

# isc Silicon NPN Power Transistor

## 2SD2107

### DESCRIPTION

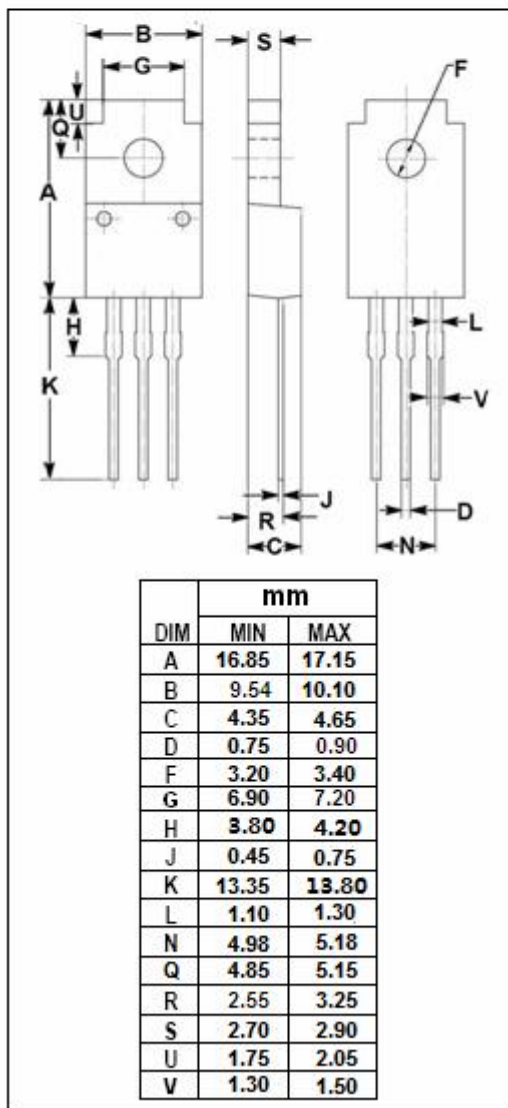
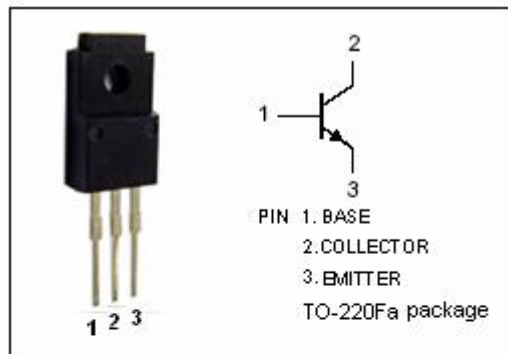
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 60V$  (Min)
- Low Collector Saturation Voltage
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### APPLICATIONS

- Designed for low frequency power amplifier applications.

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

| SYMBOL    | PARAMETER                                          | VALUE   | UNIT        |
|-----------|----------------------------------------------------|---------|-------------|
| $V_{CBO}$ | Collector-Base Voltage                             | 70      | V           |
| $V_{CEO}$ | Collector-Emitter Voltage                          | 60      | V           |
| $V_{EBO}$ | Emitter-Base Voltage                               | 5       | V           |
| $I_C$     | Collector Current-Continuous                       | 4       | A           |
| $I_{CM}$  | Collector Current-Peak                             | 8       | A           |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^{\circ}C$ | 25      | W           |
|           | Collector Power Dissipation<br>@ $T_a=25^{\circ}C$ | 2       |             |
| $T_J$     | Junction Temperature                               | 150     | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature Range                          | -55~150 | $^{\circ}C$ |



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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> = ∞  | 60  |      |     | V    |
| V <sub>(BR)CBO</sub> | Collector-Base Breakdown Voltage     | I <sub>C</sub> = 10 μA; I <sub>E</sub> = 0   | 70  |      |     | V    |
| V <sub>(BR)EBO</sub> | Emitter-Base Breakdown Voltage       | I <sub>E</sub> = 10 μA; I <sub>C</sub> = 0   | 5   |      |     | 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(sat)</sub> | Base-Emitter Saturation Voltage      | I <sub>C</sub> = 2A; I <sub>B</sub> = 0.2A   |     |      | 1.2 | V    |
| V <sub>BE(on)</sub>  | Base-Emitter On Voltage              | I <sub>C</sub> = 1A ; V <sub>CE</sub> = 4V   |     |      | 1.0 | V    |
| I <sub>CBO</sub>     | Collector Cutoff Current             | V <sub>CB</sub> = 60V; I <sub>E</sub> = 0    |     |      | 10  | μA   |
| I <sub>CEO</sub>     | Collector Cutoff Current             | V <sub>CE</sub> = 60V; R <sub>BE</sub> = ∞   |     |      | 10  | μA   |
| h <sub>FE-1</sub>    | DC Current Gain                      | I <sub>C</sub> = 1A ; V <sub>CE</sub> = 4V   | 60  |      | 200 |      |
| h <sub>FE-2</sub>    | DC Current Gain                      | I <sub>C</sub> = 0.1A ; V <sub>CE</sub> = 4V | 35  |      |     |      |

◆ h<sub>FE-1</sub> classifications

| B      | C       |
|--------|---------|
| 60-120 | 100-200 |

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