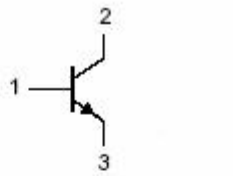
# isc Silicon NPN Power Transistor — 2SD2020

## DESCRIPTION

- High Collector-Emitter Breakdown Voltage-
  : $V_{(BR)CEO}$= 150V (Min)
- Wide Area of Safe Operation
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

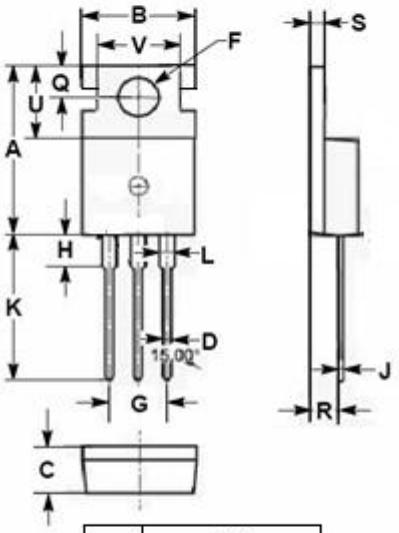

PIN 1. BASE
2.COLLECTOR
3. EMITTER
TO-220C package

## APPLICATIONS

- Designed for low frequency power amplifier TV vertical deflection output applications

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 150 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 150 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 6 | V |
| $I_C$ | Collector Current-Continuous | 2 | A |
| $I_{CM}$ | Collector Current-Peak | 5 | A |
| $P_C$ | Collector Power Dissipation @ $T_a$=25℃ | 2 | W |
| | Collector Power Dissipation @ $T_C$=25℃ | 40 | |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature Range | -45~150 | ℃ |




| DIM | mm MIN | MAX |
|---|---|---|
| A | 15.50 | 15.90 |
| B | 9.80 | 10.20 |
| C | 4.20 | 4.50 |
| D | 0.70 | 0.90 |
| F | 3.40 | 3.70 |
| G | 4.98 | 5.18 |
| H | 2.68 | 2.90 |
| J | 0.44 | 0.60 |
| K | 12.80 | 13.40 |
| L | 1.20 | 1.45 |
| Q | 2.70 | 2.90 |
| R | 2.30 | 2.70 |
| S | 1.29 | 1.35 |
| U | 6.45 | 6.65 |
| V | 8.66 | 8.86 |

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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 | $I_C$= 30mA; $R_{BE}$= ∞ | 150 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$= 5mA; $I_C$= 0 | 6 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$= 0.5A; $I_B$= 0.05A | | | 3.0 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C$= 50mA ; $V_{CE}$= 5V | | | 1.0 | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CE}$= 150V; $I_E$= 0 | | | 10 | μA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= 5V; $I_C$= 0 | | | 10 | μA |
| $h_{FE-1}$ | DC Current Gain | $I_C$= 50mA; $V_{CE}$= 5V | 100 | | 320 | |
| $h_{FE-2}$ | DC Current Gain | $I_C$= 1A; $V_{CE}$= 5V | 60 | | | |
| $C_{OB}$ | Output Capacitance | $I_E$= 0; $V_{CB}$= 100V; $f_{test}$= 1.0MHz | | 20 | | pF |