

isc Silicon NPN Power Transistor

2SC4580

DESCRIPTION

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 450V(\text{Min})$
- Fast Switching speed

APPLICATIONS

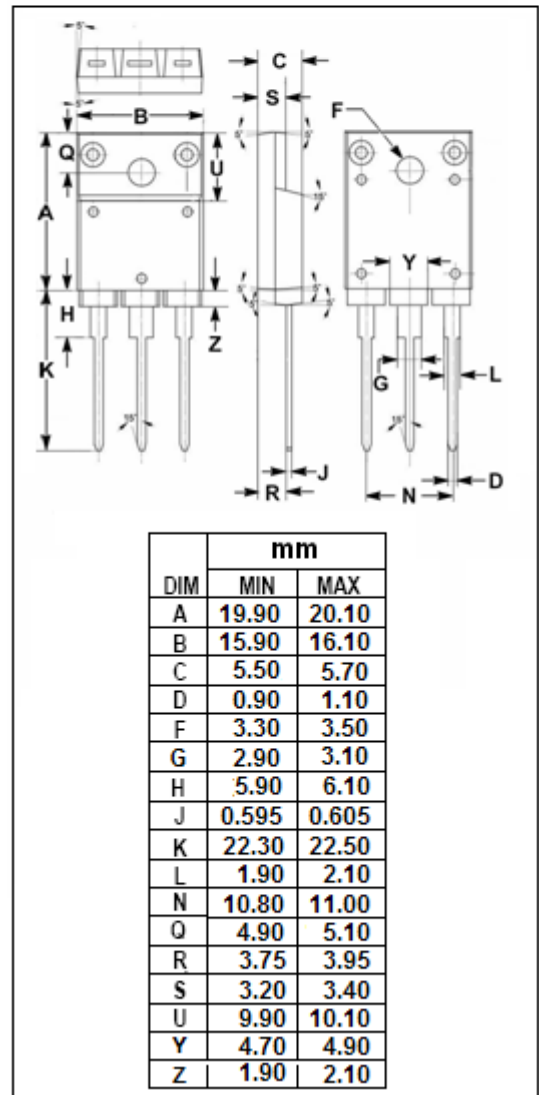
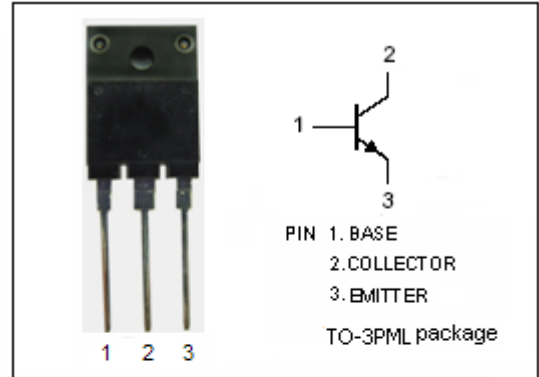
- Designed for power switching applications.

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

| SYMBOL    | PARAMETER   | VALUE   | UNIT             |
|-----------|---|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                              | 600     | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                           | 450     | V                |
| $V_{CEX}$ | Collector-Emitter Voltage $V_{EB} = 5V$             | 600     | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                | 7       | V                |
| $I_C$     | Collector Current-Continuous                        | 8       | A                |
| $I_{CM}$  | Collector Current-Peak                              | 16      | A                |
| $I_B$     | Base Current-Continuous                             | 4       | A                |
| $I_{BM}$  | Base Current-Peak                                   | 8       | A                |
| $P_T$     | Total 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 | $^\circ\text{C}$ |

THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX | UNIT               |
|---------------|--------------------------------------|-----|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 2.5 | $^\circ\text{C/W}$ |



## isc Silicon NPN Power Transistor

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## ELECTRICAL CHARACTERISTICS

 $T_C=25^\circ\text{C}$  unless otherwise specified

| SYMBOL         | PARAMETER                            | CONDITIONS                           | MIN | TYP. | MAX | UNIT          |
|----------------|--------------------------------------|--------------------------------------|-----|------|-----|---------------|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C=0.2\text{A}; I_B=0$             | 450 |      |     | V             |
| $V_{CE(sat)}$  | Collector-Emitter Saturation Voltage | $I_C=4\text{A}; I_B=0.8\text{A}$     |     |      | 1.0 | V             |
| $V_{BE(sat)}$  | Base-Emitter Saturation Voltage      | $I_C=4\text{A}; I_B=0.8\text{A}$     |     |      | 1.5 | V             |
| $I_{CBO}$      | Collector Cutoff Current             | At rated Voltage                     |     |      | 100 | $\mu\text{A}$ |
| $I_{CEO}$      | Collector Cutoff Current             | At rated Voltage                     |     |      | 100 | $\mu\text{A}$ |
| $I_{EBO}$      | Emitter Cutoff Current               | At rated Voltage                     |     |      | 100 | $\mu\text{A}$ |
| $h_{FE-1}$     | DC Current Gain                      | $I_C=4\text{A}; V_{CE}=5\text{V}$    | 10  |      |     |               |
| $h_{FE-2}$     | DC Current Gain                      | $I_C=1\text{mA}; V_{CE}=5\text{V}$   | 5   |      |     |               |
| $f_T$          | Current-Gain—Bandwidth Product       | $I_C=0.8\text{A}; V_{CE}=10\text{V}$ |     | 20   |     | MHz           |

## Switching times

|           |              |   |  |  |     |               |
|-----------|--------------|---|--|--|-----|---------------|
| $t_{on}$  | Turn-on Time | $I_C=4\text{A}; I_{B1}=0.8\text{A}; I_{B2}=-1.6\text{A}$<br>$R_L=37.5\Omega; V_{BB2}=4\text{V}$ |  |  | 0.5 | $\mu\text{s}$ |
| $t_{stg}$ | Storage Time |   |  |  | 2.0 | $\mu\text{s}$ |
| $t_f$     | Fall Time    |   |  |  | 0.2 | $\mu\text{s}$ |