

**isc Silicon NPN Power Transistor**
**2SC5386**
**DESCRIPTION**

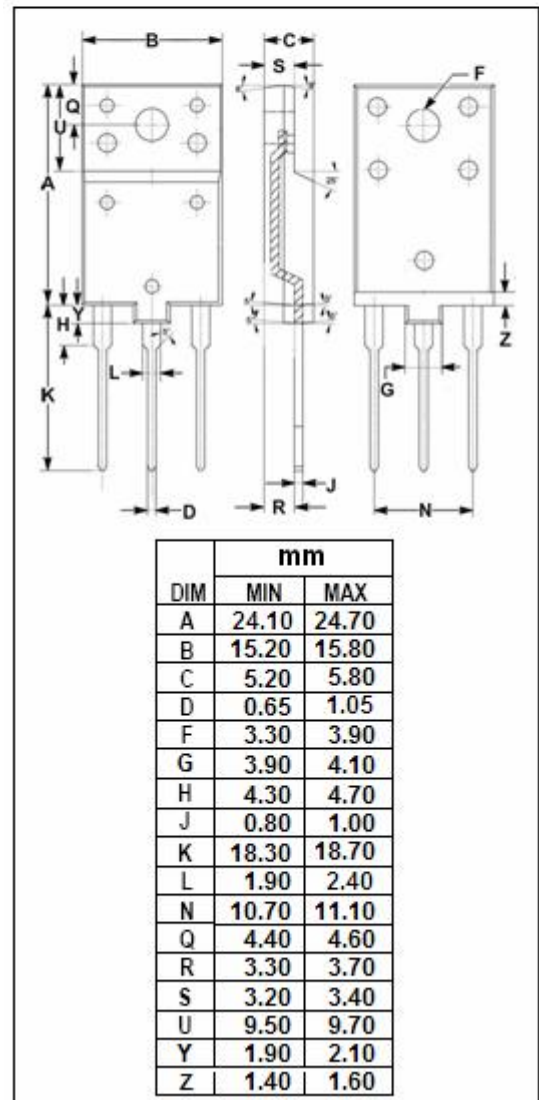
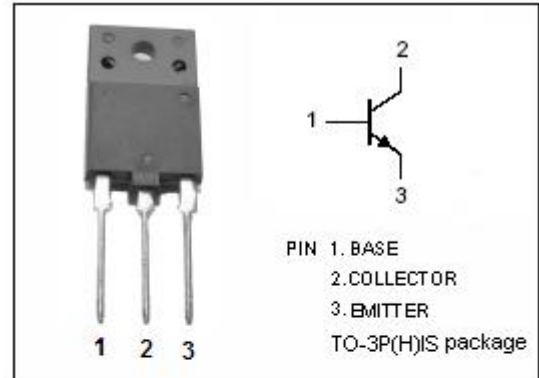
- High Breakdown Voltage
- High Switching Speed
- Low Saturation Voltage
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- Horizontal deflection output for high resolution display, color TV.
- High speed switching applications.

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

| SYMBOL    | PARAMETER   | VALUE   | UNIT               |
|-----------|---|---------|--------------------|
| $V_{CBO}$ | Collector-Base Voltage                                    | 1500    | V                  |
| $V_{CEO}$ | Collector-Emitter Voltage                                 | 600     | V                  |
| $V_{EBO}$ | Emitter-Base Voltage                                      | 5       | V                  |
| $I_C$     | Collector Current- Continuous                             | 8       | A                  |
| $I_{CM}$  | Collector Current- Peak                                   | 16      | A                  |
| $I_B$     | Base Current- Continuous                                  | 4       | A                  |
| $P_C$     | Collector Power Dissipation<br>@ $T_c=25^{\circ}\text{C}$ | 50      | W                  |
| $T_J$     | Junction Temperature                                      | 150     | $^{\circ}\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                                 | -55~150 | $^{\circ}\text{C}$ |



## isc Silicon NPN Power Transistor

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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> = 10mA; I <sub>B</sub> = 0                             | 600 |      |     | V    |
| V <sub>CE(sat)</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 6A; I <sub>B</sub> = 1.5A                            |     |      | 3.0 | V    |
| V <sub>BE(sat)</sub> | Base-Emitter Saturation Voltage      | I <sub>C</sub> = 6A; I <sub>B</sub> = 1.5A                            |     |      | 1.5 | V    |
| I <sub>CBO</sub>     | Collector Cutoff Current             | V <sub>CB</sub> = 1500V; I <sub>E</sub> = 0                           |     |      | 1.0 | mA   |
| I <sub>EBO</sub>     | Emitter Cutoff Current               | V <sub>EB</sub> = 5V; I <sub>C</sub> = 0                              |     |      | 10  | μ A  |
| h <sub>FE-1</sub>    | DC Current Gain                      | I <sub>C</sub> = 1A; V <sub>CE</sub> = 5V                             | 15  |      | 35  |      |
| h <sub>FE-2</sub>    | DC Current Gain                      | I <sub>C</sub> = 6A; V <sub>CE</sub> = 5V                             | 4.3 |      | 7.5 |      |
| f <sub>T</sub>       | Current-Gain—Bandwidth Product       | I <sub>C</sub> = 0.1A; V <sub>CE</sub> = 10V                          |     | 1.7  |     | MHz  |
| C <sub>OB</sub>      | Output Capacitance                   | I <sub>E</sub> = 0; V <sub>CB</sub> = 10V; f <sub>test</sub> = 1.0MHz |     | 105  |     | pF   |

## Switching Times

|                  |              |   |  |  |     |     |
|------------------|--------------|---|--|--|-----|-----|
| t <sub>stg</sub> | Storage Time | I <sub>CP</sub> = 5A, I <sub>B1(end)</sub> = 1.0A; f <sub>H</sub> = 64kHz |  |  | 3.5 | μ s |
| t <sub>f</sub>   | Fall Time    |   |  |  | 0.3 | μ s |

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