



SWITCHMODE Series NPN Silicon Power Transistors

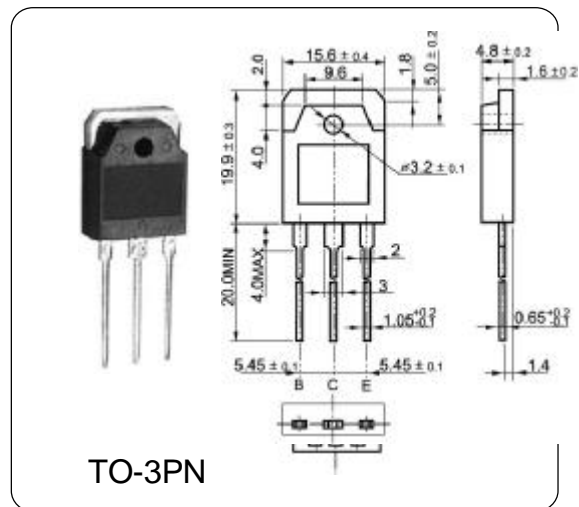
MJE13009

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 | I | 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 | 12.0 | A |
| Base Current | I_B | 6.0 | A |
| Total Dissipation at | P_{tot} | 110 | 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 | $h_{FE(1)}$ | $V_{CE}=5V, I_C=5.0A$ | 8 | — | 40 | |
| | $h_{FE(2)}$ | $V_{CE}=5V, I_C=8.0A$ | 6 | — | 30 | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=8.0A, I_B=1.6A$ | — | — | 1.5 | V |
| | | $I_C=12.0A, I_B=3.0A$ | — | — | 3.0 | |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=8.0A, I_B=1.6A$ | — | — | 1.6 | V |
| Current Gain Bandwidth Product | f_T | $V_{CE}=10V, I_C=500mA$ | 4 | — | — | MHz |
| Storage Time | T_S | $I_{B1}=I_{B2}=1.6A, t_p=25\mu s$ | — | 3.5 | 4 | us |