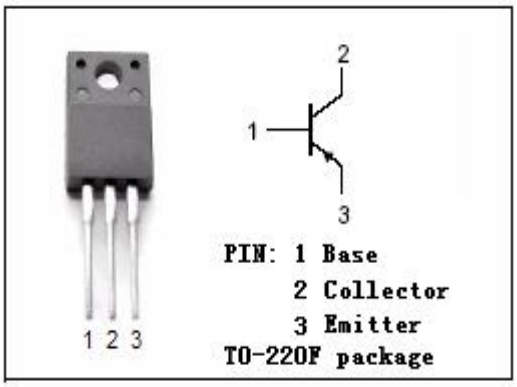
# *isc* Silicon PNP Power Transistor — 2SB1604

## DESCRIPTION

- High-speed Switching
- Low Collector to Emitter Saturation Voltage
  : $V_{CE(sat)}$= -0.6V(Max.)@$I_C$= -10A
- Full-pack Package With Outstanding Insulation, Which Can Be Installed to The Heat Sink With One Screw
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

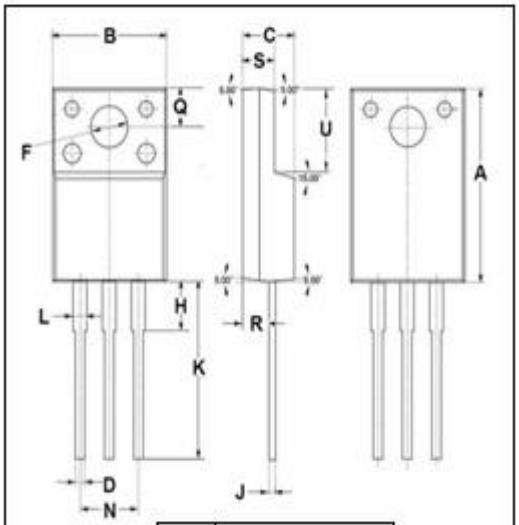



## APPLICATIONS

- Designed for low-voltage switching and general purpose applications.

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | -40 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | -20 | V |
| $V_{EBO}$ | Emitter-Base Voltage | -5 | V |
| $I_C$ | Collector Current-Continuous | -10 | A |
| $I_{CM}$ | Collector Current-Peak | -20 | A |
| $P_C$ | Collector Power Dissipation @ Ta=25℃ | 2 | W |
| | Collector Power Dissipation @ $T_C$=25℃ | 40 | W |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature Range | -55~150 | ℃ |




| DIM | mm MIN | mm MAX |
|---|---|---|
| A | 14.95 | 15.05 |
| B | 10.00 | 10.10 |
| C | 4.40 | 4.60 |
| D | 0.75 | 0.90 |
| F | 3.10 | 3.30 |
| H | 3.70 | 3.90 |
| J | 0.50 | 0.70 |
| K | 13.4 | 13.6 |
| L | 1.10 | 1.30 |
| N | 5.00 | 5.20 |
| Q | 2.70 | 2.90 |
| R | 2.20 | 2.40 |
| S | 2.65 | 2.85 |
| U | 6.40 | 6.60 |

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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 | -20 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$= -10A; $I_B$= -0.33A | | | -0.6 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$= -10A; $I_B$= -0.33A | | | -1.5 | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$= -40V; $I_E$= 0 | | | -50 | μA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= -5V; $I_C$= 0 | | | -50 | μA |
| $h_{FE-1}$ | DC Current Gain | $I_C$= -0.1A; $V_{CE}$= -2V | 45 | | | |
| $h_{FE-2}$ | DC Current Gain | $I_C$= -3A; $V_{CE}$= -2V | 90 | | 260 | |
| $f_T$ | Current-Gain—Bandwidth Product | $I_E$= 0.5A; $V_{CE}$= -10V;f=10MHz | | 30 | | MHz |
| Switching Times | | | | | | |
| $t_{on}$ | Turn-on Time | $I_C$= -3A; $I_{B1}$= -$I_{B2}$= -0.1A, | | 0.1 | | μs |
| $t_{stg}$ | Storage Time | | | 0.5 | | μs |
| $t_f$ | Fall Time | | | 0.1 | | μs |

◆ **$h_{FE-2}$ Classifications**

| Q | P |
|---|---|
| 90-180 | 130-260 |

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