



# UNISONIC TECHNOLOGIES CO., LTD

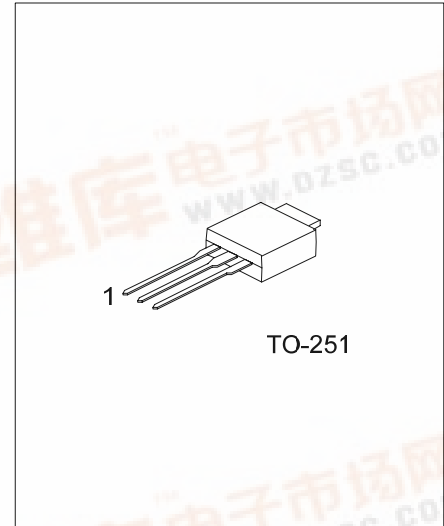
## T2096

## NPN SILICON TRANSISTOR

### HIGH VOLTAGE TRANSISTOR

#### DESCRIPTION

The T2096 is a NPN Silicon Planar Transistors in TO-251 package. It is intended for high voltage, switching power supply and industrial applications.



#### FEATURES

- \* Pb-free package is available
- \* Collector-Emitter voltage:  $V_{CE0} = 400V$
- \* Pulse collector current to 4A

\*Pb-free plating product number: T2096L

#### ORDERING INFORMATION

| Order Number |                   | Package | Pin Assignment |   |   | Packing |
|--------------|-------------------|---------|----------------|---|---|---------|
| Normal       | Lead Free Plating |         | 1              | 2 | 3 |         |
| T2096-TM3-T  | T2096L-TM3-T      | TO-251  | B              | C | E | Tube    |

|                     |  |
|---------------------|--|
| <p>T2096L-TM3-T</p> | <p>(1) Packing Type<br/>                 (2) Pin Assignment<br/>                 (3) Package Type<br/>                 (4) Lead Plating</p> <p>(1) T: Tube<br/>                 (2) refer to Pin Assignment<br/>                 (3) TM3: TO-251<br/>                 (4) L: Lead Free Plating, Blank: Pb/Sn</p> |
|---------------------|--|



# T2096

## NPN SILICON TRANSISTOR

### ■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

| PARAMETER                        | SYMBOL           | RATINGS    | UNIT |
|----------------------------------|------------------|------------|------|
| Collector-Base Voltage           | V <sub>CBO</sub> | 800        | V    |
| Collector-Emitter Voltage        | V <sub>CES</sub> | 800        | V    |
| Collector-Emitter Voltage        | V <sub>CEO</sub> | 400        | V    |
| Emitter-Base Voltage             | V <sub>EBO</sub> | 8          | V    |
| Base Current                     | I <sub>B</sub>   | 1          | A    |
| DC Collector Current             | I <sub>C</sub>   | 2          | A    |
| Pulse Collector Current (Note 2) | I <sub>CP</sub>  | 4          | A    |
| Collector Dissipation            | P <sub>C</sub>   | Ta=25°C    | 1    |
|                                  |                  | Tc=25°C    | 15   |
| Junction Temperature             | T <sub>J</sub>   | 150        | °C   |
| Storage Temperature              | T <sub>STG</sub> | -55 ~ +150 | °C   |

Note: 1. 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.

2. Pulse Test: Pulse Width ≤300μS, Duty Cycle ≤10%

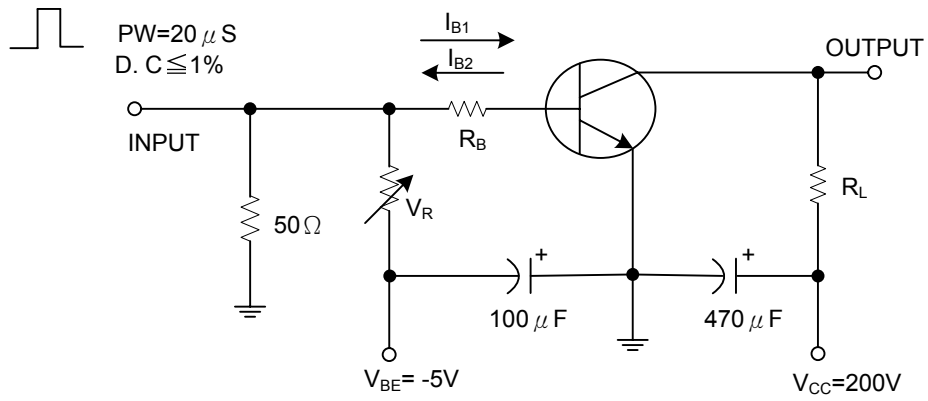
### ■ ELECTRICAL CHARACTERISTICS (Ta = 25°C, unless otherwise specified)

| PARAMETER                            | SYMBOL               | TEST CONDITIONS                                | MIN | TYP | MAX | UNIT |
|--------------------------------------|----------------------|--|-----|-----|-----|------|
| Collector-Base Breakdown Voltage     | BV <sub>CBO</sub>    | I <sub>C</sub> = 1mA, I <sub>E</sub> = 0       | 800 |     |     | V    |
| Collector-Emitter Breakdown Voltage  | BV <sub>CEO</sub>    | I <sub>C</sub> = 5mA, R <sub>BE</sub> = ∞      | 400 |     |     | V    |
| Emitter-Base Breakdown Voltage       | BV <sub>EBO</sub>    | I <sub>E</sub> = 1mA, I <sub>C</sub> = 0       | 8   |     |     | V    |
| Collector-Emitter Saturation Voltage | V <sub>CE(SAT)</sub> | I <sub>C</sub> = 1A, I <sub>B</sub> = 0.2A     |     |     | 0.8 | V    |
| Base-Emitter Saturation Voltage      | V <sub>BE(SAT)</sub> | I <sub>C</sub> = 1A, I <sub>B</sub> = 0.2A     |     |     | 1.5 | V    |
| Collector Cutoff Current             | I <sub>CBO</sub>     | V <sub>CB</sub> = 400V, I <sub>E</sub> = 0     |     |     | 10  | μA   |
| Emitter Cutoff Current               | I <sub>EBO</sub>     | V <sub>EB</sub> = 5V, I <sub>C</sub> = 0       |     |     | 10  | μA   |
| DC Current Gain                      | h <sub>FE 1</sub>    | V <sub>CE</sub> = 5V, I <sub>C</sub> = 1mA     | 45  |     |     |      |
|                                      | h <sub>FE 2</sub>    | V <sub>CE</sub> = 5V, I <sub>C</sub> = 0.2A    | 120 |     | 180 |      |
| Current Gain-Bandwidth Product       | f <sub>T</sub>       | V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.2A   |     | 20  |     | MHz  |
| Output Capacitance                   | C <sub>ob</sub>      | V <sub>CB</sub> = 10V, f = 1MHz                |     | 20  |     | pF   |
| Turn-on Time                         | t <sub>ON</sub>      | I <sub>C</sub> = 1.0A, I <sub>B1</sub> = 0.05A |     |     | 0.5 | μs   |
| Storage Time                         | t <sub>STG</sub>     | I <sub>B2</sub> = -0.5A, R <sub>L</sub> = 200Ω |     |     | 2.5 | μs   |
| Fall Time                            | t <sub>F</sub>       | V <sub>CC</sub> = 200V                         |     |     | 0.3 | μs   |

# T2096

## NPN SILICON TRANSISTOR

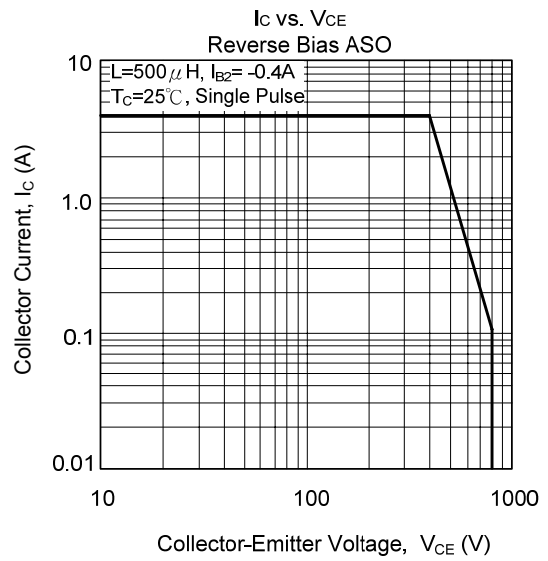
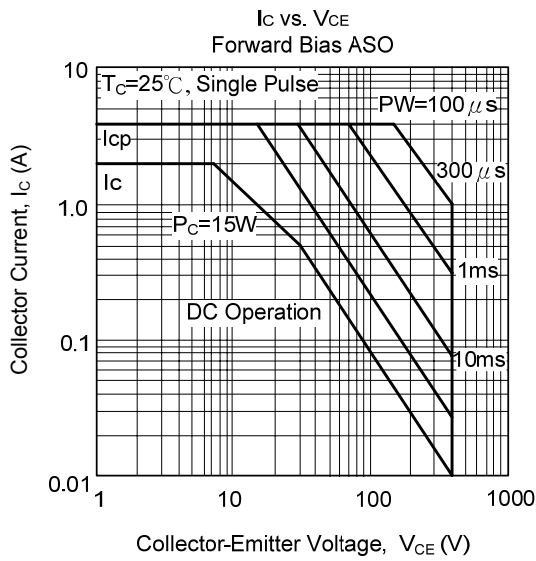
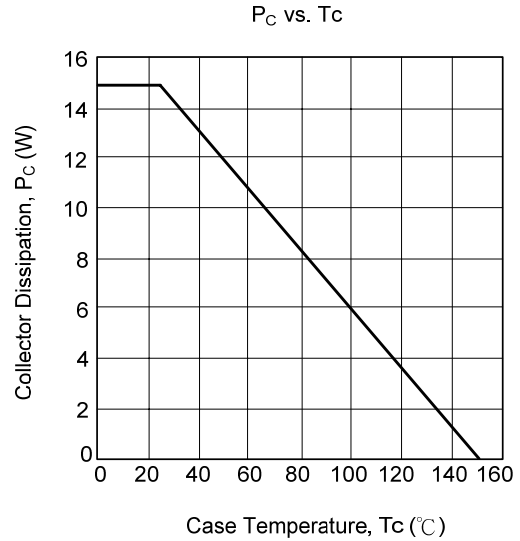
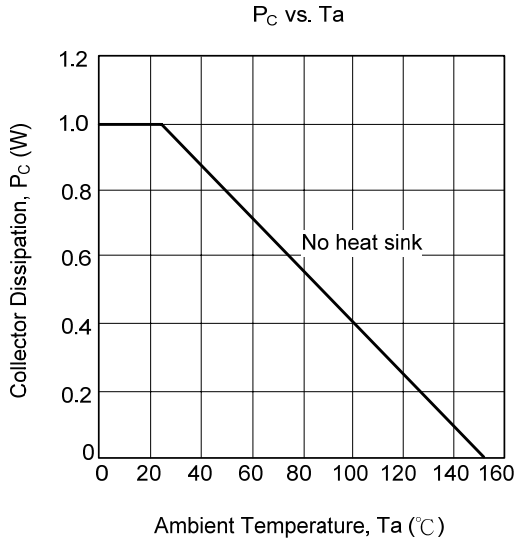
### SWITCHING TIME TEST CIRCUIT



# T2096

# NPN SILICON TRANSISTOR

## TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.