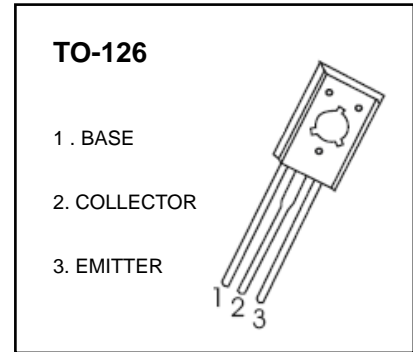


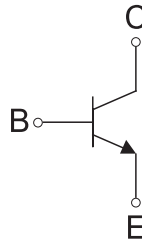
MJE13003 TRANSISTOR (NPN)

FEATURES

- Power Switching Applications



Equivalent Circuit



MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|--------------------------------|--|----------|-----------------------------|
| V_{CBO} | Collector-Base Voltage | 600 | V |
| V_{CEO} | Collector-Emitter Voltage | 400 | V |
| V_{EBO} | Emitter-Base Voltage | 6 | V |
| I_{C} | Collector Current -Continuous | 1 | A |
| P_{C} | Collector Power Dissipation | 1.25 | W |
| $R_{\theta\text{JA}}$ | Thermal Resistance from Junction to Ambient | 100 | $^{\circ}\text{C}/\text{W}$ |
| $T_{\text{J}}, T_{\text{stg}}$ | Operation Junction and Storage Temperature Range | -55~+150 | $^{\circ}\text{C}$ |

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

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|----------------|--|-----|-----|-----|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=0.1\text{mA}, I_E=0$ | 600 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=1\text{mA}, I_B=0$ | 400 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=0.1\text{mA}, I_C=0$ | 6 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=600\text{V}, I_E=0$ | | | 100 | μA |
| Collector cut-off current | I_{CEO} | $V_{CE}=400\text{V}, I_B=0$ | | | 100 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=7\text{V}, I_C=0$ | | | 10 | μA |
| DC current gain | $h_{FE(1)}^*$ | $V_{CE}=10\text{V}, I_C=200\text{mA}$ | 20 | | 30 | |
| | $h_{FE(2)}$ | $V_{CE}=10\text{V}, I_C=250\mu\text{A}$ | 5 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)1}$ | $I_C=200\text{mA}, I_B=40\text{mA}$ | | | 0.5 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=200\text{mA}, I_B=40\text{mA}$ | | | 1.1 | V |
| Transition frequency | f_T | $V_{CE}=10\text{V}, I_C=100\text{mA}, f=1\text{MHz}$ | 5 | | | MHz |
| Fall time | t_f | $I_C=100\text{mA}$ | | | 0.5 | μs |
| Storage time | t_s^* | $I_C=100\text{mA}$ | 2 | | 4 | |

Static Characteristic

