

## isc Silicon PNP Power Transistor

## 2SB817E

## DESCRIPTION

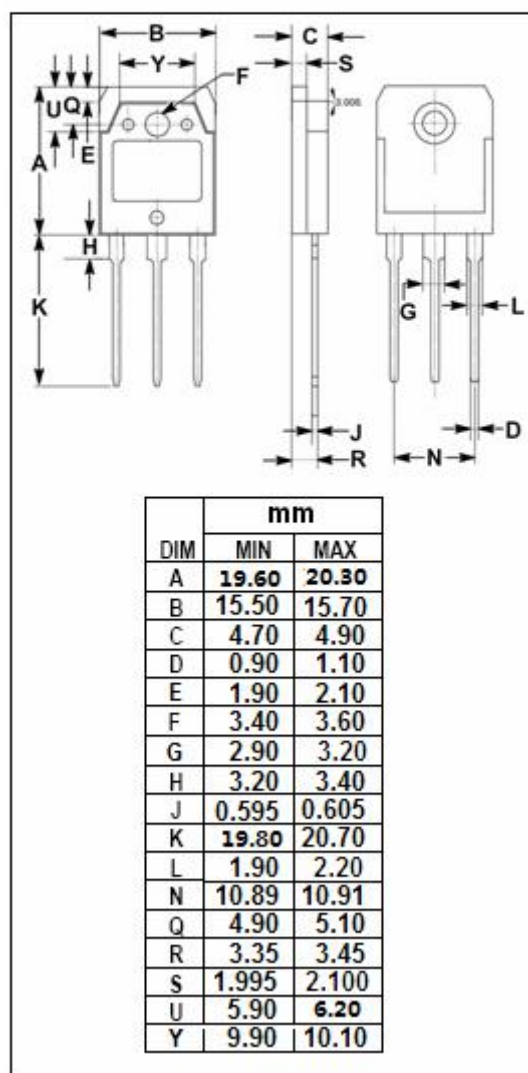
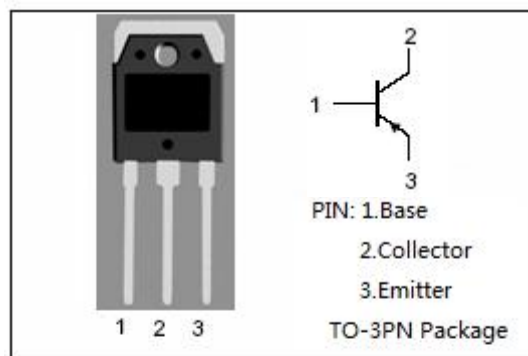
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = -140V(\text{Min})$
- Good Linearity of  $h_{FE}$
- High Current Capability
- Wide Area of Safe Operation
- Complement to Type 2SD1047E
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

- Designed for audio frequency amplifier output stage applications

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

| SYMBOL    | PARAMETER                                               | VALUE   | UNIT             |
|-----------|---------------------------------------------------------|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                  | -160    | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                               | -140    | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                    | -6      | V                |
| $I_C$     | Collector Current-Continuous                            | -12     | A                |
| $I_{CP}$  | Collector Current-Pulse                                 | -15     | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^\circ\text{C}$ | 100     | W                |
| $T_J$     | Junction Temperature                                    | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                               | -55~150 | $^\circ\text{C}$ |



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## ELECTRICAL CHARACTERISTICS

T<sub>C</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> = -30mA ; R <sub>BE</sub> =∞                            | -140 |      |      | V    |
| V <sub>(BR)CBO</sub> | Collector-Base Breakdown Voltage     | I <sub>C</sub> = -5mA; I <sub>E</sub> = 0                              | -160 |      |      | V    |
| V <sub>(BR)EBO</sub> | Emitter-Base Breakdown Voltage       | I <sub>E</sub> = -5mA; I <sub>C</sub> = 0                              | -6   |      |      | V    |
| V <sub>CE(sat)</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = -5.0A; I <sub>B</sub> = -0.5A                         |      |      | -2.5 | V    |
| V <sub>BE(on)</sub>  | Base -Emitter On Voltage             | I <sub>C</sub> = -5A ; V <sub>CE</sub> = -5V                           |      |      | -1.5 | V    |
| I <sub>CBO</sub>     | Collector Cutoff Current             | V <sub>CB</sub> = -160V ; I <sub>E</sub> =0                            |      |      | -100 | μ A  |
| I <sub>EBO</sub>     | Emitter Cutoff Current               | V <sub>EB</sub> = -4V; I <sub>C</sub> =0                               |      |      | -100 | μ A  |
| h <sub>FE-1</sub>    | DC Current Gain                      | I <sub>C</sub> = -1A ; V <sub>CE</sub> = -5V                           | 100  |      | 200  |      |
| h <sub>FE-2</sub>    | DC Current Gain                      | I <sub>C</sub> = -5A ; V <sub>CE</sub> = -5V                           | 35   |      |      |      |
| C <sub>OB</sub>      | Output Capacitance                   | I <sub>E</sub> =0 ; V <sub>CB</sub> = -10V; f <sub>test</sub> = 1.0MHz |      | 210  |      | pF   |
| f <sub>T</sub>       | Current-Gain—Bandwidth Product       | I <sub>C</sub> =-1A ; V <sub>CE</sub> = -5V                            |      | 15   |      | MHz  |

## Switching times

|                  |              |                                                                                                                      |  |      |  |     |
|------------------|--------------|----------------------------------------------------------------------------------------------------------------------|--|------|--|-----|
| t <sub>on</sub>  | Turn-on Time | I <sub>C</sub> = -1A , R <sub>L</sub> = 20 Ω ,<br>I <sub>B1</sub> = -I <sub>B2</sub> = -0.1A, V <sub>CC</sub> = -20V |  | 0.25 |  | μ s |
| t <sub>stg</sub> | Storage Time |                                                                                                                      |  | 1.61 |  | μ s |
| t <sub>f</sub>   | Fall Time    |                                                                                                                      |  | 0.53 |  | μ s |

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