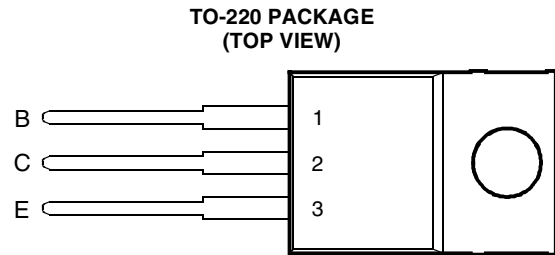


- **Designed for Complementary Use with TIP135, TIP136 and TIP137**
- **70 W at 25°C Case Temperature**
- **8 A Continuous Collector Current**
- **Minimum h_{FE} of 1000 at 4 V, 4 A**



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 ($I_E = 0$) | TIP130 | V_{CBO} | 60 | V |
| | TIP131 | | 80 | |
| | TIP132 | | 100 | |
| Collector-emitter voltage ($I_B = 0$) | TIP130 | V_{CEO} | 60 | V |
| | TIP131 | | 80 | |
| | TIP132 | | 100 | |
| Emitter-base voltage | | V_{EBO} | 5 | V |
| Continuous collector current | | I_C | 8 | A |
| Peak collector current (see Note 1) | | I_{CM} | 12 | A |
| Continuous base current | | I_B | 0.3 | A |
| Continuous device dissipation at (or below) 25°C case temperature (see Note 2) | | P_{tot} | 70 | W |
| Continuous device dissipation at (or below) 25°C free air temperature (see Note 3) | | P_{tot} | 2 | W |
| Unclamped inductive load energy (see Note 4) | | $\frac{1}{2}LI_C^2$ | 75 | mJ |
| 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 $t_p \leq 0.3$ 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 16 mW/°C.
 4. This rating is based on the capability of the transistor to operate safely in a circuit of: $L = 20$ mH, $I_{B(on)} = 5$ mA, $R_{BE} = 100 \Omega$, $V_{BE(off)} = 0$, $R_S = 0.1 \Omega$, $V_{CC} = 20$ V.

PRODUCT INFORMATION

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electrical characteristics at 25°C case temperature

| PARAMETER | | TEST CONDITIONS | | | MIN | TYP | MAX | UNIT |
|---------------|--------------------------------------|-------------------------|---------------------|---------------------|------------------------|---------------------------|-----|------|
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage | $I_C = 30 \text{ mA}$ | $I_B = 0$ | (see Note 5) | TIP130 | | | V |
| | | | | | TIP131 | 60 | | |
| | | | | | TIP132 | 80 | | |
| I_{CEO} | Collector-emitter cut-off current | $V_{CE} = 30 \text{ V}$ | $I_B = 0$ | | TIP130 | | 0.5 | mA |
| | | | | | TIP131 | | 0.5 | |
| | | | | | TIP132 | | 0.5 | |
| I_{CBO} | Collector cut-off current | $V_{CB} = 60 \text{ V}$ | $I_E = 0$ | | TIP130 | | 0.2 | mA |
| | | | | | TIP131 | | 0.2 | |
| | | | | | TIP132 | | 0.2 | |
| | | | | | TIP130 | | 1 | |
| | | | | | TIP131 | $T_C = 100^\circ\text{C}$ | 1 | |
| | | | | | TIP132 | $T_C = 100^\circ\text{C}$ | 1 | |
| I_{EBO} | Emitter cut-off current | $V_{EB} = 5 \text{ V}$ | $I_C = 0$ | | | | 5 | mA |
| h_{FE} | Forward current transfer ratio | $V_{CE} = 4 \text{ V}$ | $I_C = 1 \text{ A}$ | (see Notes 5 and 6) | | 500 | | |
| | | | | | $V_{CE} = 4 \text{ V}$ | $I_C = 4 \text{ A}$ | | |
| $V_{CE(sat)}$ | Collector-emitter saturation voltage | $I_B = 16 \text{ mA}$ | $I_C = 4 \text{ A}$ | (see Notes 5 and 6) | | | 2 | V |
| | | | | | $I_B = 30 \text{ mA}$ | $I_C = 6 \text{ A}$ | | |
| V_{BE} | Base-emitter voltage | $V_{CE} = 4 \text{ V}$ | $I_C = 4 \text{ A}$ | (see Notes 5 and 6) | | | 2.5 | V |
| C_{obo} | Output capacitance | $V_{CB} = 10 \text{ V}$ | $I_E = 0$ | | | | 200 | pF |
| V_{EC} | Parallel diode forward voltage | $I_E = 8 \text{ A}$ | $I_B = 0$ | (see Notes 5 and 6) | | | 3.5 | V |

NOTES: 5. These parameters must be measured using pulse techniques, $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

6. 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 | | | 1.78 | $^\circ\text{C/W}$ |
| $R_{\theta JA}$ | Junction to free air thermal resistance | | | 62.5 | $^\circ\text{C/W}$ |

TYPICAL CHARACTERISTICS

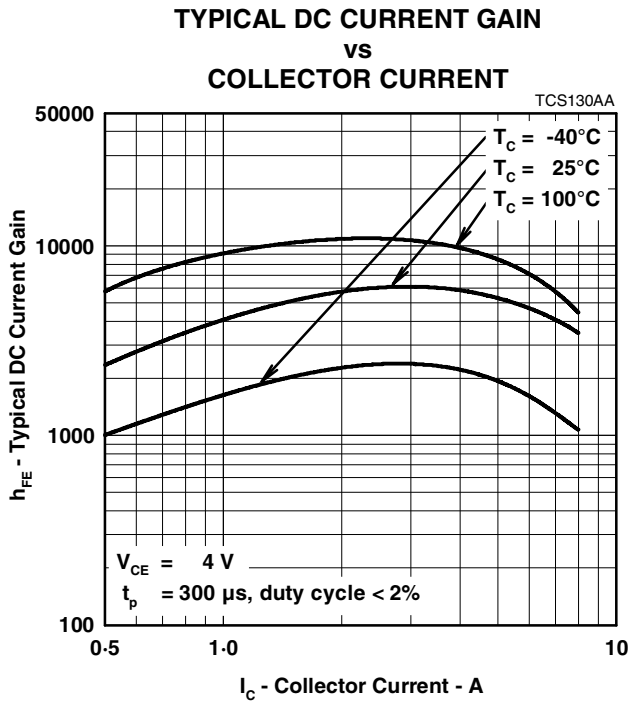


Figure 1.

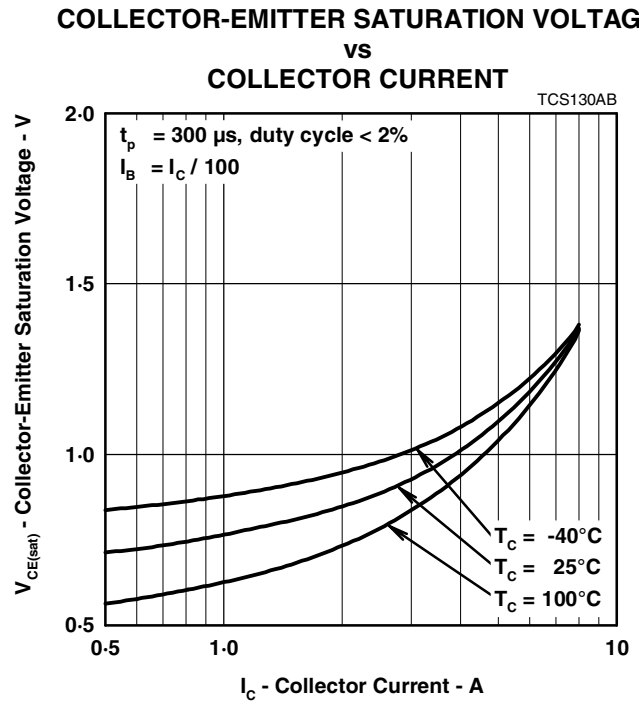


Figure 2.

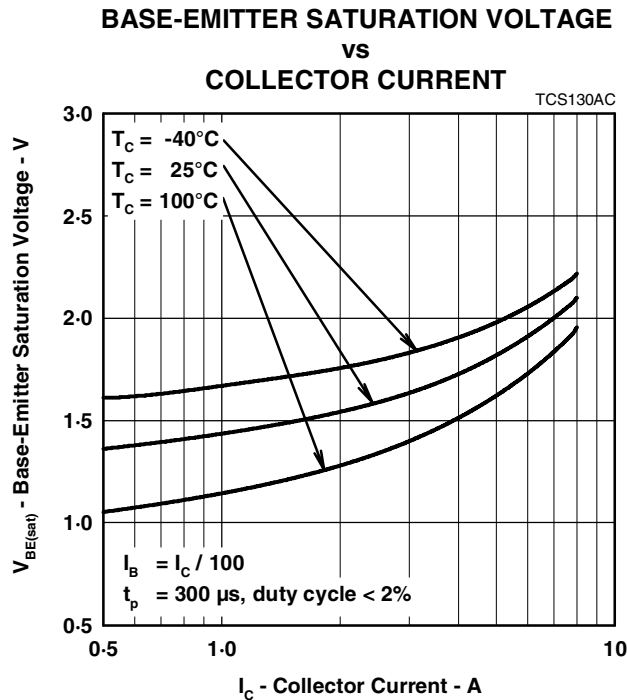


Figure 3.

PRODUCT INFORMATION

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MAXIMUM SAFE OPERATING REGIONS

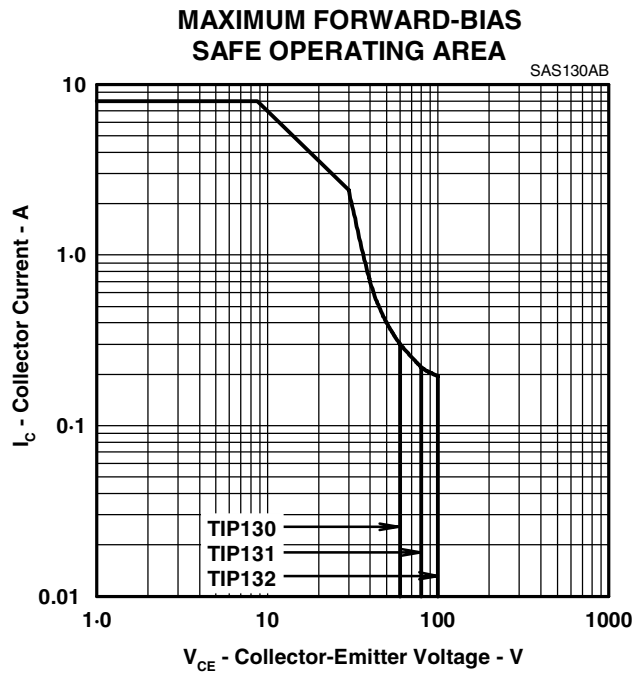


Figure 4.

THERMAL INFORMATION

**MAXIMUM POWER DISSIPATION
vs
CASE TEMPERATURE**

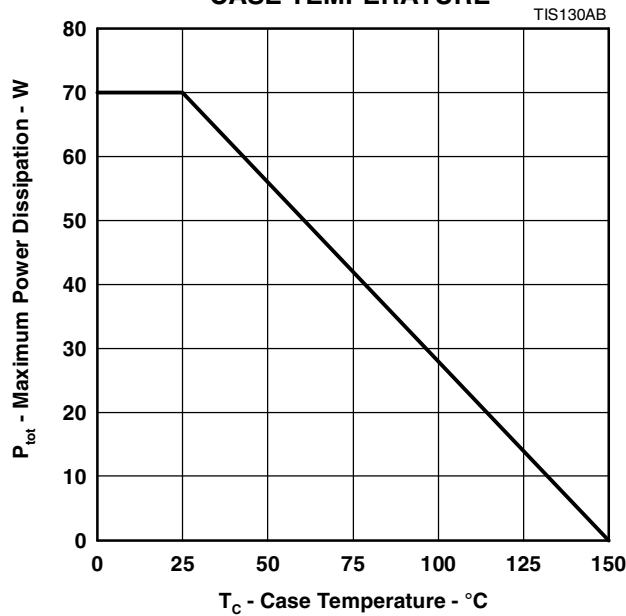


Figure 5.

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