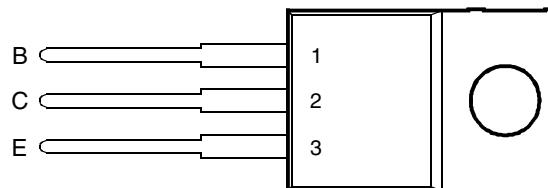


- 7 A Continuous Collector Current
- 15 A Peak Collector Current
- 60 W at 25°C Case Temperature

TO-220 PACKAGE
(TOP VIEW)

Pin 2 is in electrical contact with the mounting base.

MDTRACA

absolute maximum ratings at 25°C case temperature (unless otherwise noted)

| RATING | | SYMBOL | VALUE | UNIT |
|---|----------------|-----------|-------------|------|
| Collector-base voltage ($I_E = 0$) | BU406 BU407 | V_{CBO} | 400 330 | V |
| Collector-emitter voltage ($V_{BE} = -2$ V) | BU406 BU407 | V_{CEX} | 400 330 | V |
| Collector-emitter voltage ($I_B = 0$) | BU406 BU407 | V_{CEO} | 200 150 | V |
| Emitter-base voltage | | V_{EB} | 6 | V |
| Continuous collector current | | I_C | 7 | A |
| Peak collector current (see Note 1) | | I_{CM} | 15 | A |
| Continuous base current | | I_B | 4 | A |
| Continuous device dissipation at (or below) 25°C case temperature | | P_{tot} | 60 | W |
| Operating junction temperature range | | T_j | -55 to +150 | °C |
| Storage temperature range | | T_{stg} | -55 to +150 | °C |

NOTE 1: This value applies for $t_p \leq 10$ ms, duty cycle $\leq 2\%$.**PRODUCT INFORMATION**

electrical characteristics at 25°C case temperature (unless otherwise noted)

| PARAMETER | TEST CONDITIONS | | | MIN | TYP | MAX | UNIT |
|---------------|----------------------------------|-----------------------|---------------------------|--------------|-----|-----|------|
| $V_{(BR)CEO}$ | $I_C = 30 \text{ mA}$ $I_B = 0$ | | | 140 | | | V |
| I_{CES} | $V_{CE} = 400 \text{ V}$ | $V_{BE} = 0$ | BU406 | | | 5 | mA |
| | $V_{CE} = 330 \text{ V}$ | $V_{BE} = 0$ | BU407 | | | 5 | |
| | $V_{CE} = 250 \text{ V}$ | $V_{BE} = 0$ | BU406 | | | 0.1 | |
| | $V_{CE} = 200 \text{ V}$ | $V_{BE} = 0$ | BU407 | | | 0.1 | |
| | $V_{CE} = 250 \text{ V}$ | $V_{BE} = 0$ | $T_C = 150^\circ\text{C}$ | BU406 | | 1 | |
| | $V_{CE} = 200 \text{ V}$ | $V_{BE} = 0$ | $T_C = 150^\circ\text{C}$ | BU407 | | 1 | |
| I_{EBO} | $V_{EB} = 6 \text{ V}$ $I_C = 0$ | | | | | 1 | mA |
| h_{FE} | $V_{CE} = 10 \text{ V}$ | $I_C = 4 \text{ A}$ | (see Notes 2 and 3) | 12 | | | |
| | $V_{CE} = 10 \text{ V}$ | $I_C = 0.5 \text{ A}$ | | 20 | | | |
| $V_{CE(sat)}$ | $I_B = 0.5 \text{ A}$ | $I_C = 5 \text{ A}$ | (see Notes 2 and 3) | | | 1 | V |
| $V_{BE(sat)}$ | $I_B = 0.5 \text{ A}$ | $I_C = 5 \text{ A}$ | (see Notes 2 and 3) | | | 1.2 | V |
| f_t | $V_{CE} = 5 \text{ V}$ | $I_C = 0.5 \text{ A}$ | $f = 1 \text{ MHz}$ | (see Note 4) | | 6 | MHz |
| C_{ob} | $V_{CB} = 20 \text{ V}$ | $I_E = 0$ | $f = 1 \text{ MHz}$ | | | 60 | pF |

NOTES: 2. These parameters must be measured using pulse techniques, $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

3. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.

4. To obtain f_t the $[h_{FE}]$ response is extrapolated at the rate of -6 dB per octave from $f = 1 \text{ MHz}$ to the frequency at which $[h_{FE}] = 1$.

thermal characteristics

| PARAMETER | MIN | TYP | MAX | UNIT |
|-----------------|-----|-----|------|------|
| $R_{\theta,JC}$ | | | 2.08 | °C/W |
| $R_{\theta,JA}$ | | | 70 | °C/W |

inductive-load-switching characteristics at 25°C case temperature (unless otherwise noted)

| PARAMETER | TEST CONDITIONS [†] | | | MIN | TYP | MAX | UNIT |
|-------------|------------------------------|---------------------|------------------------------|-----------------------|-----|-----|------|
| t_s | Storage time | | | | 2.7 | | μs |
| $t_{(off)}$ | Turn off time | $I_C = 5 \text{ A}$ | $I_{B(end)} = 0.5 \text{ A}$ | (see Figures 1 and 2) | | 750 | ns |

[†] Voltage and current values shown are nominal; exact values vary slightly with transistor parameters.

PRODUCT INFORMATION

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PARAMETER MEASUREMENT INFORMATION

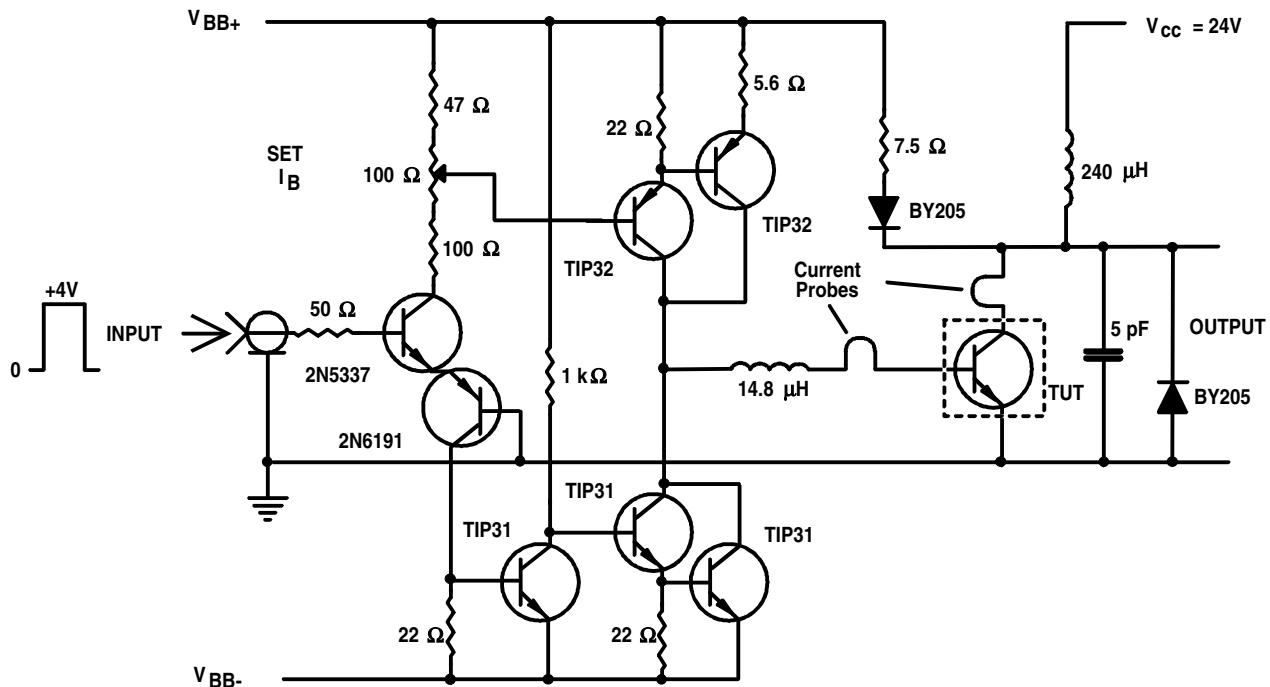


Figure 1. Inductive-Load Switching Test Circuit

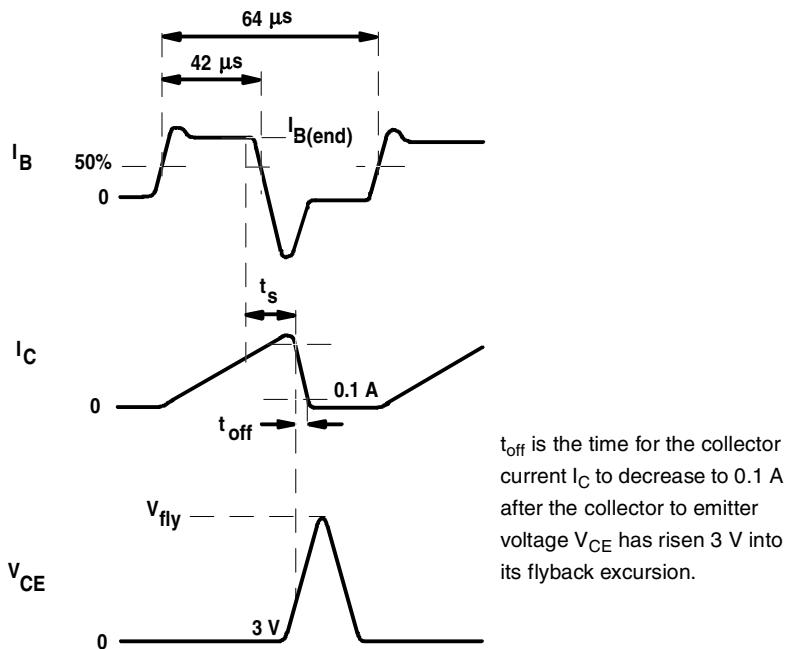


Figure 2. Inductive-Load Switching Waveforms

PRODUCT INFORMATION

TYPICAL CHARACTERISTICS

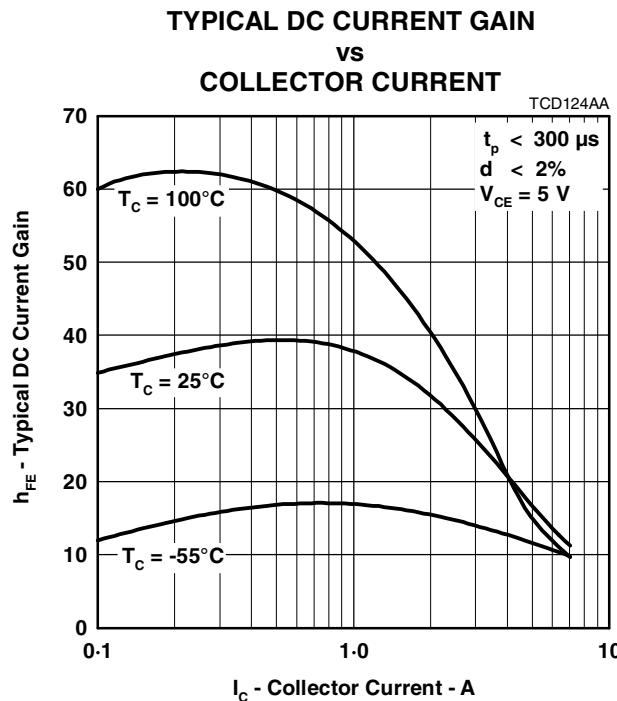


Figure 3.

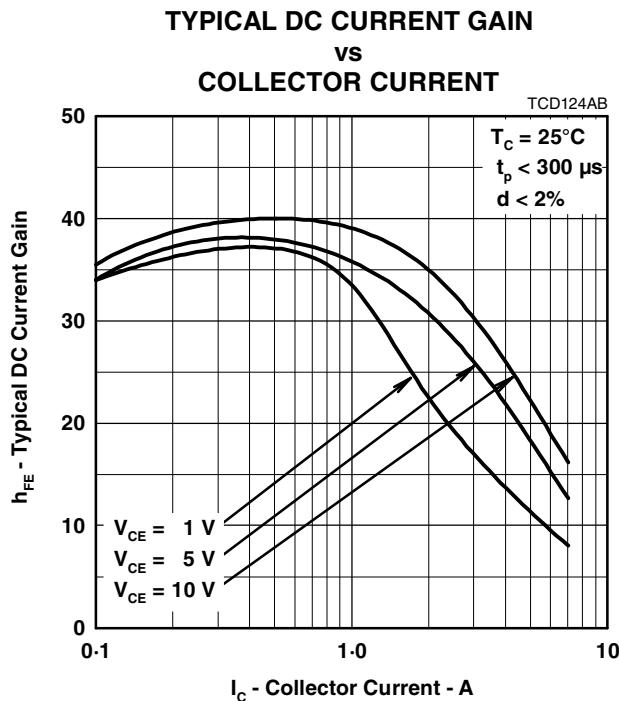


Figure 4.

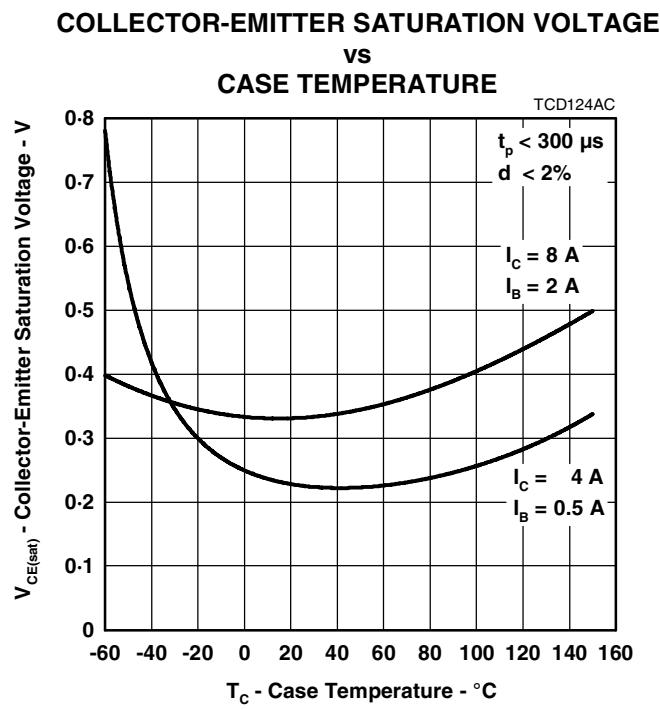
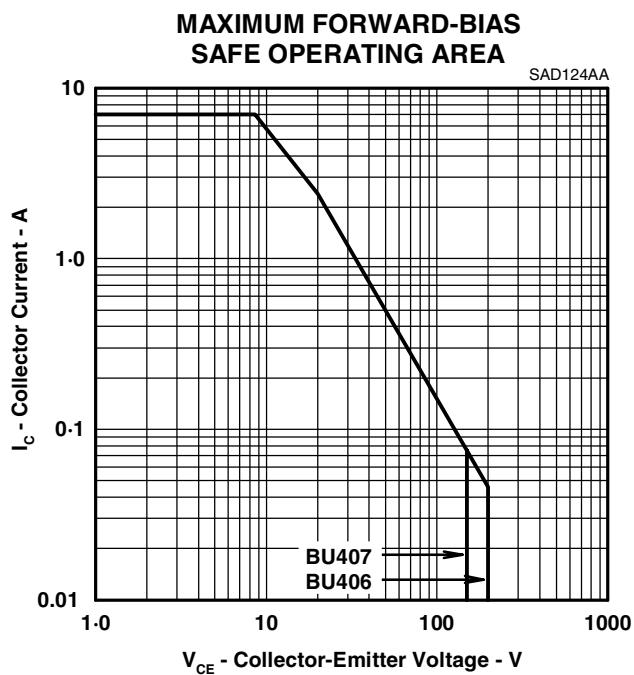


Figure 5.

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MAXIMUM SAFE OPERATING REGIONS**Figure 6.****PRODUCT INFORMATION**

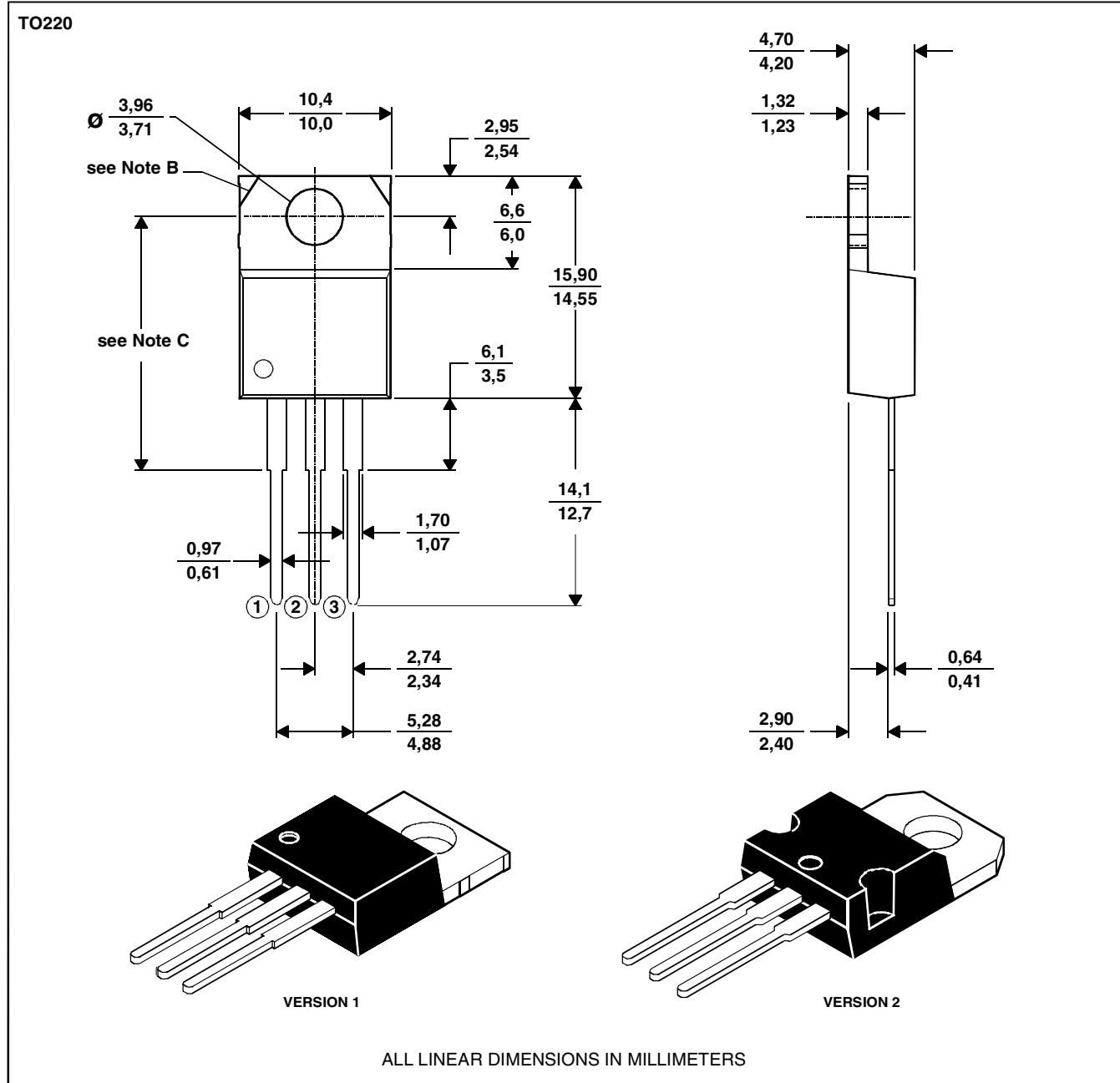
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MECHANICAL DATA

TO-220

3-pin plastic flange-mount package

This single-in-line package consists of a circuit mounted on a lead frame and encapsulated within a plastic compound. The compound will withstand soldering temperature with no deformation, and circuit performance characteristics will remain stable when operated in high humidity conditions. Leads require no additional cleaning or processing when used in soldered assembly.



NOTES: A. The centre pin is in electrical contact with the mounting tab.

MDXXBE

B. Mounting tab corner profile according to package version.

C. Typical fixing hole centre stand off height according to package version.

Version 1, 18.0 mm. Version 2, 17.6 mm.

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