

## isc Silicon NPN Power Transistor

2SC2827

## DESCRIPTION

- Collector-Emitter Sustaining Voltage-  
:  $V_{CE(SUS)} = 400V(\text{Min})$
- Fast Switching Speed
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 0.7V(\text{Max.}) @ I_C = 3A$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

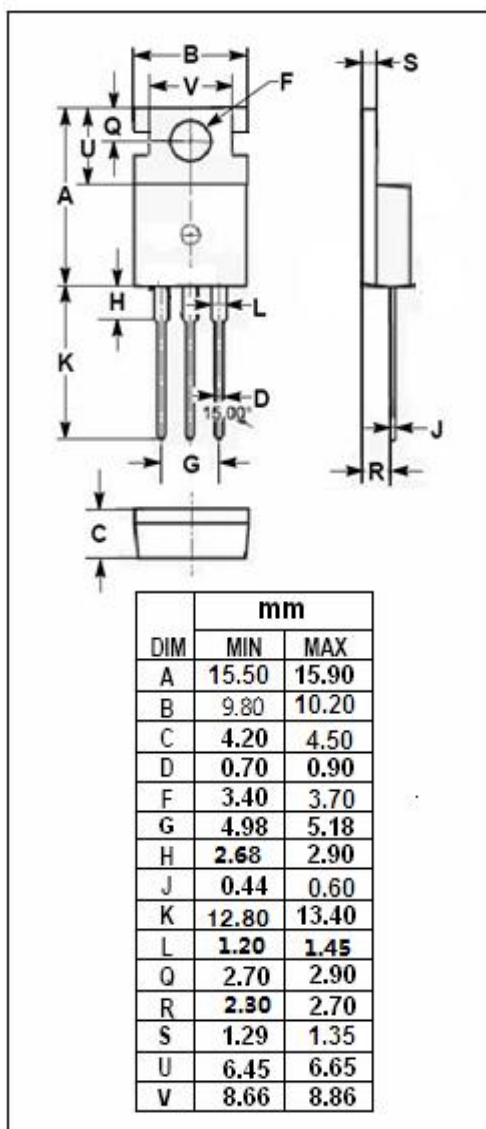
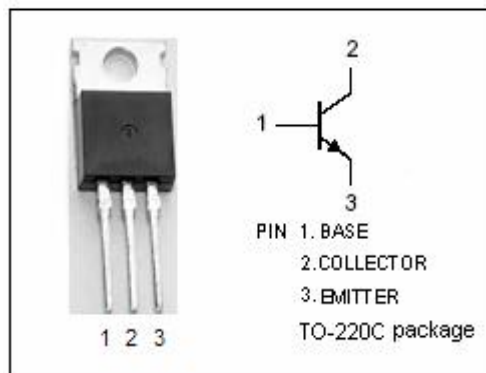
- Designed for use in high-voltage, high-speed, power switching applications such as switching regulators, inverters, solenoid and relay drivers.

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                              | 3       | A                |
| $I_{CM}$  | Collector Current-Peak                                    | 6       | A                |
| $I_B$     | Base Current-Continuous                                   | 2       | 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 | $^\circ\text{C}$ |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX   | UNIT               |
|---------------|--------------------------------------|-------|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 3.125 | $^\circ\text{C/W}$ |



**isc Silicon NPN Power Transistor****2SC2827****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL          | PARAMETER                            | CONDITIONS  | MIN | TYP. | MAX | UNIT          |
|-----------------|--------------------------------------|---|-----|------|-----|---------------|
| $V_{CEQ(SUS)}$  | Collector-Emitter Sustaining Voltage | $I_C=30\text{mA}; I_B=0$                            | 400 |      |     | V             |
| $V_{CE(sat)}$   | Collector-Emitter Saturation Voltage | $I_C=3\text{A}; I_B=0.6\text{A}$                    |     |      | 0.7 | V             |
| $V_{BE(sat)}$   | Base-Emitter Saturation Voltage      | $I_C=3\text{A}; I_B=0.6\text{A}$                    |     |      | 1.5 | V             |
| $I_{CBO}$       | Collector Cutoff Current             | $V_{CB}=500\text{V}; I_E=0$                         |     |      | 100 | $\mu\text{A}$ |
| $I_{CEO}$       | Collector Cutoff Current             | $V_{CE}=320\text{V}; I_B=0$                         |     |      | 100 | $\mu\text{A}$ |
| $I_{EBO}$       | Emitter Cutoff Current               | $V_{EB}=7\text{V}; I_C=0$                           |     |      | 1.0 | mA            |
| $h_{FE}$        | DC Current Gain                      | $I_C=3\text{A}; V_{CE}=2\text{V}$                   | 10  |      |     |               |
| $f_T$           | Current-Gain—Bandwidth Product       | $I_C=0.3\text{A}; V_{CE}=10\text{V}; f=1\text{MHz}$ | 10  |      |     | MHz           |
| Switching times |                                      |   |     |      |     |               |
| $t_{on}$        | Turn-on Time                         | $I_C=3\text{A}, I_{B1}=-I_{B2}=0.6\text{A}$         |     |      | 1.0 | $\mu\text{s}$ |
| $t_{stg}$       | Storage Time                         |   |     |      | 2.0 | $\mu\text{s}$ |
| $t_f$           | Fall Time                            |   |     |      | 0.5 | $\mu\text{s}$ |

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