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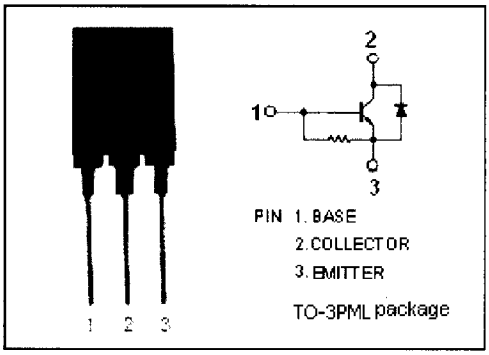
# Silicon NPN Power Transistor — 2SC5003

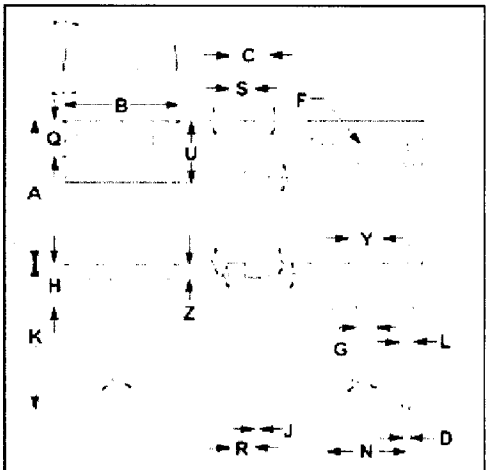



## DESCRIPTION

- Collector-Base Breakdown Voltage-
  : $V_{(BR)CBO}$= 1500V(Min)
- High Switching Speed
- Built-in Damper Diode

## APPLICATIONS

- Designed for display horizontal deflection output,switching regulator and general purpose applications.




| DIM | mm MIN | mm MAX |
|---|---|---|
| A | 19.90 | 20.10 |
| B | 15.90 | 16.10 |
| C | 5.50 | 5.70 |
| D | 0.90 | 1.10 |
| F | 3.30 | 3.50 |
| G | 2.90 | 3.10 |
| H | 5.90 | 6.10 |
| J | 0.595 | 0.605 |
| K | 22.30 | 22.50 |
| L | 1.90 | 2.10 |
| N | 10.80 | 11.00 |
| Q | 4.90 | 5.10 |
| R | 3.75 | 3.95 |
| S | 3.20 | 3.40 |
| U | 9.90 | 10.10 |
| Y | 4.70 | 4.90 |
| Z | 1.90 | 2.10 |

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 1500 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 800 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 6 | V |
| $I_C$ | Collector Current-Continuous | 7 | A |
| $I_{CM}$ | Collector Current-Peak | 14 | A |
| $I_B$ | Base Current-Continuous | 3.5 | A |
| $P_C$ | Collector Power Dissipation @$T_C$=25℃ | 80 | W |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -55~150 | ℃ |

## ELECTRICAL CHARACTERISTICS

**Tj=25℃ unless otherwise specified**

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$= 300mA; $I_C$= 0 | 6 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$= 5A; $I_B$= 1.2A | | | 5.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$= 5A; $I_B$= 1.2A | | | 1.5 | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$= 1200V; $I_E$= 0<br>$V_{CB}$= 1500V; $I_E$= 0 | | | 0.1<br>1.0 | mA |
| $I_{CEO}$ | Collector Cutoff Current | $V_{CE}$= 800V; $I_B$= 0 | | | 1.0 | mA |
| $h_{FE-1}$ | DC Current Gain | $I_C$= 1A; $V_{CE}$= 5V | 8 | | | |
| $h_{FE-2}$ | DC Current Gain | $I_C$= 5A; $V_{CE}$= 5V | 4 | | 9 | |
| $C_{OB}$ | Output Capacitance | $I_E$= 0; $V_{CB}$= 10V; f= 1MHz | | 100 | | pF |
| $f_T$ | Current-Gain—Bandwidth Product | $I_E$= -0.5A; $V_{CE}$= 12V | | 4 | | MHz |

Switching Times

| | | | | | | |
|---|---|---|---|---|---|---|
| $t_{stg}$ | Storage Time | $I_C$= 4A; $I_{B1}$= 0.8A; $I_{B2}$= -1.6A;<br>$V_{CC}$= 200V; $R_L$= 50Ω | | | 4.0 | μs |
| $t_f$ | Fall Time | | | | 0.2 | μs |