

**isc Silicon NPN Power Transistor**
**2SC3306**
**DESCRIPTION**

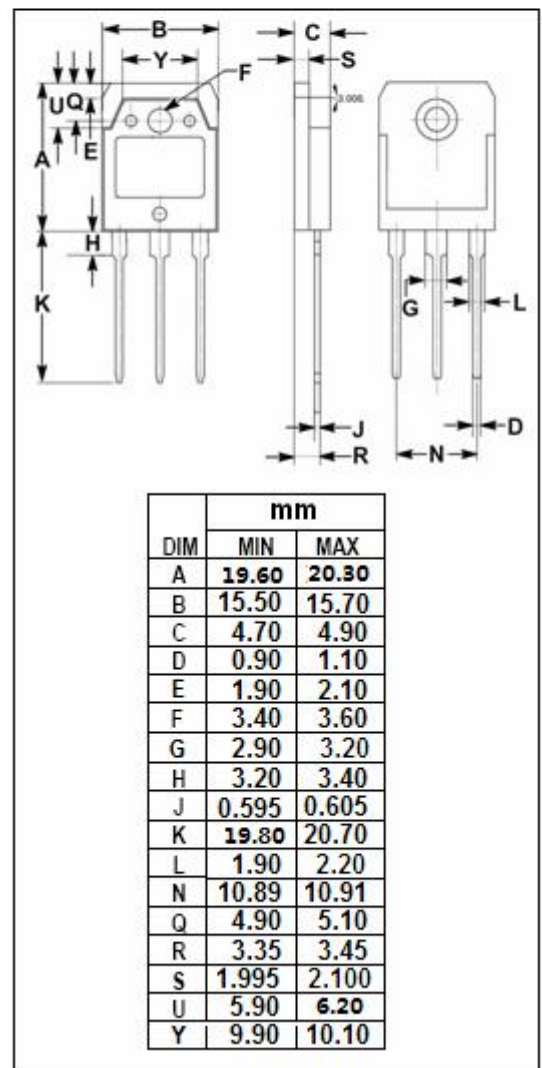
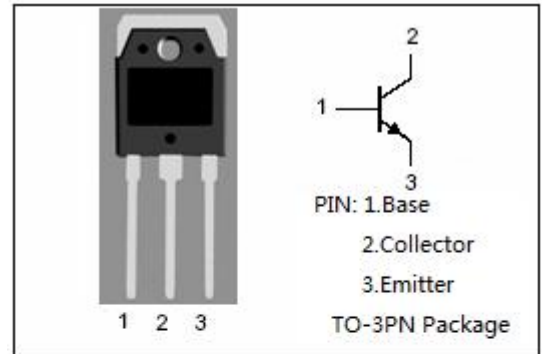
- High Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 400V(\text{Min})$
- High Switching Speed
- High Reliability
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- Switching regulator and high voltage switching applications.
- High speed DC-DC converter applications.

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

| SYMBOL    | PARAMETER   | VALUE   | UNIT             |
|-----------|---|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                    | 500     | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                                 | 400     | V                |
| $V_{EBO}$ | Emitter-Base voltage                                      | 7       | V                |
| $I_C$     | Collector Current-Continuous                              | 10      | A                |
| $I_{CM}$  | Collector Current-Pulse                                   | 15      | A                |
| $I_B$     | Base Current-Continuous                                   | 5       | 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 | $^\circ\text{C}$ |



## isc Silicon NPN Power Transistor

## 2SC3306

## 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> = 10mA ; I <sub>B</sub> = 0 | 400 |      |     | V    |
| V <sub>(BR)CBO</sub> | Collector-Base Breakdown Voltage     | I <sub>c</sub> = 1mA ; I <sub>E</sub> = 0  | 500 |      |     | V    |
| V <sub>CE(sat)</sub> | Collector-Emitter Saturation Voltage | I <sub>c</sub> = 5A; I <sub>B</sub> = 0.5A |     |      | 1.5 | V    |
| V <sub>BE(sat)</sub> | Base-Emitter Saturation Voltage      | I <sub>c</sub> = 5A; I <sub>B</sub> = 0.5A |     |      | 2.0 | V    |
| I <sub>CBO</sub>     | Collector Cutoff Current             | V <sub>CB</sub> = 400V ; I <sub>E</sub> =0 |     |      | 0.1 | mA   |
| I <sub>EBO</sub>     | Emitter Cutoff Current               | V <sub>EB</sub> = 7V; I <sub>C</sub> =0    |     |      | 1.0 | mA   |
| h <sub>FE</sub>      | DC Current Gain                      | I <sub>c</sub> = 5A ; V <sub>CE</sub> = 5V | 10  |      |     |      |

## Switching times

|                  |              |   |  |  |     |     |
|------------------|--------------|---|--|--|-----|-----|
| t <sub>on</sub>  | Turn-on Time | V <sub>CC</sub> ≈ 200V , I <sub>B1</sub> = -I <sub>B2</sub> = 0.5A<br>R <sub>L</sub> = 40 Ω ; P <sub>W</sub> =20 μ s<br>Duty Cycle ≤ 1% |  |  | 1.0 | μ s |
| t <sub>stg</sub> | Storage Time |   |  |  | 2.5 | μ s |
| t <sub>f</sub>   | Fall Time    |   |  |  | 1.0 | μ s |

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