

## isc Silicon NPN Power Transistor

2SD1913

## DESCRIPTION

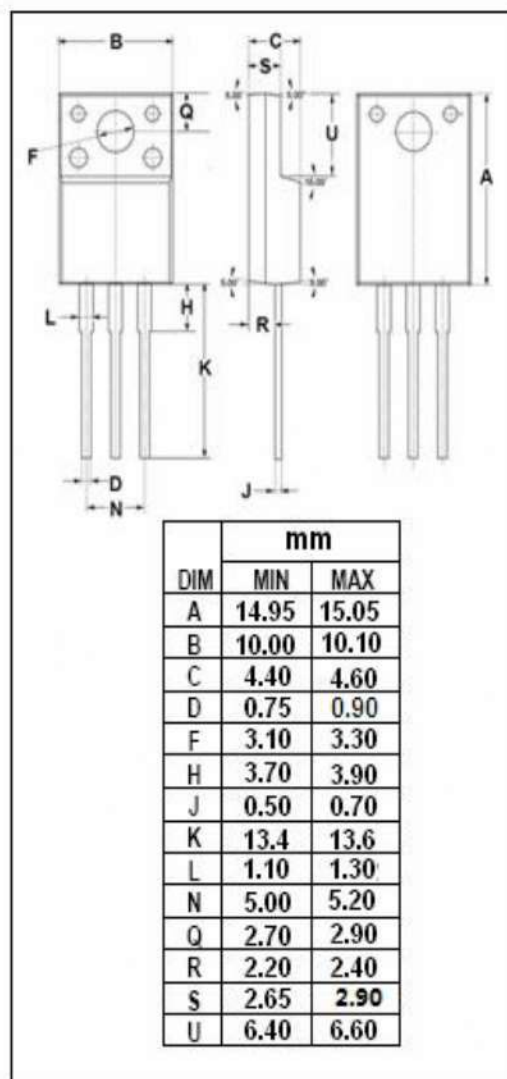
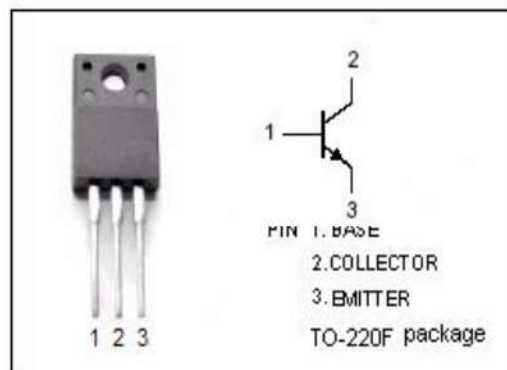
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 60V(\text{Min})$
- Wide Area of Safe Operation
- Complement to Type 2SB1274
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

- Designed for general power amplifier applications.

ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}\text{C}$ )

| SYMBOL    | PARAMETER                                                 | VALUE   | UNIT               |
|-----------|-----------------------------------------------------------|---------|--------------------|
| $V_{CBO}$ | Collector-Base Voltage                                    | 60      | V                  |
| $V_{CEO}$ | Collector-Emitter Voltage                                 | 60      | V                  |
| $V_{EBO}$ | Emitter-Base Voltage                                      | 6       | V                  |
| $I_C$     | Collector Current-Continuous                              | 3       | A                  |
| $I_{CM}$  | Collector Current-Peak                                    | 8       | A                  |
| $P_C$     | Collector Power Dissipation<br>@ $T_a=25^{\circ}\text{C}$ | 2       | W                  |
|           | Collector Power Dissipation<br>@ $T_c=25^{\circ}\text{C}$ | 20      |                    |
| $T_J$     | Junction Temperature                                      | 150     | $^{\circ}\text{C}$ |
| $T_{stg}$ | Storage Temperature                                       | -55~150 | $^{\circ}\text{C}$ |



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## ELECTRICAL CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

| SYMBOL               | PARAMETER                            | CONDITIONS                                           | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|------------------------------------------------------|-----|------|-----|------|
| V <sub>(BR)CEO</sub> | Collector-Emitter Breakdown Voltage  | I <sub>C</sub> = 5mA ; R <sub>BE</sub> = ∞           | 60  |      |     | V    |
| V <sub>(BR)CBO</sub> | Collector-Base Breakdown Voltage     | I <sub>C</sub> = 1mA ; I <sub>E</sub> = 0            | 60  |      |     | V    |
| V <sub>(BR)EBO</sub> | Emitter-Base Breakdown Voltage       | I <sub>E</sub> = 1mA ; I <sub>C</sub> = 0            | 6   |      |     | V    |
| V <sub>CE(sat)</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 2A ; I <sub>B</sub> = 0.2A          |     |      | 1.0 | V    |
| V <sub>BE(on)</sub>  | Base-Emitter On Voltage              | I <sub>C</sub> = 0.5A ; V <sub>CE</sub> = 5V         |     |      | 1.0 | V    |
| I <sub>CBO</sub>     | Collector Cutoff Current             | V <sub>CB</sub> = 40V ; I <sub>E</sub> = 0           |     |      | 100 | μA   |
| I <sub>EBO</sub>     | Emitter Cutoff Current               | V <sub>EB</sub> = 4V ; I <sub>C</sub> = 0            |     |      | 100 | μA   |
| h <sub>FE-1</sub>    | DC Current Gain                      | I <sub>C</sub> = 0.5A ; V <sub>CE</sub> = 5V         | 70  |      | 280 |      |
| h <sub>FE-2</sub>    | DC Current Gain                      | I <sub>C</sub> = 3A ; V <sub>CE</sub> = 5V           | 20  |      |     |      |
| C <sub>OB</sub>      | Output Capacitance                   | I <sub>E</sub> = 0 ; V <sub>CB</sub> = 10V, f = 1MHz |     | 40   |     | pF   |
| f <sub>T</sub>       | Current-Gain—Bandwidth Product       | I <sub>C</sub> = 0.5A ; V <sub>CE</sub> = 5V         |     | 100  |     | MHz  |

◆ h<sub>FE-1</sub> Classifications

| Q      | R       | S       |
|--------|---------|---------|
| 70-140 | 100-200 | 140-280 |

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