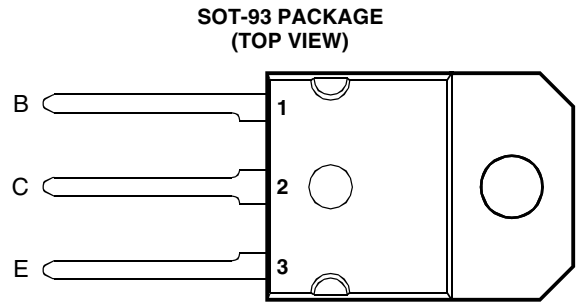


- Designed for Complementary Use with BDV64, BDV64A, BDV64B and BDV64C
- 125 W at 25°C Case Temperature
- 12 A Continuous Collector Current
- Minimum h_{FE} of 1000 at 4 V, 5 A



Pin 2 is in electrical contact with the mounting base.

MDTRA4A

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

| RATING | | SYMBOL | VALUE | UNIT |
|--|--------|-----------|-------------|------|
| Collector-base voltage ($I_E = 0$) | BDV65 | V_{CBO} | 60 | V |
| | BDV65A | | 80 | |
| | BDV65B | | 100 | |
| | BDV65C | | 120 | |
| Collector-emitter voltage ($I_B = 0$) | BDV65 | V_{CEO} | 60 | V |
| | BDV65A | | 80 | |
| | BDV65B | | 100 | |
| | BDV65C | | 120 | |
| Emitter-base voltage | | V_{EBO} | 5 | V |
| Continuous collector current | | I_C | 12 | A |
| Peak collector current (see Note 1) | | I_{CM} | 15 | A |
| Continuous base current | | I_B | 0.5 | A |
| Continuous device dissipation at (or below) 25°C case temperature (see Note 2) | | P_{tot} | 125 | W |
| Continuous device dissipation at (or below) 25°C free air temperature (see Note 3) | | P_{tot} | 3.5 | W |
| Operating junction temperature range | | T_j | -65 to +150 | °C |
| Storage temperature range | | T_{stg} | -65 to +150 | °C |
| Lead temperature 3.2 mm from case for 10 seconds | | T_L | 260 | °C |

NOTES: 1. This value applies for $t_p \leq 0.1$ ms, duty cycle $\leq 10\%$
2. Derate linearly to 150°C case temperature at the rate of 0.56 W/°C.
3. Derate linearly to 150°C free air temperature at the rate of 28 mW/°C.

PRODUCT INFORMATION

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

| PARAMETER | TEST CONDITIONS | | | MIN | TYP | MAX | UNIT |
|--|--|--|--|--|------------------------|--|------|
| $V_{(BR)CEO}$ Collector-emitter breakdown voltage | $I_C = 30 \text{ mA}$ | $I_B = 0$ | (see Note 4) | BDV65 BDV65A BDV65B BDV65C | 60 80 100 120 | | V |
| I_{CEO} Collector-emitter cut-off current | $V_{CB} = 30 \text{ V}$ $V_{CB} = 40 \text{ V}$ $V_{CB} = 50 \text{ V}$ $V_{CB} = 60 \text{ V}$ | $I_B = 0$ $I_B = 0$ $I_B = 0$ $I_B = 0$ | | BDV65 BDV65A BDV65B BDV65C | | 2 2 2 2 | mA |
| I_{CBO} Collector cut-off current | $V_{CB} = 60 \text{ V}$ $V_{CB} = 80 \text{ V}$ $V_{CB} = 100 \text{ V}$ $V_{CB} = 120 \text{ V}$ $V_{CB} = 30 \text{ V}$ $V_{CB} = 40 \text{ V}$ $V_{CB} = 50 \text{ V}$ $V_{CB} = 60 \text{ V}$ | $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ | $T_C = 150^\circ\text{C}$ $T_C = 150^\circ\text{C}$ $T_C = 150^\circ\text{C}$ $T_C = 150^\circ\text{C}$ | BDV65 BDV65A BDV65B BDV65C BDV65 BDV65A BDV65B BDV65C | | 0.4 0.4 0.4 0.4 2 2 2 2 | mA |
| I_{EBO} Emitter cut-off current | $V_{EB} = 5 \text{ V}$ | $I_C = 0$ | | | | 5 | mA |
| h_{FE} Forward current transfer ratio | $V_{CE} = 4 \text{ V}$ | $I_C = 5 \text{ A}$ | (see Notes 4 and 5) | 1000 | | | |
| $V_{CE(sat)}$ Collector-emitter saturation voltage | $I_B = 20 \text{ mA}$ | $I_C = 5 \text{ A}$ | (see Notes 4 and 5) | | | 2 | V |
| V_{BE} Base-emitter voltage | $V_{CE} = 4 \text{ V}$ | $I_C = 5 \text{ A}$ | (see Notes 4 and 5) | | | 2.5 | V |
| V_{EC} Parallel diode forward voltage | $I_E = 10 \text{ A}$ | $I_B = 0$ | (see Notes 4 and 5) | | | 3.5 | V |

NOTES: 4. These parameters must be measured using pulse techniques, $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

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

thermal characteristics

| PARAMETER | MIN | TYP | MAX | UNIT |
|---|-----|-----|------|--------------------|
| $R_{\theta JC}$ Junction to case thermal resistance | | | 1 | $^\circ\text{C/W}$ |
| $R_{\theta JA}$ Junction to free air thermal resistance | | | 35.7 | $^\circ\text{C/W}$ |

PRODUCT INFORMATION

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Specifications are subject to change without notice.

TYPICAL CHARACTERISTICS

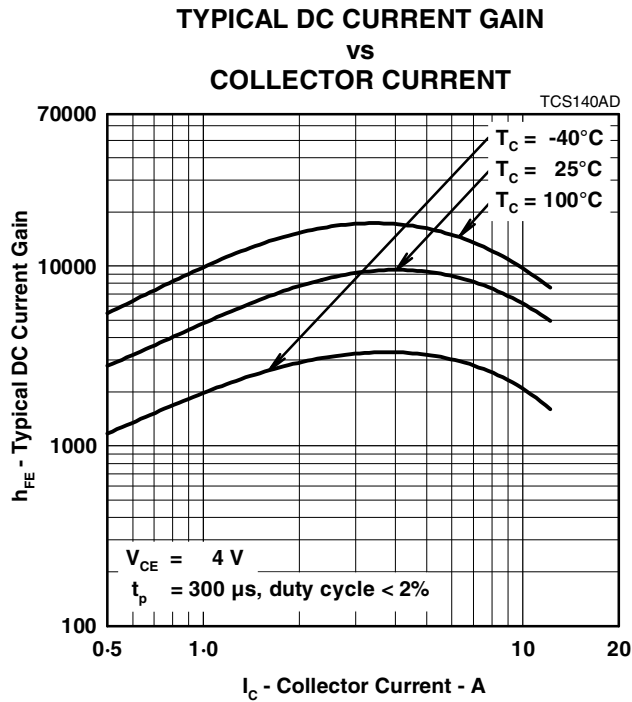


Figure 1.

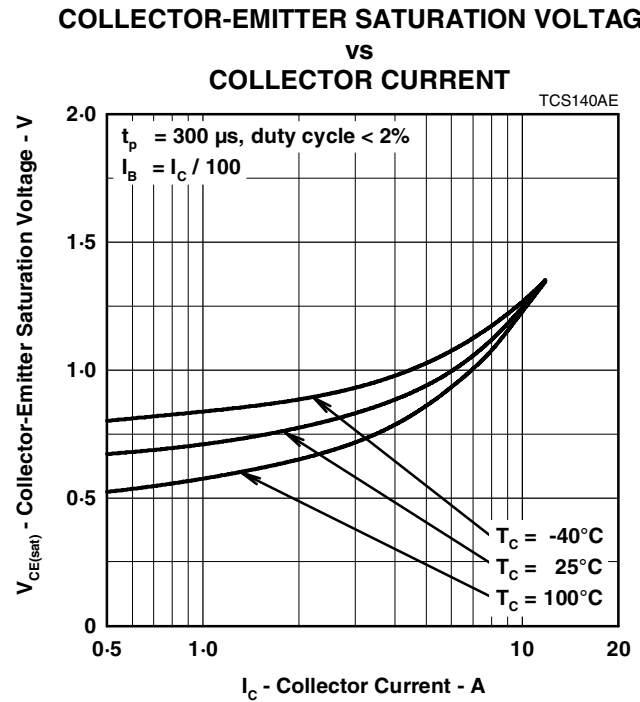


Figure 2.

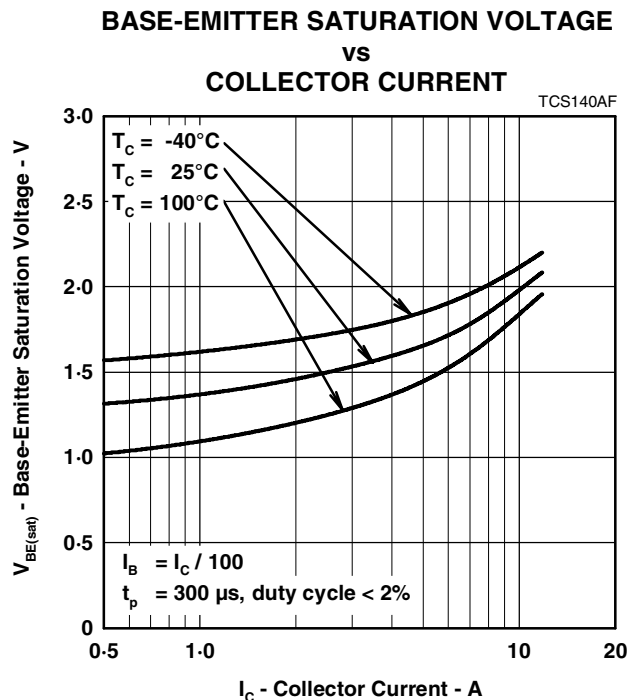


Figure 3.

PRODUCT INFORMATION

THERMAL INFORMATION

**MAXIMUM POWER DISSIPATION
vs
CASE TEMPERATURE**

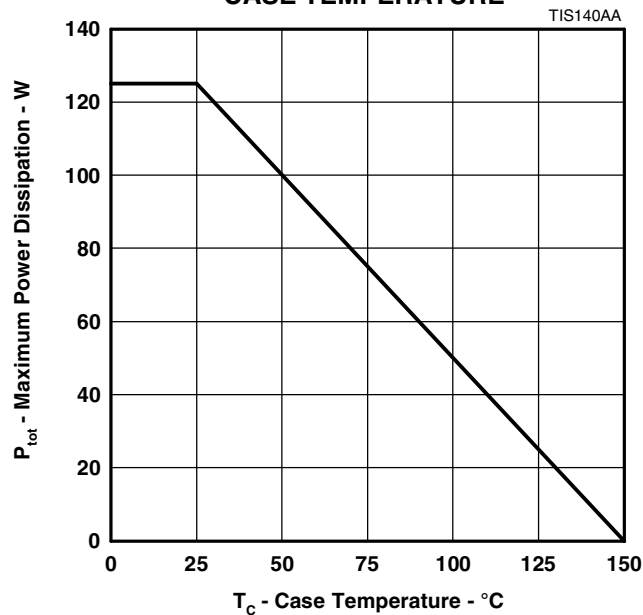


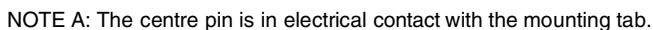
Figure 4.

PRODUCT INFORMATION

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SOT-93

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.



MDXXAW

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