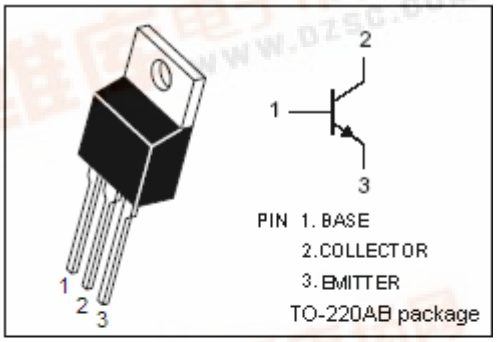
# isc Silicon NPN Power Transistor 2SC1970

## DESCRIPTION

- High Power Gain-
  : $G_{pe}$≥ 9.2dB,f= 175MHz, $P_O$= 1W; $V_{CC}$= 13.5V
- High Reliability




## APPLICATIONS

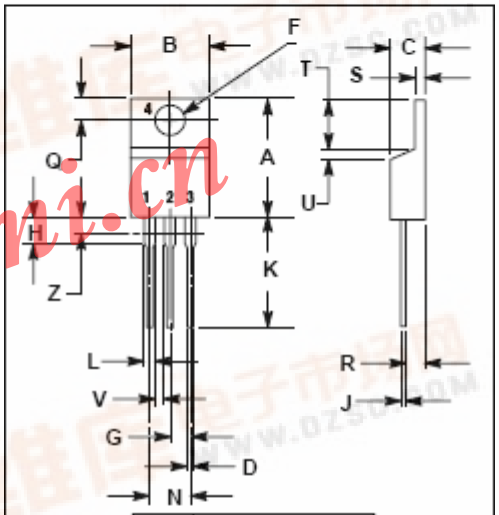
- Designed for RF power amplifiers on VHF band mobile radio applications.

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 40 | V |
| $V_{CEO}$ | Collector-Emitter Voltage $R_{BE}$= ∞ | 17 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 4 | V |
| $I_C$ | Collector Current | 0.6 | A |
| $P_C$ | Collector Power Dissipation @$T_C$=25℃ | 5 | W |
| | Collector Power Dissipation @$T_a$=25℃ | 1 | |
| $T_j$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature Range | -55~150 | ℃ |

## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}a}$ | Thermal Resistance,Junction to Ambient | 125 | ℃/W |
| $R_{th\ j\text{-}c}$ | Thermal Resistance,Junction to Case | 25 | ℃/W |




| DIM | mm MIN | MAX |
|---|---|---|
| A | 14.48 | 15.75 |
| B | 9.66 | 10.28 |
| C | 4.07 | 4.82 |
| D | 0.64 | 0.88 |
| F | 3.61 | 3.73 |
| G | 2.42 | 2.66 |
| H | 2.80 | 3.93 |
| J | 0.46 | 0.64 |
| K | 12.70 | 14.27 |
| L | 1.15 | 1.52 |
| N | 4.83 | 5.33 |
| Q | 2.54 | 3.04 |
| R | 2.04 | 2.79 |
| S | 1.15 | 1.39 |
| T | 5.97 | 6.47 |
| U | 0.00 | 1.27 |
| V | 1.15 | --- |
| Z | --- | 2.04 |

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## ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage | $I_C$= 5mA, $I_E$= 0 | 40 | | | V |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | $I_C$= 50mA; $R_{BE}$= ∞ | 17 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$= 1mA, $I_C$= 0 | 4 | | | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$= 25V; $I_E$= 0 | | | 0.1 | mA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= 3V; $I_C$= 0 | | | 0.1 | mA |
| $h_{FE}$ | DC Current Gain | $I_C$= 0.1A; $V_{CE}$= 10V | 10 | | 180 | |
| $P_O$ | Output Power | $V_{CC}$= 13.5V; $P_{in}$= 0.12W; f= 175MHz | 1 | 1.2 | | W |
| $\eta_C$ | Collector Efficiency | | 50 | 60 | | % |

◆ **$h_{FE}$ Classifications**

| X | A | B | C | D |
|---|---|---|---|---|
| 10-25 | 20-45 | 35-70 | 55-110 | 90-180 |