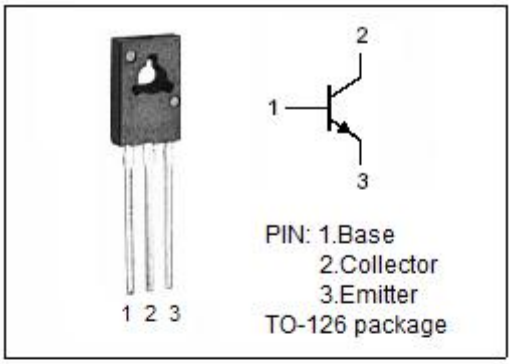
# isc Silicon NPN Power Transistor MJE13003A

## DESCRIPTION

- Collector–Emitter Sustaining Voltage
  : $V_{CEO(SUS)}$ = 400V(Min.)
- Collector Saturation Voltage
  : $V_{CE(sat)}$ = 1.0(Max) @ $I_C$= 1.0A

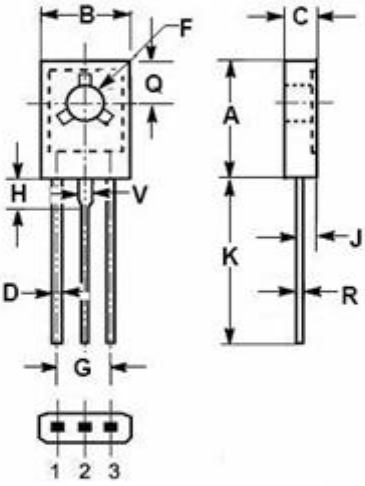
## APPLICATIONS

- Designed for use in high-voltage, high-speed, power switching in inductive circuit, they are particularly suited for 115 and 220V switchmode applications such as switching regulators, inverters, DC-DC converter, Motor control, Solenoid/Relay drivers and deflection circuits.




## ABSOLUTE MAXIMUM RATINGS($T_a$=25℃)

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CEV}$ | Collector-Emitter Voltage | 700 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 400 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 9 | V |
| $I_C$ | Collector Current-Continuous | 1.5 | A |
| $I_B$ | Base Current | 0.75 | A |
| $P_C$ | Collector Power Dissipation $T_a$=25℃ | 1.4 | W |
| | Collector Power Dissipation $T_C$=25℃ | 20 | |
| $T_j$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature Range | -55~150 | ℃ |




| DIM | mm MIN | MAX |
|---|---|---|
| A | 10.70 | 10.95 |
| B | 7.70 | 7.90 |
| C | 2.60 | 2.80 |
| D | 0.66 | 0.86 |
| F | 3.10 | 3.30 |
| G | 4.48 | 4.68 |
| H | 2.00 | 2.20 |
| J | 1.35 | 1.55 |
| K | 15.30 | 16.30 |
| Q | 3.70 | 3.90 |
| R | 0.40 | 0.60 |
| V | 1.17 | 1.37 |

## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal Resistance,Junction to Case | 3.12 | ℃/W |
| $R_{th\ j\text{-}a}$ | Thermal Resistance,Junction to Ambient | 89 | ℃/W |

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## ELECTRICAL CHARACTERISTICS

**$T_C$ =25℃ unless otherwise specified**

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C$= 10mA; $I_B$= 0 | 400 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$= 1 A ;$I_B$= 0.25A | | | 1.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$= 1 A ;$I_B$= 0.25A | | | 1.2 | V |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= 9V; $I_C$= 0 | | | 1 | mA |
| $I_{CEO}$ | Collector Cutoff Curren | $V_{CE}$= 400V; $I_B$= 0 | | | 0.5 | mA |
| $I_{CBO}$ | Collector Cutoff Curren | $V_{CB}$= 700V; $I_E$= 0 | | | 1 | mA |
| $h_{FE-1}$ | DC Current Gain | $I_C$= 0.5 A; $V_{CE}$= 5V | 8 | | 40 | |
| $h_{FE-2}$ | DC Current Gain | $I_C$= 1.5mA; $V_{CE}$= 5V | 5 | | | |
| $f_T$ | Current-Gain—Bandwidth Product | $I_C$= 0.1 A; $V_{CE}$= 10V; | 5 | | | MHz |