



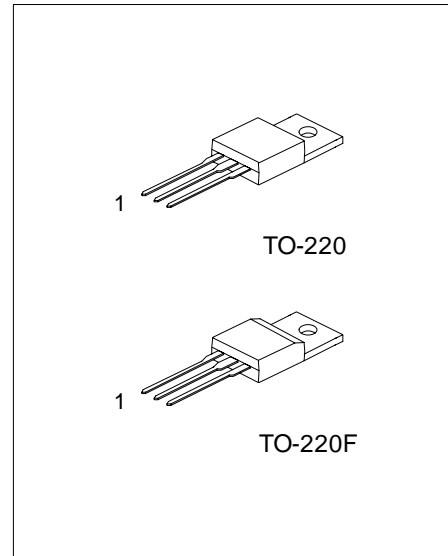
# 2SC5027E

## NPN SILICON TRANSISTOR

### HIGH VOLTAGE AND HIGH RELIABILITY TRANSISTOR

#### ■ FEATURES

- \* High Speed Switching
- \* Wide SOA



\*Pb-free plating product number: 2SC5027EL

#### ■ ORDERING INFORMATION

| Order Number     |                   | Package | Pin Assignment |   |   | Packing |
|------------------|-------------------|---------|----------------|---|---|---------|
| Normal           | Lead Free Plating |         | 1              | 2 | 3 |         |
| 2SC5027E-x-TA3-T | 2SC5027EL-x-TA3-T | TO-220  | B              | C | E | Tube    |
| 2SC5027E-x-TF3-T | 2SC5027EL-x-TF3-T | TO-220F | B              | C | E | Tube    |

|   |  |
|---|--|
| <p>2SC5027EL-x-TA3-T</p> <ul style="list-style-type: none"> <li>(1)Packing Type</li> <li>(2)Package Type</li> <li>(3)Rank</li> <li>(4)Lead Plating</li> </ul> | <ul style="list-style-type: none"> <li>(1) T: Tube</li> <li>(2) TA3: TO-220, TF3: TO-220F</li> <li>(3) x: refer to Classification of <math>h_{FE1}</math></li> <li>(4) L: Lead Free Plating, Blank: Pb/Sn</li> </ul> |
|---|--|

# 2SC5027E

## NPN SILICON TRANSISTOR

### ■ ABSOLUTE MAXIMUM RATINGS (T<sub>c</sub> = 25 °C)

| PARAMETER                 | SYMBOL           | RATINGS    | UNIT |
|---------------------------|------------------|------------|------|
| Collector-Base Voltage    | V <sub>CB0</sub> | 750        | V    |
| Collector-Emitter Voltage | V <sub>CEO</sub> | 700        | V    |
| Collector-Emitter Voltage | V <sub>EBO</sub> | 7          | V    |
| Peak Collector Current    | I <sub>C</sub>   | 3          | A    |
| Collector Current (Pulse) | I <sub>CP</sub>  | 10         | A    |
| Base Current              | I <sub>B</sub>   | 1.5        | A    |
| Power Dissipation         | P <sub>D</sub>   | 50         | W    |
| Junction Temperature      | T <sub>J</sub>   | 150        |      |
| Storage Temperature       | T <sub>STG</sub> | -40 ~ +150 |      |

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ ELECTRICAL CHARACTERISTICS (T<sub>c</sub>= 25 °C, unless otherwise specified.)

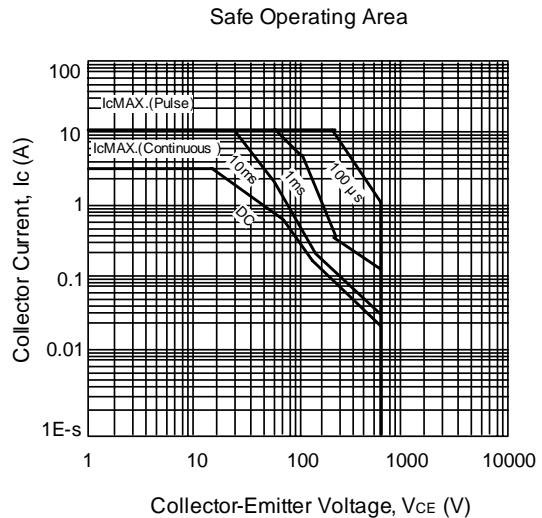
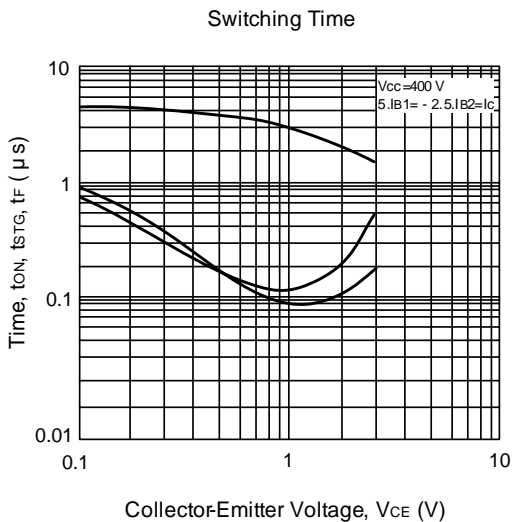
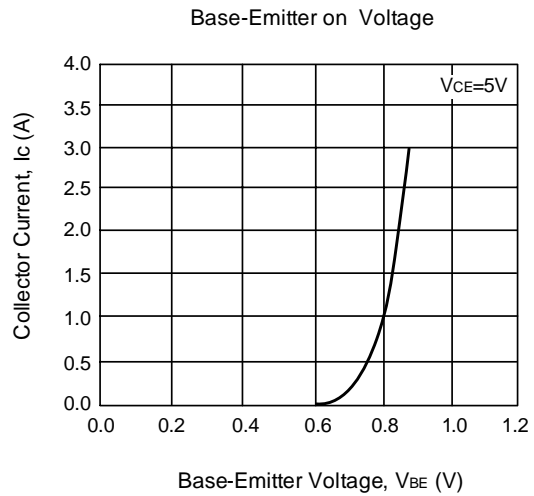
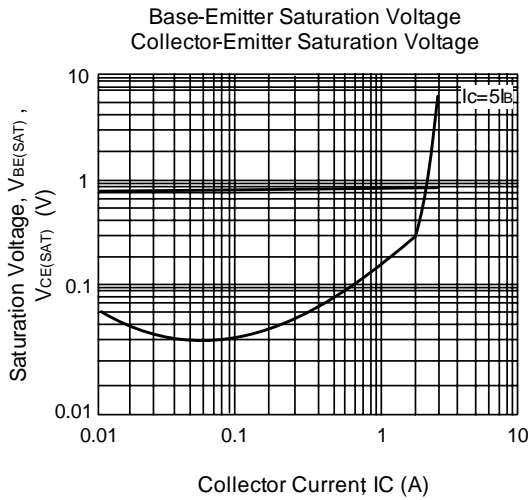
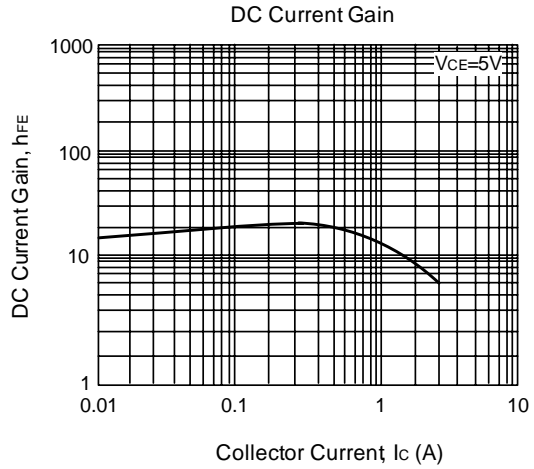
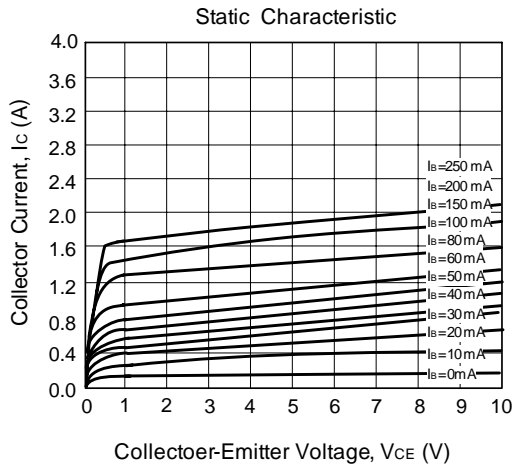
| PARAMETER                            | SYMBOL                | TEST CONDITIONS  | MIN | TYP | MAX | UNIT |
|--------------------------------------|-----------------------|--|-----|-----|-----|------|
| Collector-Base Breakdown Voltage     | BV <sub>CB0</sub>     | I <sub>C</sub> =1mA, I <sub>E</sub> =0   | 750 |     |     | V    |
| Collector-Emitter Breakdown Voltage  | BV <sub>CEO</sub>     | I <sub>C</sub> =5mA, I <sub>B</sub> =0   | 700 |     |     | V    |
| Emitter-Base Breakdown Voltage       | BV <sub>EBO</sub>     | I <sub>E</sub> =1mA, I <sub>C</sub> =0   | 7   |     |     | V    |
| Collector-Emitter sustaining Voltage | V <sub>CEO(SUS)</sub> | I <sub>C</sub> =1.5A, I <sub>B1</sub> = -I <sub>B2</sub> =0.3A<br>L=2mH, Clamped | 700 |     |     | V    |
| Collector Cut-off Current            | I <sub>CB0</sub>      | V <sub>CB</sub> =750V, I <sub>E</sub> =0   |     |     | 10  | μA   |
| Emitter Cut-off Current              | I <sub>EBO</sub>      | V <sub>EB</sub> =5V, I <sub>C</sub> =0   |     |     | 10  | μA   |
| DC Current Gain                      | h <sub>FE1</sub>      | V <sub>CE</sub> =5V, I <sub>C</sub> =0.2A  | 10  |     | 40  |      |
|                                      | h <sub>FE2</sub>      | V <sub>CE</sub> =5V, I <sub>C</sub> =1A  | 8   |     |     |      |
| Collector-Emitter Saturation Voltage | V <sub>CE(SAT)</sub>  | I <sub>C</sub> =1.5A, I <sub>B</sub> =0.3A                                       |     |     | 2   | V    |
| Base-Emitter Saturation Voltage      | V <sub>BE(SAT)</sub>  | I <sub>C</sub> =1.5A, I <sub>B</sub> =0.3A                                       |     |     | 1.5 | V    |
| Output Capacitance                   | C <sub>ob</sub>       | V <sub>CB</sub> =10V, f=1MHz, I <sub>E</sub> =0                                  |     | 60  |     | pF   |
| Current Gain Bandwidth Product       | f <sub>T</sub>        | V <sub>CE</sub> =10V, I <sub>C</sub> =0.2A                                       |     | 15  |     | MHz  |
| Turn ON Time                         | t <sub>ON</sub>       | V <sub>CC</sub> =400V  |     |     | 0.5 | μs   |
| Storage Time                         | t <sub>S</sub>        | I <sub>C</sub> =5I <sub>B1</sub> = -2.5I <sub>B2</sub> =2A                       |     |     | 3   | μs   |
| Fall Time                            | t <sub>F</sub>        | R <sub>L</sub> =200  |     |     | 0.3 | μs   |

### ■ CLASSIFICATION of h<sub>FE1</sub>

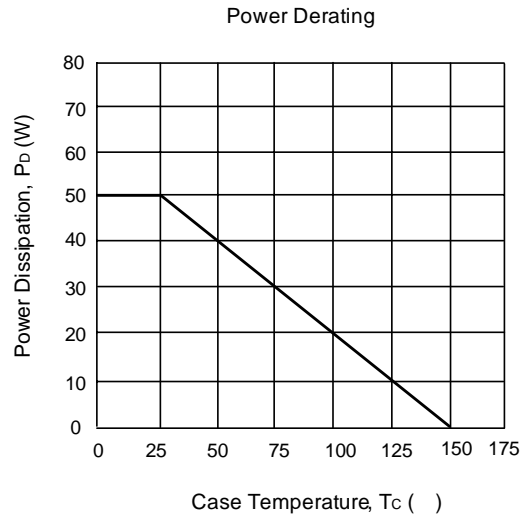
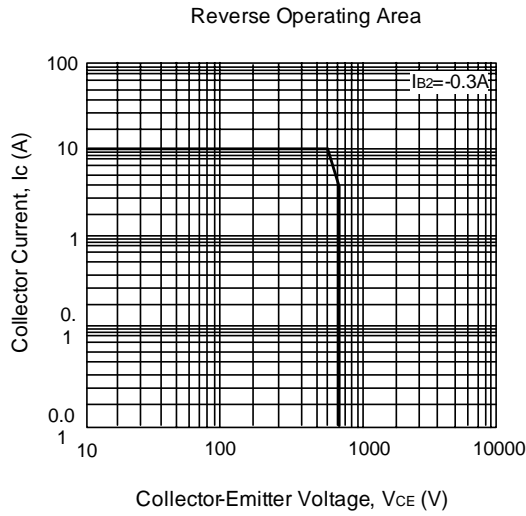
| CLASSIFICATION | N       | R       | O       |
|----------------|---------|---------|---------|
| RANGE          | 10 ~ 20 | 15 ~ 30 | 20 ~ 40 |



## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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