



UNISONIC TECHNOLOGIES CO., LTD

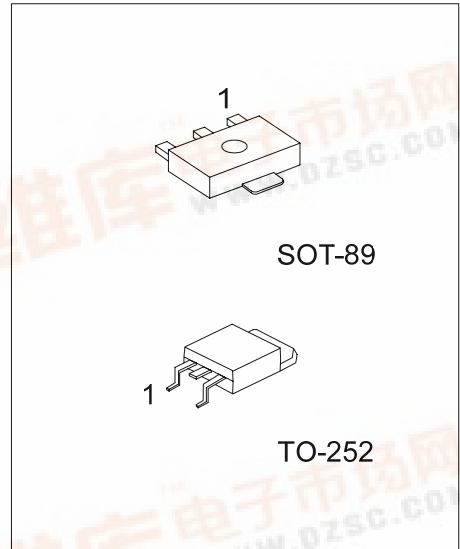
## UN1066

## NPN SILICON TRANSISTOR

### HIGH SPEED SWITCHING TRANSISTOR

#### FEATURES

- \* Low  $V_{CE(SAT)}$  voltage, up to 3A
- \* Suitable for fast switching applications
- \* High current gain



\*Pb-free plating product number: UN1066L

#### ORDERING INFORMATION

| Order Number |                   | Package | Pin Assignment |   |   | Packing   |
|--------------|-------------------|---------|----------------|---|---|-----------|
| Normal       | Lead Free Plating |         | 1              | 2 | 3 |           |
| UN1066-AB3-R | UN1066L-AB3-R     | SOT-89  | B              | C | E | Tape Reel |
| UN1066-TN3-R | UN1066L-TN3-R     | TO-252  | B              | C | E | Tape Reel |
| UN1066-TN3-T | UN1066L-TN3-T     | TO-252  | B              | C | E | Tube      |

|                                                                                              |  |                                                                                                                    |
|----------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------|
| <p>UN1066L-AB3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p> |  | <p>(1) R: Tape Reel, T: Tube</p> <p>(2) AB3: SOT-89, TN3: TO-252</p> <p>(3) L: Lead Free Plating, Blank: Pb/Sn</p> |
|----------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------|

■ ABSOLUTE MAXIMUM RATING (Ta=25°C)

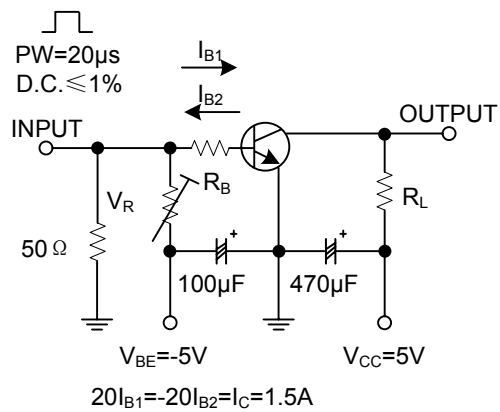
| PARAMETER                                       | SYMBOL     | RATINGS    | UNIT             |
|-------------------------------------------------|------------|------------|------------------|
| Collector-to-Base Voltage                       | $BV_{CBO}$ | 20         | V                |
| Collector-to-Emitter Voltage                    | $BV_{CEO}$ | 15         | V                |
| Emitter-to-Base Voltage                         | $BV_{EBO}$ | 5          | V                |
| Collector Current                               | $I_C$      | 6          | A                |
| Collector Current (Pulse)                       | $I_{CP}$   | 9          | A                |
| Base Current                                    | $I_B$      | 600        | mA               |
| Collector Dissipation( $T_C=25^\circ\text{C}$ ) | $P_C$      | 3.5        | W                |
| Junction Temperature                            | $T_J$      | 150        | $^\circ\text{C}$ |
| Storage Temperature                             | $T_{STG}$  | -55 ~ +150 | $^\circ\text{C}$ |

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.

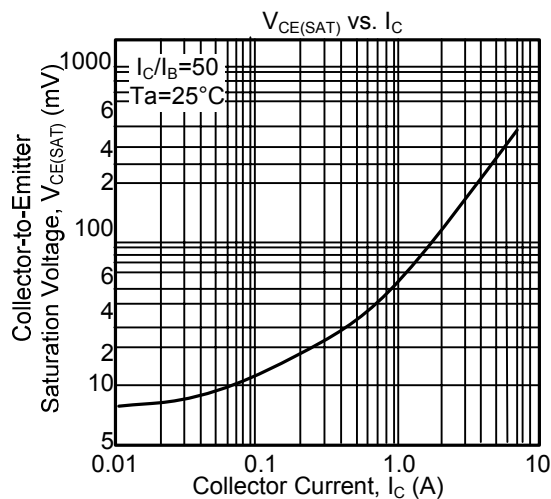
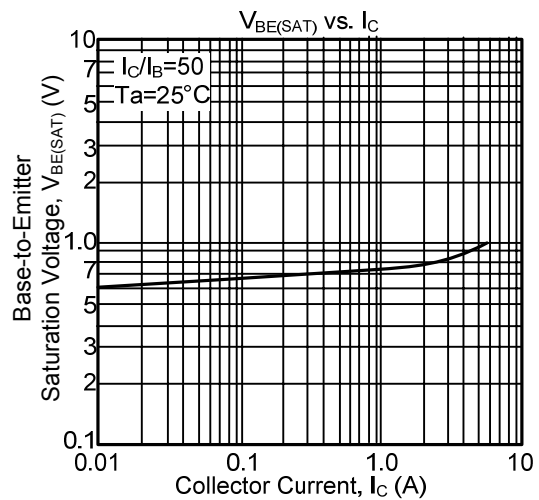
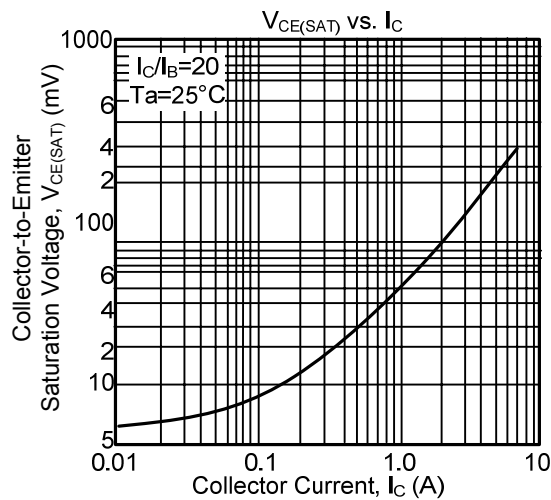
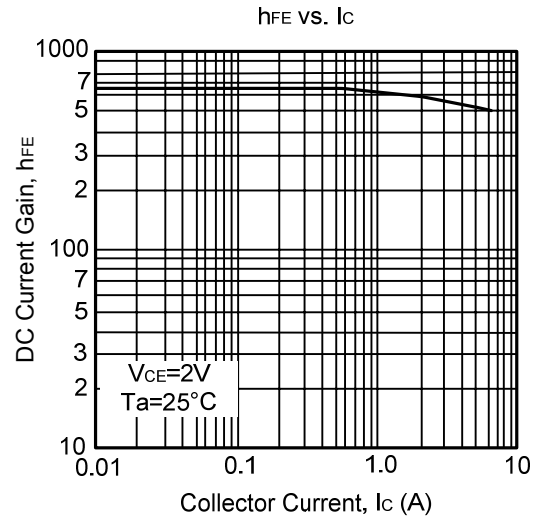
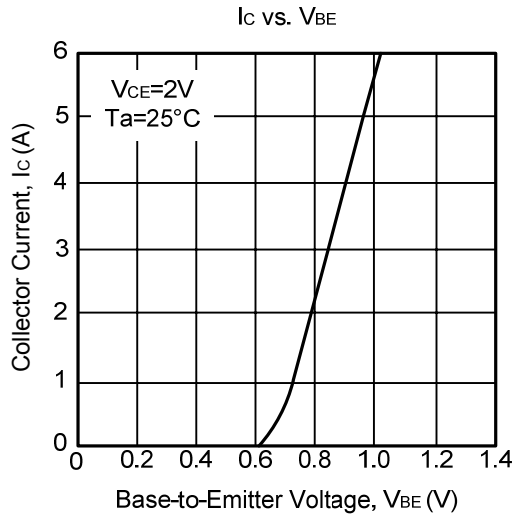
■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

| PARAMETER                               | SYMBOL        | TEST CONDITIONS                         | MIN | TYP | MAX | UNIT          |
|-----------------------------------------|---------------|-----------------------------------------|-----|-----|-----|---------------|
| Collector-to-Base Breakdown Voltage     | $BV_{CBO}$    | $I_C=10\mu\text{A}$ , $I_E=0$           | 20  |     |     | V             |
| Collector-to-Emitter Breakdown Voltage  | $BV_{CEO}$    | $I_C=1\text{mA}$ , $R_{BE}=\infty$      | 15  |     |     | V             |
| Emitter-to-Base Breakdown Voltage       | $BV_{EBO}$    | $I_E=10\mu\text{A}$ , $I_C=0$           | 6   |     |     | V             |
| Collector-to-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=1.5\text{A}$ , $I_B=30\text{mA}$   |     |     | 180 | mV            |
|                                         |               | $I_C=3\text{A}$ , $I_B=60\text{mA}$     |     |     | 300 | mV            |
| Base-to-Emitter Saturation Voltage      | $V_{BE(SAT)}$ | $I_C=1.5\text{A}$ , $I_B=30\text{mA}$   |     |     | 1.2 | V             |
| Collector Cutoff Current                | $I_{CBO}$     | $V_{CB}=12\text{V}$ , $I_E=0$           |     |     | 0.1 | $\mu\text{A}$ |
| Emitter Cutoff Current                  | $I_{EBO}$     | $V_{EB}=4\text{V}$ , $I_C=0$            |     |     | 0.1 | $\mu\text{A}$ |
| DC Current Gain                         | $h_{FE}$      | $V_{CE}=0.5\text{V}$ , $I_C=5\text{A}$  | 250 |     |     |               |
| Gain-Bandwidth Product                  | $f_T$         | $V_{CE}=2\text{V}$ , $I_C=500\text{mA}$ | 100 |     |     | MHz           |
| Output Capacitance                      | $C_{ob}$      | $V_{CB}=10\text{V}$ , $f=1\text{MHz}$   |     |     | 50  | pF            |
| Turn-on Time                            | $t_{ON}$      | Refer to Test Circuit                   |     |     | 50  | ns            |
| Storage Time                            | $t_{STG}$     | Refer to Test Circuit                   |     |     | 250 | ns            |
| Fall Time                               | $t_F$         | Refer to Test Circuit                   |     |     | 25  | ns            |

## ■ TEST CIRCUIT



■ 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.