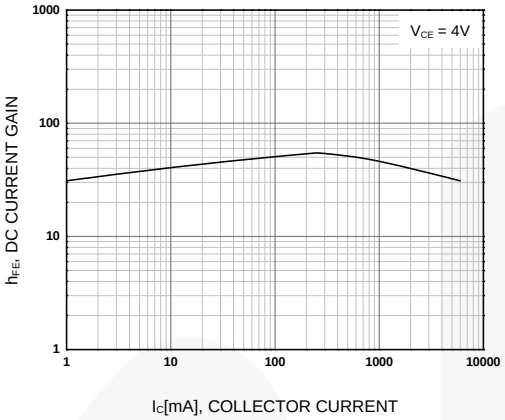


**Figure 1. DC Current Gain**

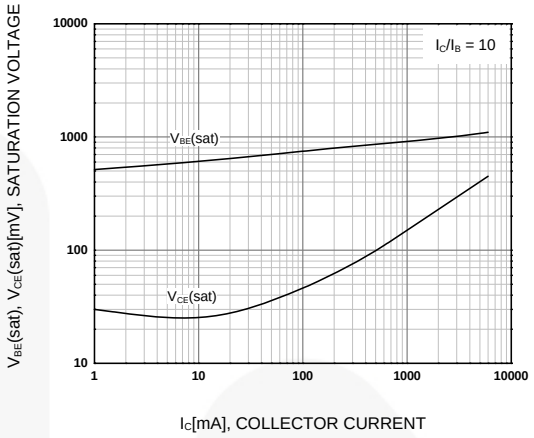


**Figure 2. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage**

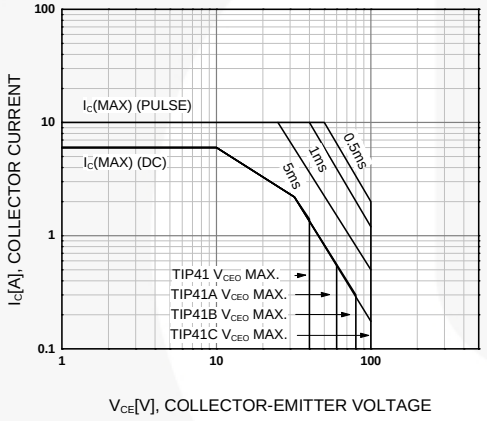


**Figure 3. Safe Operating Area**

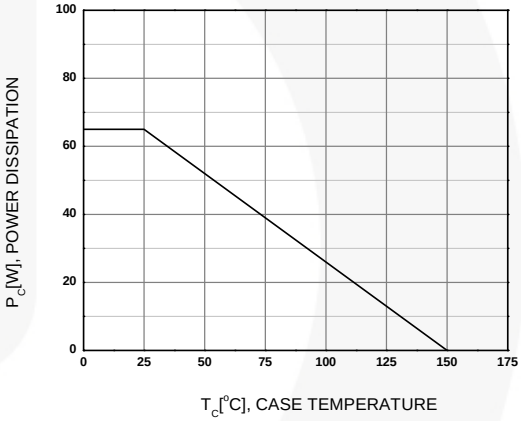


**Figure 4. Power Derating**

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## Physical Dimensions

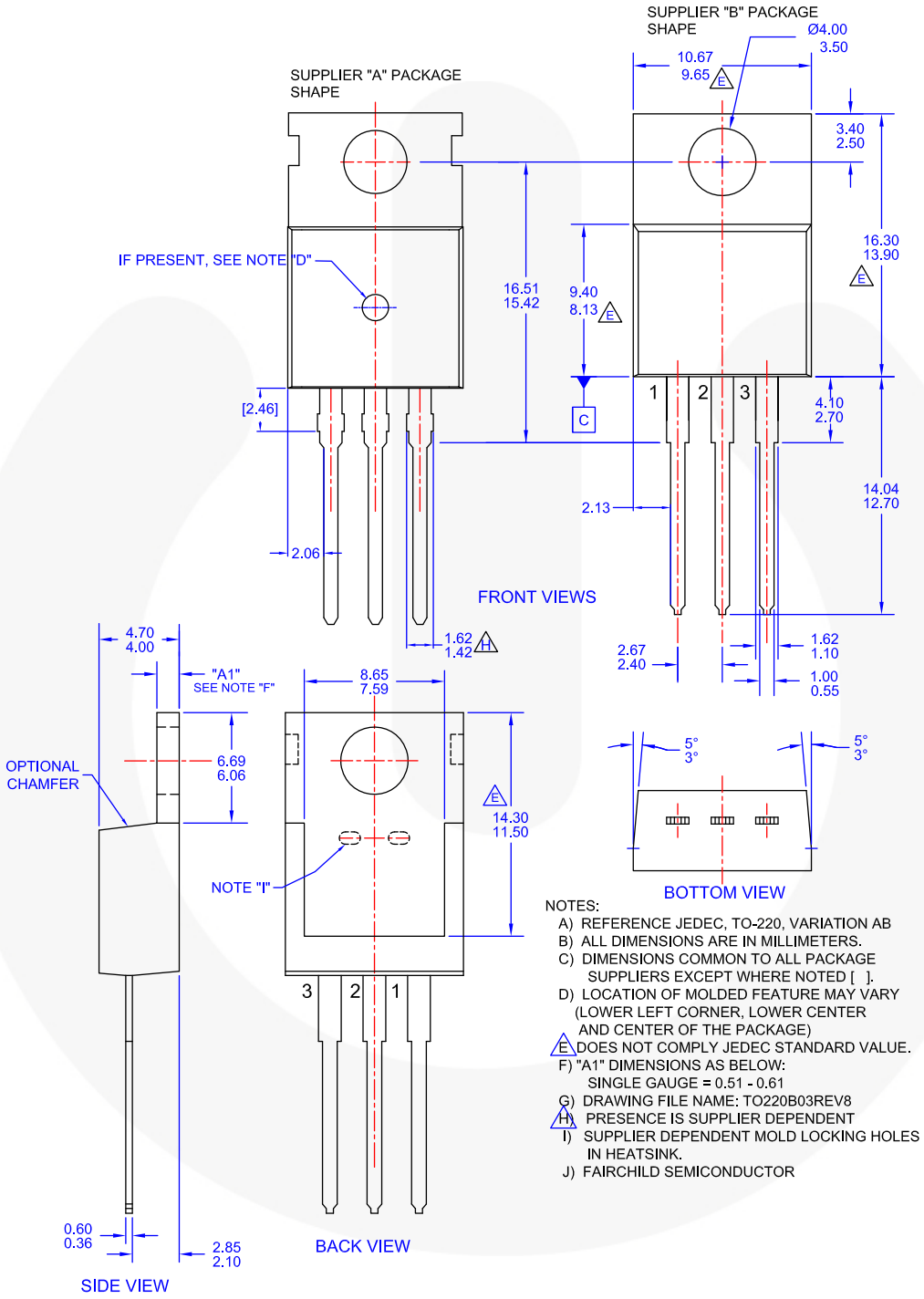


**Figure 5. TO-220, MOLDED, 3LEAD, JEDEC VARIATION AB**

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