



SWITCHMODE Series NPN Silicon Power Transistors

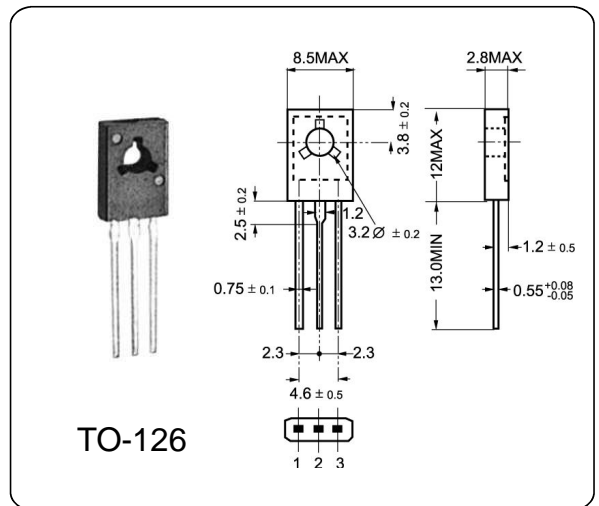
MJE13003

DESCRIPTION

These devices are designed for high –voltage, high –speed power switching inductive circuits where fall time is critical. They are particularly suited for 115 and 220 V SWITCHMODE such as Switching Regulator s, Inverters, Motor Controls,applications Solenoid/Relay drivers and Deflection circuits.

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C)

| Parameter | Symbol | Value | Unit |
|-------------------------------------|-----------|---------|------|
| Collector-Base Voltage | V_{CBO} | 700 | V |
| Collector-Emitter Voltage | V_{CEO} | 400 | V |
| Emitter-Base Voltage | V_{EBO} | 9 | V |
| Collector Current | I_C | 1.5 | A |
| Base Current | I_B | 0.75 | A |
| Total Dissipation at | P_{tot} | 40 | W |
| Max. Operating Junction Temperature | T_j | 150 | °C |
| Storage Temperature | T_{stg} | -55~150 | °C |



ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|--------------------------------------|---------------|--------------------------------|------|------|------|------|
| Collector Cut-off Current | I_{CEO} | $V_{CB}=400V, I_E=0$ | | | 1.0 | mA |
| Emitter Cut-off Current | I_{EBO} | $V_{EB}=9V, I_C=0$ | | | 1.0 | mA |
| Collector-Emitter Sustaining Voltage | V_{CEO} | $I_C=10mA, I_B=0$ | 400 | | | V |
| DC Current Gain | $h_{FE(1)}$ | $V_{CE}=2V, I_C=0.5A$ | 8 | | 40 | |
| | $h_{FE(2)}$ | $V_{CE}=2V, I_C=1.0A$ | 5 | | 25 | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=0.5A, I_B=100mA$ | | | 0.5 | V |
| | | $I_C=1A, I_B=250mA$ | | | 1.0 | |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=1A, I_B=250mA$ | | | 1.2 | V |
| Current Gain Bandwidth Product | f_T | $V_{CE}=10V, I_C=100mA$ | 4 | 10 | | MHz |
| Storage Time | T_S | $I_{B1}=I_{B2}=0.2A, t_p=25us$ | | 2 | 4 | us |