

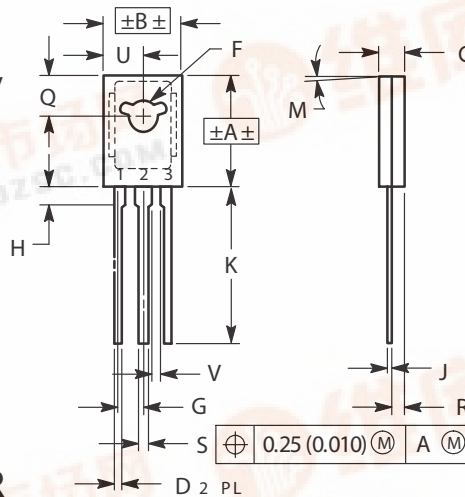


POWER TRANSISTOR E13005

SWITCHING REGULATOR APPLICATION

TO-126

- High speed switching
- Suitable for switching regulator and motor control
- Case : TO-126 molded plastic body



| DIM | INCHES | | MILLIMETERS | |
|-----|-----------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.425 | 0.435 | 10.80 | 11.04 |
| B | 0.295 | 0.305 | 7.50 | 7.74 |
| C | 0.095 | 0.105 | 2.42 | 2.66 |
| D | 0.020 | 0.026 | 0.51 | 0.66 |
| F | 0.115 | 0.130 | 2.93 | 3.30 |
| G | 0.094 BSC | | 2.39 BSC | |
| H | 0.050 | 0.095 | 1.27 | 2.41 |
| J | 0.015 | 0.025 | 0.39 | 0.63 |
| K | 0.575 | 0.655 | 14.61 | 16.63 |
| M | 5 TYP | | 5 TYP | |
| Q | 0.148 | 0.158 | 3.76 | 4.01 |
| R | 0.045 | 0.065 | 1.15 | 1.65 |
| S | 0.025 | 0.035 | 0.64 | 0.88 |
| U | 0.145 | 0.155 | 3.69 | 3.93 |
| V | 0.040 | ±±± | 1.02 | ±±± |

NPN SILICON TRANSISTOR

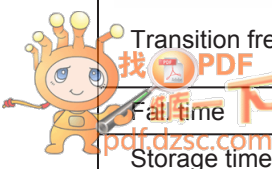
| | | | |
|---|------------------|-------|-------|
| ⊕ | 0.25 (0.010) (M) | A (M) | B (M) |
| ⊕ | 0.25 (0.010) (M) | A (M) | B (M) |

FEATURES $T_c=25^{\circ}\text{C}$ unless otherwise specified

| Parameter | Symbol | Value | UNIT |
|--|----------------|-------------------|------|
| Power dissipation | P_c | 75 | W |
| Collector current (DC) | I_c | 4.0 | A |
| Collector current (Pulse) | I_{cP} | 8.0 | A |
| Operating and storage junction temperature range | T_J, T_{STG} | -55 °C to +150 °C | °C |

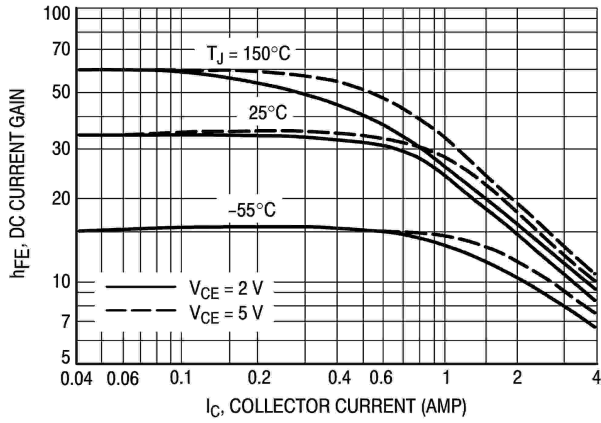
ELECTRICAL CHARACTERISTICS $T_c=25^{\circ}\text{C}$ unless otherwise specified

| Parameter | Symbol | Test conditions | MIN | MAX | UNIT |
|--------------------------------------|---------------|---|-----|-----|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_c=1\text{mA}, I_E=0$ | 700 | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_c=10\text{mA}, I_B=0$ | 400 | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=1\text{mA}, I_c=0$ | 9 | | V |
| Collector cut-off current | I_{cBO} | $V_{CB}=700\text{V}, I_E=0$ | | 1 | mA |
| Collector cut-off current | I_{cEO} | $V_{CE}=400\text{V}, I_B=0$ | | 100 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=9\text{V}, I_c=0$ | | 1 | mA |
| DC current gain | h_{FE} | $V_{CE}=5\text{V}, I_c=1\text{A}$ | 10 | 40 | |
| Collector-emitter saturation voltage | V_{CEsat} | $I_c=2\text{A}, I_B=500\text{mA}$ | | 0.6 | V |
| Base-emitter saturation voltage | V_{BEsat} | $I_c=2\text{A}, I_B=500\text{mA}$ | | 1.6 | V |
| Transition frequency | f_T | $V_{CE}=10\text{V}, I_c=500\text{mA}$ $f=1\text{MHz}$ | 5 | | MHz |
| Storage time | t_s | $I_c=2\text{A}, I_{B1}=-I_{B2}=0.4\text{mA},$ $V_{CC}=120\text{V}$ | | 0.9 | μs |
| | | | | 4 | μs |

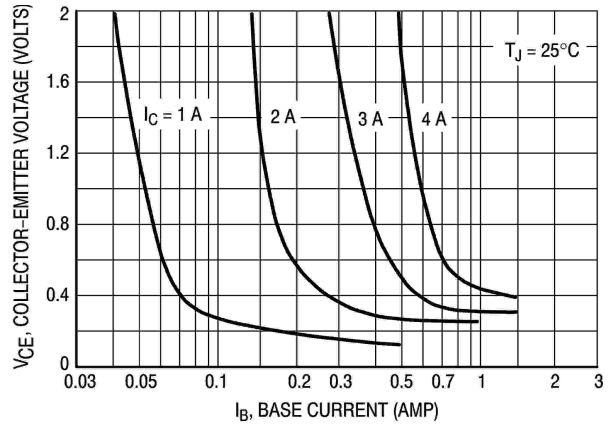




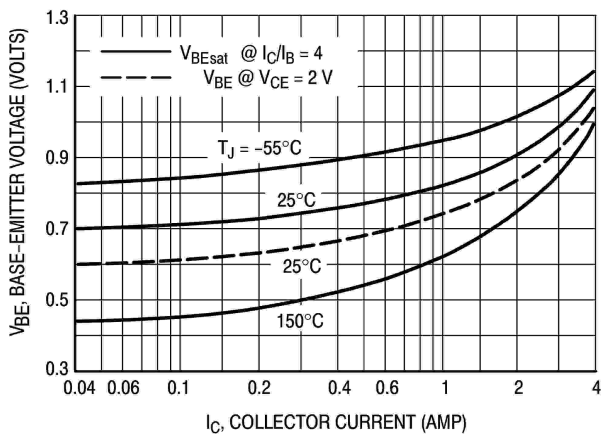
RATINGS AND CHARACTERISTIC CURVES E13005



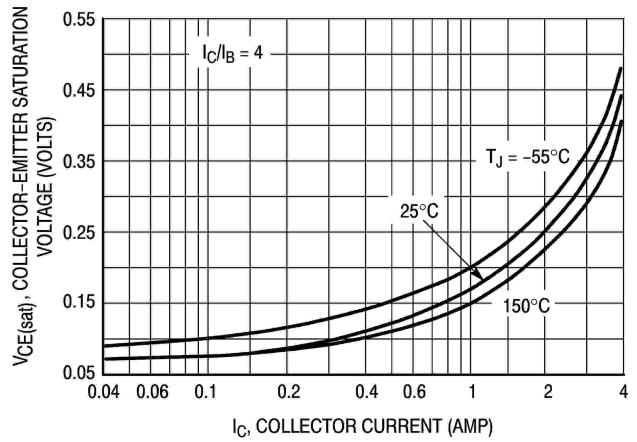
DC Current Gain



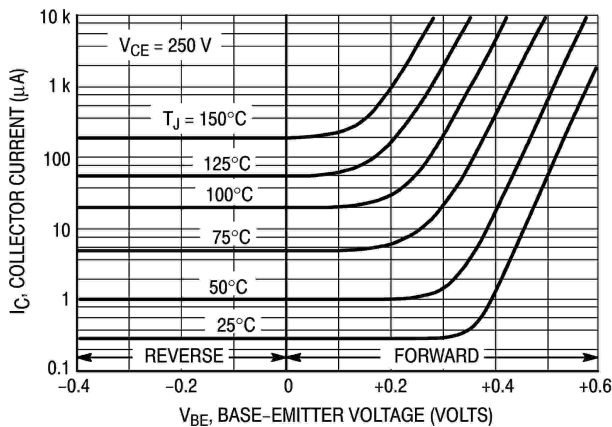
Collector Saturation Region



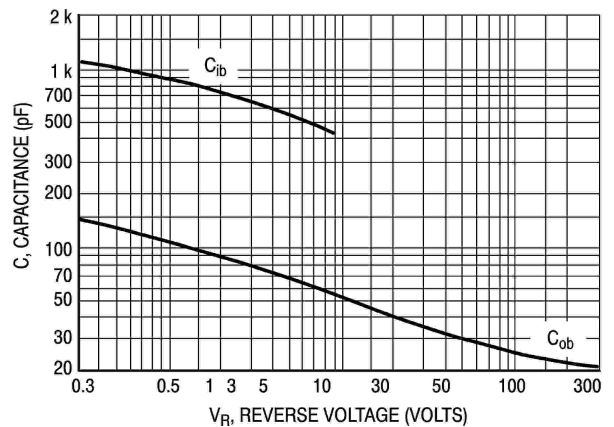
Base-Emitter Voltage



Collector-Emitter Saturation Voltage



Collector Cutoff Region



Capacitance