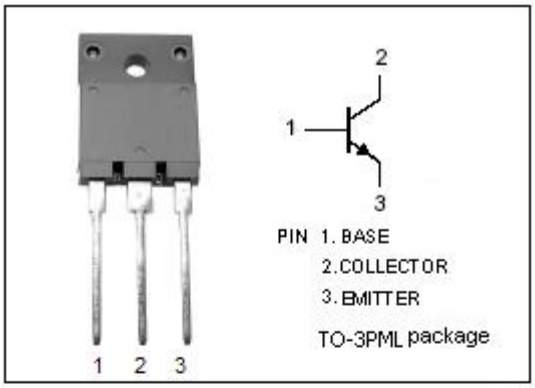
# isc Silicon NPN Power Transistor — 2SC4603R

## DESCRIPTION

- High Collector-Emitter Breakdown Voltage-
  : $V_{(BR)CEO}$= 800V(Min.)
- High Switching Speed
- High Reliability
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation




## APPLICATIONS

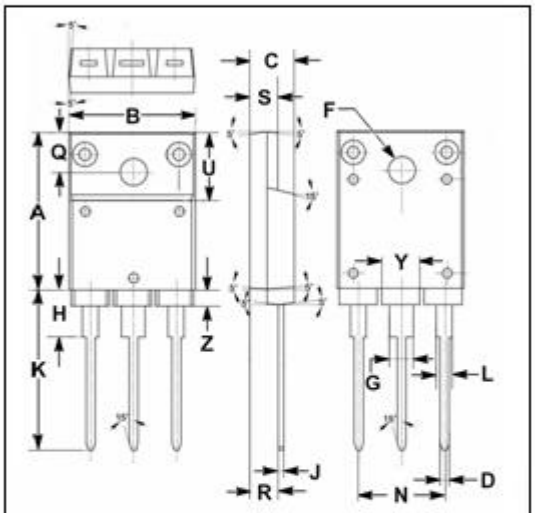
- Switching regulators
- Ultrasonic generators
- High frequency inverters
- General purpose power amplifiers

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 900 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 800 | V |
| $V_{EBO}$ | Emitter-Base voltage | 10 | V |
| $I_C$ | Collector Current-Continuous | 3 | A |
| $I_B$ | Base Current-Continuous | 1 | A |
| $P_C$ | Collector Power Dissipation @ $T_C$=25℃ | 80 | W |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature Range | -55~150 | ℃ |

## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal Resistance,Junction to Case | 1.5 | ℃/W |




| DIM | mm MIN | 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 |

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## ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | $I_C$= 10mA; $I_B$= 0 | 800 | | | V |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage | $I_C$= 1mA; $I_E$= 0 | 900 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$= 1mA; $I_C$= 0 | 10 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$= 1A; $I_B$= 0.2A | | | 1.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$= 1A; $I_B$= 0.2A | | | 1.5 | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$= 900V; $I_E$= 0 | | | 1.0 | mA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= 10V; $I_C$= 0 | | | 1.0 | mA |
| $h_{FE}$ | DC Current Gain | $I_C$= 1A; $V_{CE}$= 5V | 10 | | | |
| Switching times | | | | | | |
| $t_{on}$ | Turn-on Time | $I_C$= 2A, $I_{B1}$= 0.4A; $I_{B2}$= -0.8A; $R_L$= 150Ω; $P_W$= 20μs; Duty Cycle≤2% | | | 1.0 | μs |
| $t_{stg}$ | Storage Time | | | | 4.0 | μs |
| $t_f$ | Fall Time | | | | 0.8 | μs |