

# ISC Silicon NPN Power Transistor

2SC2769

## DESCRIPTION

- High Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 200V(\text{Min})$
- High Switching Speed
- High Reliability

## APPLICATIONS

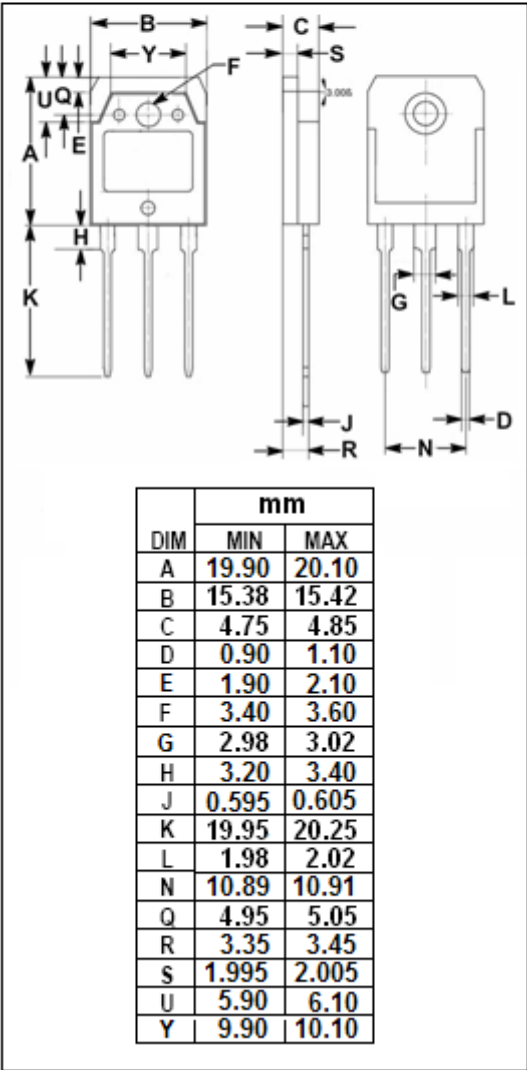
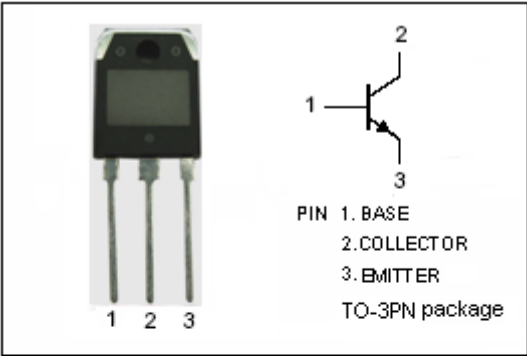
- Switching regulators
- DC-DC converter
- Solid state relay
- General purpose power amplifiers

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

| SYMBOL         | PARAMETER                                                 | VALUE   | UNIT               |
|----------------|-----------------------------------------------------------|---------|--------------------|
| $V_{CBO}$      | Collector-Base Voltage                                    | 250     | V                  |
| $V_{CEO}$      | Collector-Emitter Voltage                                 | 200     | V                  |
| $V_{CEO(SUS)}$ | Collector-Emitter Voltage                                 | 200     | V                  |
| $V_{EBO}$      | Emitter-Base voltage                                      | 7       | V                  |
| $I_C$          | Collector Current-Continuous                              | 10      | 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 | $^{\circ}\text{C}$ |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX  | UNIT                 |
|---------------|--------------------------------------|------|----------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.25 | $^{\circ}\text{C/W}$ |



**ISC Silicon NPN Power Transistor****2SC2769****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL         | PARAMETER                            | CONDITIONS                        | MIN | TYP. | MAX | UNIT |
|----------------|--------------------------------------|-----------------------------------|-----|------|-----|------|
| $V_{(BR)CEO}$  | Collector-Emitter Breakdown Voltage  | $I_C=10\text{mA}; I_B=0$          | 200 |      |     | V    |
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C=1\text{A}; I_B=0$            | 200 |      |     | V    |
| $V_{(BR)CBO}$  | Collector-Base Breakdown Voltage     | $I_C=0.1\text{mA}; I_E=0$         | 250 |      |     | V    |
| $V_{(BR)EBO}$  | Emitter-Base Breakdown Voltage       | $I_E=0.1\text{mA}; I_C=0$         | 7   |      |     | V    |
| $V_{CE(sat)}$  | Collector-Emitter Saturation Voltage | $I_C=2\text{A}; I_B=0.8\text{A}$  |     |      | 0.2 | V    |
| $V_{BE(sat)}$  | Base-Emitter Saturation Voltage      | $I_C=5\text{A}; I_B=1\text{A}$    |     |      | 1.1 | V    |
| $I_{CBO}$      | Collector Cutoff Current             | $V_{CB}=250\text{V}; I_E=0$       |     |      | 0.1 | mA   |
| $I_{EBO}$      | Emitter Cutoff Current               | $V_{EB}=7\text{V}; I_C=0$         |     |      | 0.1 | mA   |
| $h_{FE}$       | DC Current Gain                      | $I_C=2\text{A}; V_{CE}=5\text{V}$ | 20  |      | 60  |      |

## Switching times

|           |              |                                                                                                           |  |  |     |               |
|-----------|--------------|-----------------------------------------------------------------------------------------------------------|--|--|-----|---------------|
| $t_{on}$  | Turn-on Time | $I_C=6\text{A}, I_{B1}=-I_{B2}=1.2\text{A}$<br>$R_L=10\Omega; P_W=20\mu\text{s}$<br>Duty Cycle $\leq 2\%$ |  |  | 0.8 | $\mu\text{s}$ |
| $t_{stg}$ | Storage Time |                                                                                                           |  |  | 2.0 | $\mu\text{s}$ |
| $t_f$     | Fall Time    |                                                                                                           |  |  | 0.5 | $\mu\text{s}$ |