



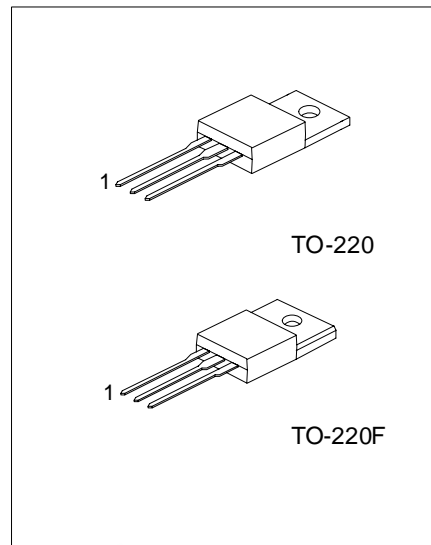
## N5027

## NPN SILICON TRANSISTOR

### HIGH VOLTAGE AND HIGH RELIABILITY NPN TRANSISTOR

#### FEATURES

- \* High Voltage ( $V_{CEO} = 800V$ )
- \* High Speed Switching
- \* Wide SOA



\*Pb-free plating product number: N5027L

#### ORDERING INFORMATION

| Order Number    |                   | Package | Pin Assignment |   |   | Packing |
|-----------------|-------------------|---------|----------------|---|---|---------|
| Normal          | Lead Free Plating |         | 1              | 2 | 3 |         |
| N5027-x-TA3-F-T | N5027L-x-TA3-F-T  | TO-220  | B              | C | E | Tube    |
| N5027-x-TF3-F-T | N5027L-x-TF3-F-T  | TO-220F | B              | C | E | Tube    |

|                         |   |
|-------------------------|---|
| <p>N5027L-x-TA3-F-T</p> | <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Pin Assignment</li> <li>(3) Package Type</li> <li>(4) Rank</li> <li>(5) Lead Plating</li> </ul> <ul style="list-style-type: none"> <li>(1) T: Tube</li> <li>(2) refer to Pin Assignment</li> <li>(3) TA3: TO-220, TF3: TO-220F</li> <li>(4) x: refer to Classification of <math>h_{FE1}</math></li> <li>(5) L: Lead Free Plating Blank: Pb/Sn</li> </ul> |
|-------------------------|---|

■ ABSOLUTE MAXIMUM RATINGS ( $T_c = 25$  )

| PARAMETER                          | SYMBOL    | RATINGS    | UNIT |
|------------------------------------|-----------|------------|------|
| Collector-Base Voltage             | $V_{CBO}$ | 850        | V    |
| Collector-Emitter Voltage          | $V_{CEO}$ | 800        | V    |
| Collector-Emitter Voltage          | $V_{EBO}$ | 7          | V    |
| Peak Collector Current             | $I_C$     | 3          | A    |
| Collector Current (Pulse)          | $I_{CP}$  | 10         | A    |
| Base Current                       | $I_B$     | 1.5        | A    |
| Peak Collector Consume Dissipation | $P_C$     | 50         | W    |
| Peak Junction Temperature          | $T_J$     | 150        |      |
| Storage Temperature                | $T_{STG}$ | -55 ~ +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.

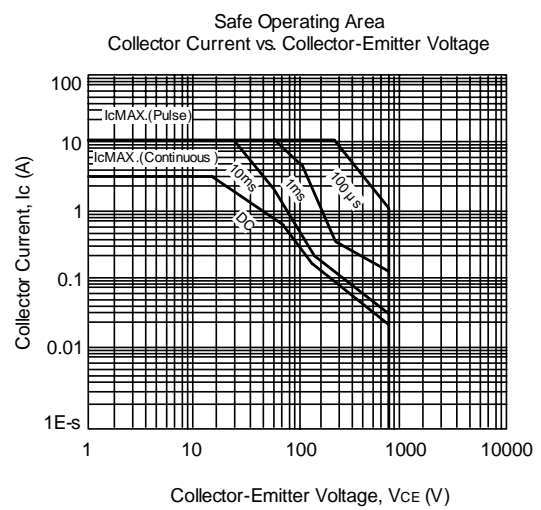
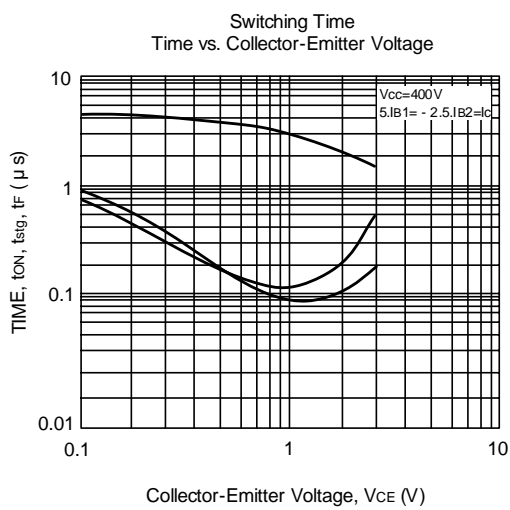
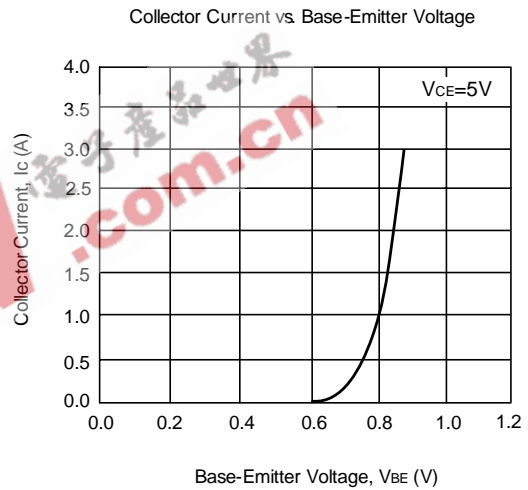
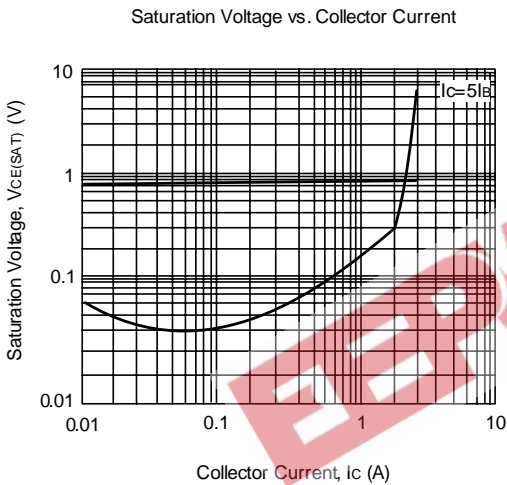
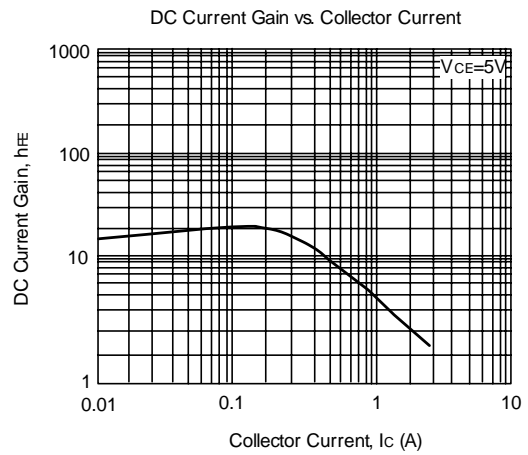
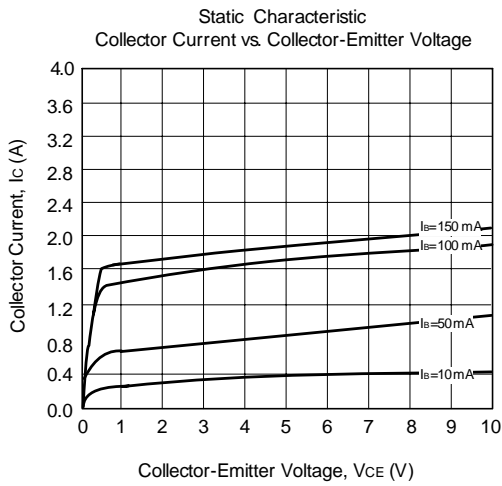
■ ELECTRICAL CHARACTERISTICS ( $T_c = 25$  , unless otherwise specified.)

| PARAMETER                            | SYMBOL         | TEST CONDITIONS  | MIN | TYP | MAX | UNIT    |
|--------------------------------------|----------------|--|-----|-----|-----|---------|
| Collector-Base Breakdown Voltage     | $BV_{CBO}$     | $I_C=1mA, I_E=0$   | 850 |     |     | V       |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$     | $I_C=5mA, I_B=0$   | 800 |     |     | V       |
| Emitter-Base Breakdown Voltage       | $BV_{EBO}$     | $I_E=1mA, I_C=0$   | 7   |     |     | V       |
| Collector-Emitter sustaining Voltage | $V_{CEX(SUS)}$ | $I_C=1.5A, I_{B1}=-I_{B2}=0.3A$<br>$L=2mH, \text{Clamped}$ | 800 |     |     | V       |
| Collector Cut-off Current            | $I_{CBO}$      | $V_{CB}=800V, I_E=0$                                       |     |     | 10  | $\mu A$ |
| Emitter Cut-off Current              | $I_{EBO}$      | $V_{EB}=5V, I_C=0$   |     |     | 10  | $\mu A$ |
| DC Current Gain                      | $h_{FE1}$      | $V_{CE}=5V, I_C=0.2A$                                      | 10  |     | 40  |         |
|                                      | $h_{FE2}$      | $V_{CE}=5V, I_C=1A$  | 6   |     |     |         |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$  | $I_C=1A, I_B=0.3A$   |     |     | 1.1 | V       |
| Base-Emitter Saturation Voltage      | $V_{BE(SAT)}$  | $I_C=1.5A, I_B=0.3A$                                       |     |     | 1.5 | V       |
| Output Capacitance                   | $C_{ob}$       | $V_{CB}=10V, f=1MHz, I_E=0$                                |     | 60  |     | pF      |
| Current Gain Bandwidth Product       | $f_T$          | $V_{CE}=10V, I_C=0.2A$                                     |     | 15  |     | MHz     |
| Turn ON Time                         | $t_{ON}$       | $V_{CC}=400V$  |     |     | 0.5 | $\mu s$ |
| Storage Time                         | $t_{STG}$      | $I_C=5I_{B1}=-2.5I_{B2}=2A$                                |     |     | 3   | $\mu s$ |
| Fall Time                            | $t_F$          | $R_L=200$  |     |     | 0.3 | $\mu s$ |

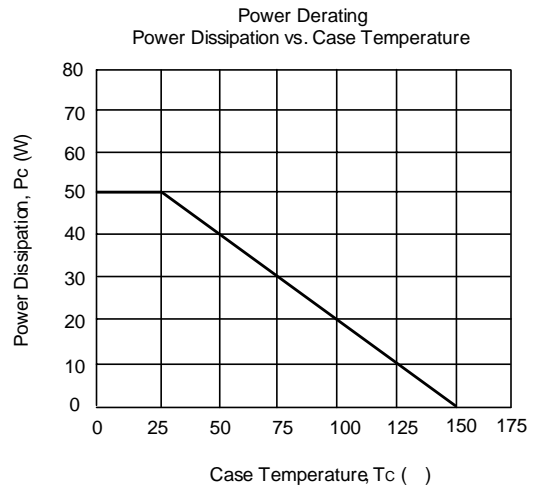
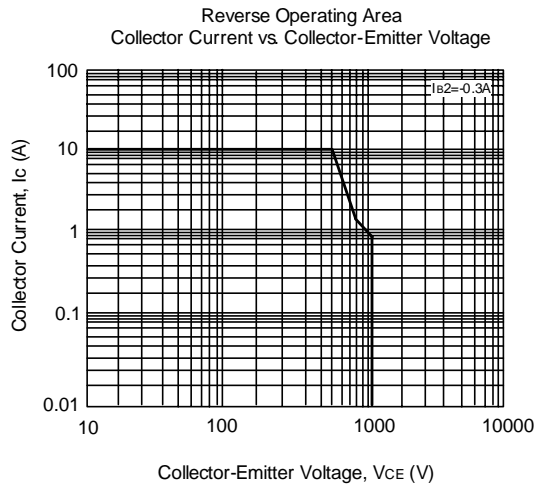
■ CLASSIFICATION of  $h_{FE1}$

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

## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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