



MJE13003

NPN SILICON TRANSISTOR

FEATURES

Power dissipation

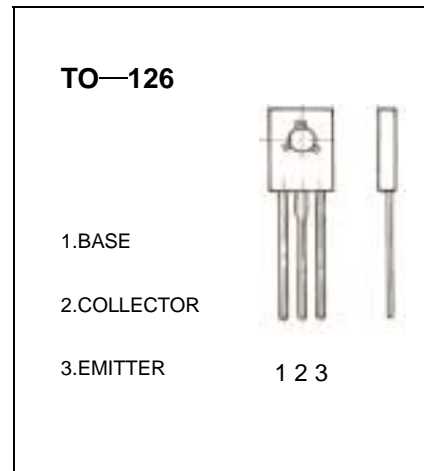
$$P_{CM} : 1.25 \text{ W} \quad (T_{amb}=25^\circ\text{C})$$

Collector current

$$I_{CM} : 1.5 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO} : 700 \text{ V}$$



ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|--|-----|-----|------|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=1000 \mu\text{A}, I_E=0$ | 700 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=10 \text{ mA}, I_B=0$ | 400 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=1000 \mu\text{A}, I_C=0$ | 9 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=700 \text{ V}, I_E=0$ | | | 1000 | μA |
| Collector cut-off current | I_{CEO} | $V_{CE}=400 \text{ V}, I_B=0$ | | | 500 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=9 \text{ V}, I_C=0$ | | | 1000 | μA |
| DC current gain(note) | $H_{FE(1)}$ | $V_{CE}=10 \text{ V}, I_C=150 \text{ mA}$ | 8 | | 40 | |
| | $H_{FE(2)}$ | $V_{CE}=10 \text{ V}, I_C=0.5 \text{ mA}$ | 5 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=1000\text{mA}, I_B=250 \text{ mA}$ | | | 1 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=1000\text{mA}, I_B=250\text{mA}$ | | | 1.2 | V |
| Base-emitter voltage | V_{BE} | $I_E=2000 \text{ mA}$ | | | 3 | 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 | $I_C=1\text{A}, I_{B1}=-I_{B2}=0.2\text{A}$ | | | 0.5 | μs |
| Storage time | t_s | $V_{CC}=100\text{V}$ | | | 2.5 | μs |

CLASSIFICATION OF $H_{FE(1)}$

| Rank | | | | | | |
|-------|------|-------|-------|-------|-------|-------|
| Range | 8-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 |