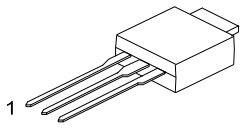
# ULB122

**NPN SILICON TRANSISTOR**

## NPN TRIPLE DIFFUSED PLANAR TYPE HIGH VOLTAGE TRANSISTOR




TO-251

### ■ DESCRIPTION

The UTC **ULB122** is a medium power transistor designed for use in switching applications.

### ■ FEATURES

* High breakdown voltage
* Low collector saturation voltage
* Fast switching speed
* Halogen Free

### ■ ORDERING INFORMATION

| Ordering Number | Package | Pin Assignment | | | Packing |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | |
| ULB122G-xx-TM3-T | TO-251 | B | C | E | Tube |

ULB122G-xx-TM3-T

(1) Packing Type
(2) Package Type
(3) Rank
(4) Halogen Free

(1) T: Tube
(2) TM3: TO-251
(3) xx: refer to Classification of $h_{FE1}$
(4) G: Halogen Free

## ■ ABSOLUTE MAXIMUM RATING ($T_A$=25°C)

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---|---|---|---|---|
| Collector-Base Voltage | | $V_{CBO}$ | 600 | V |
| Collector-Emitter Voltage | | $V_{CEO}$ | 400 | V |
| Emitter-Base Voltage | | $V_{EBO}$ | 6 | V |
| Collector Current | DC | $I_C$ | 800 | mA |
| | Pulse | | 1600 | mA |
| Base Current | DC | $I_B$ | 100 | mA |
| | Pulse | | 200 | mA |
| Total Power Dissipation ($T_C$=25°C) | | $P_D$ | 20 | W |
| Junction Temperature | | $T_J$ | 150 | °C |
| Storage Temperature | | $T_{STG}$ | -40 ~ +150 | °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 ($T_A$=25°C, unless otherwise specified.)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | |
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | $I_C$=100μA | 600 | | | V |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$=10mA | 400 | | | V |
| Emitter-Base Breakdown Voltage | $BV_{EBO}$ | $I_E$=10μA | 6 | | | V |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=600V | | | 10 | μA |
| Collector Cutoff Current | $I_{CEO}$ | $V_{CB}$=400V | | | 10 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=6V | | | 10 | μA |
| **ON CHARACTERISTICS** | | | | | | |
| DC Current Gain(Note) | $h_{FE1}$ | $V_{CE}$=10V, $I_C$=0.1A | 10 | | 40 | |
| | $h_{FE2}$ | $V_{CE}$=10V, $I_C$=0.5A | 10 | | | |
| Collector-Emitter Saturation Voltage (Note) | $V_{CE(SAT)}$ | $I_C$=100mA, $I_B$=20mA | | | 400 | mV |
| | | $I_C$=300mA, $I_B$=60mA | | | 800 | |
| Base-Emitter Saturation Voltage (Note) | $V_{BE(SAT)}$ | $I_C$=100mA, $I_B$=20mA | | | 1 | V |
| **SWITCHING CHARACTERISTICS** | | | | | | |
| Fall Time | $t_F$ | $V_{CC}$=100V, $I_C$=0.3A, $I_{B1}$=-$I_{B2}$=0.06A | | | 0.6 | μS |

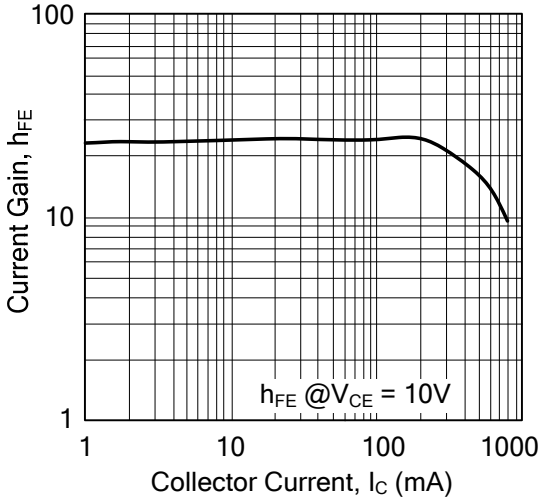
Note: Pulse Test : Pulse Width≤380μs, Duty Cycle≤2%

## ■ CLASSIFICATION OF $h_{FE1}$

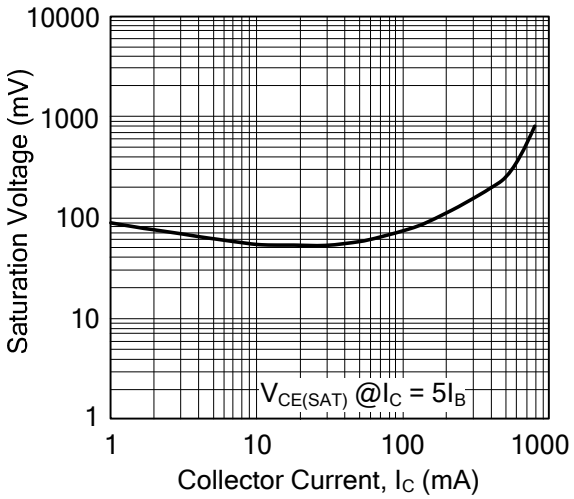
| RANK | B1 | B2 | B3 | B4 | B5 | B6 |
|---|---|---|---|---|---|---|
| Range | 10 ~ 17 | 13 ~ 22 | 18 ~ 27 | 23 ~ 32 | 28 ~ 37 | 33 ~ 40 |

## ■ TYPICAL CHARACTERISTICS

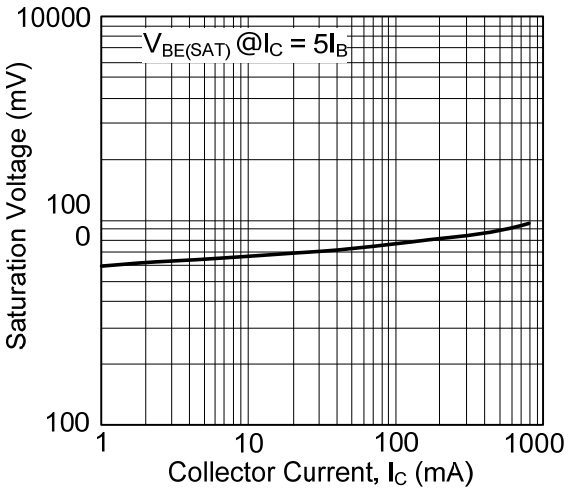
Current Gain vs. Collector Current



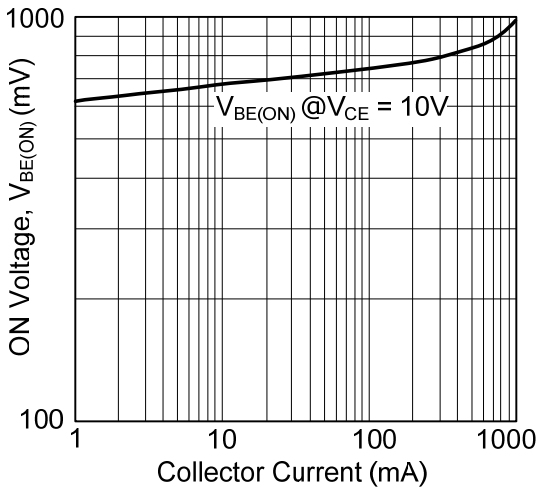

Saturation Voltage vs. Collector Current



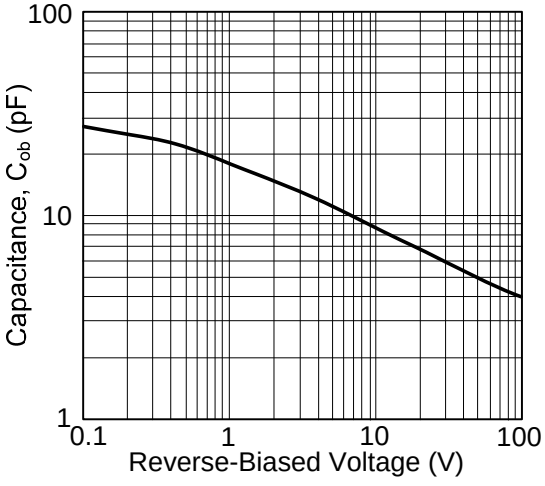

Saturation Voltage vs. Collector Current



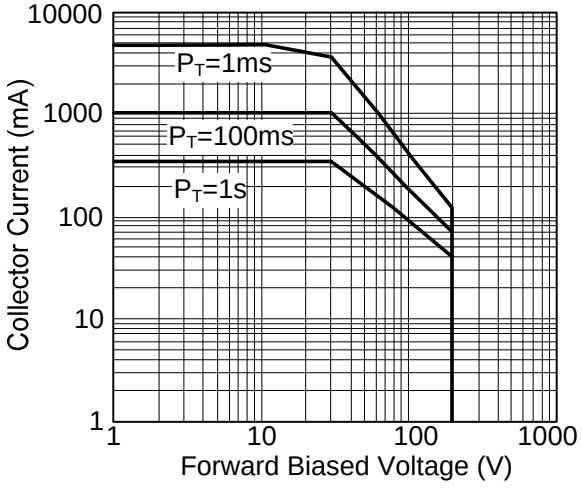

ON Voltage vs. Collector Current




Capacitance vs. Reverse-Biased Voltage




Safe Operating Area



■ TYPICAL CHARACTERISTICS(Cont.)