



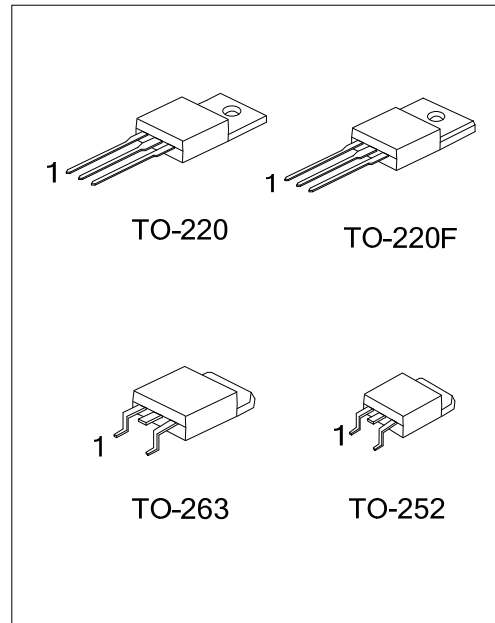
2SD313

NPN SILICON TRANSISTOR

NPN EPITAXIAL PLANAR TRANSISTOR

■ DESCRIPTION

The UTC **2SD313** is designed for use in general purpose amplifier and switching applications.



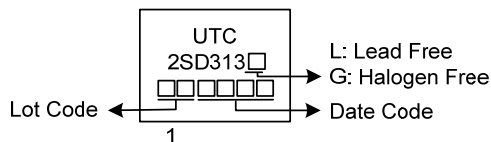
■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|-----------------|-----------------|---------|----------------|---|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| 2SD313L-x-TA3-T | 2SD313G-x-TA3-T | TO-220 | B | C | E | Tube |
| 2SD313L-x-TF3-T | 2SD313G-x-TF3-T | TO-220F | B | C | E | Tube |
| 2SD313L-x-TN3-R | 2SD313G-x-TN3-R | TO-252 | B | C | E | Tape Reel |
| 2SD313L-x-TQ2-T | 2SD313G-x-TQ2-T | TO-263 | B | C | E | Tube |
| 2SD313L-x-TQ2-R | 2SD313G-x-TQ2-R | TO-263 | B | C | E | Tape Reel |

Note: Pin assignment: E: Emitter B: Base C: Collector

| | |
|--|---|
| <p>2SD313G-x-TA3-T</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Green Package</p> | <p>(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TF3: TO-220F, TN3: TO-252 TQ2: TO-263 (3) x: refer to Classification of h_{FE} (4) G: Halogen Free and Lead Free, L: Lead Free</p> |
|--|---|

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, unless otherwise specified)

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---------------------------|---------|-----------|------------|------------------|
| Collector-Base Voltage | | V_{CB0} | 60 | V |
| Collector-Emitter Voltage | | V_{CEO} | 60 | V |
| Emitter-Base Voltage | | V_{EBO} | 5 | V |
| Collector Current | | I_C | 3 | A |
| Collector Dissipation | TO-220 | P_C | 1.75 | W |
| | TO-220F | | 1.6 | W |
| | TO-252 | | 1.1 | W |
| | TO-263 | | 1.73 | 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.

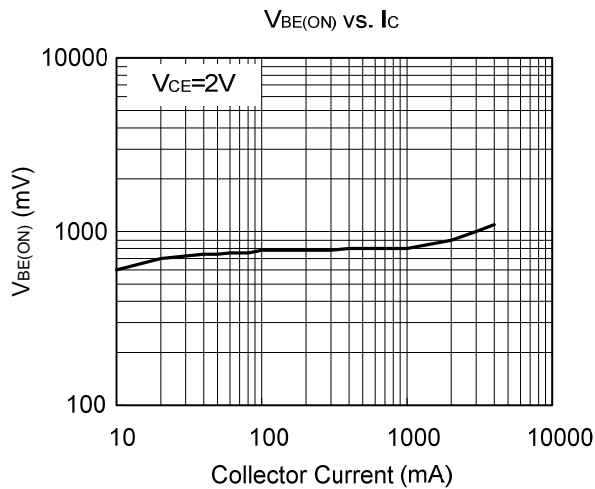
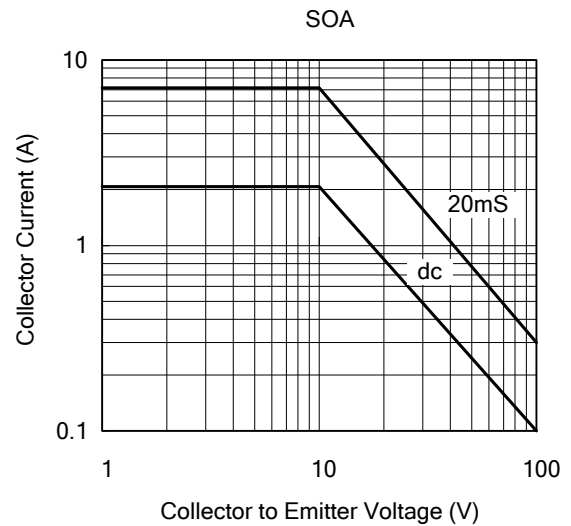
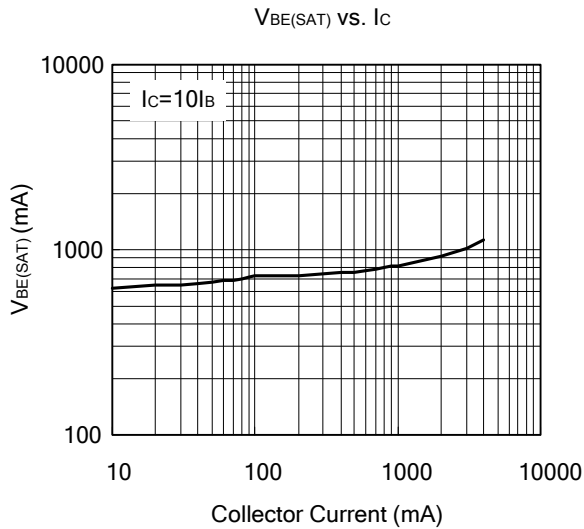
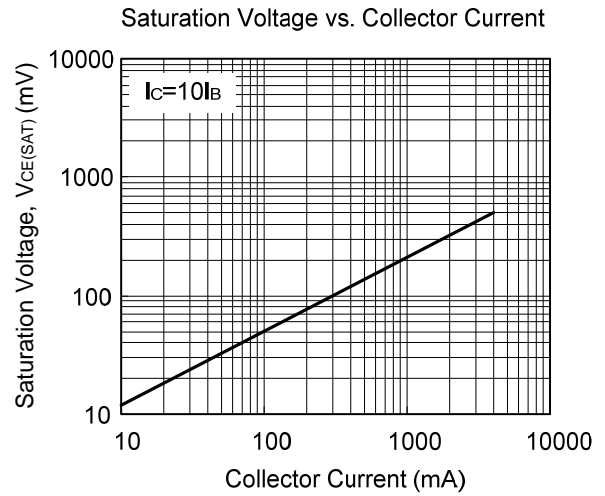
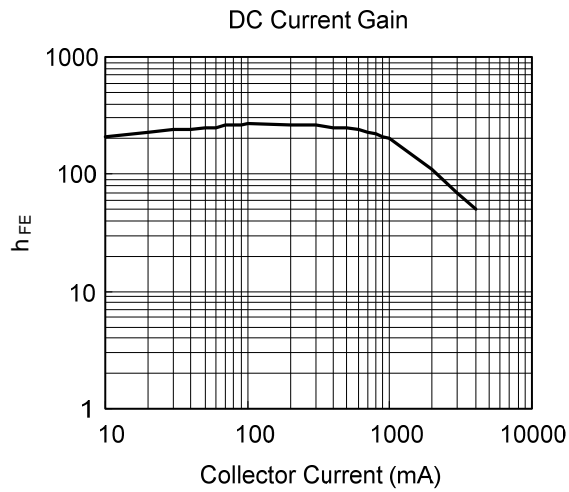
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|-------------------------------------|-----|-----|-----|------|
| Collector-Base Breakdown Voltage | BV_{CB0} | $I_C=1\text{mA}$ | 60 | | | V |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | $I_C=10\text{mA}$ | 60 | | | V |
| Emitter-Base Breakdown Voltage | BV_{EBO} | $I_E=100\mu\text{A}$ | 5 | | | V |
| Collector Cut-Off Current | I_{CBO} | $V_{CB}=20\text{V}, I_E=0$ | | | 0.1 | mA |
| Emitter Cut-Off Current | I_{EBO} | $V_{EB}=4\text{V}, I_C=0$ | | | 1.0 | mA |
| DC Current Gain | h_{FE} | $I_C=1\text{A}, V_{CE}=2\text{V}$ | 40 | | 320 | |
| | | $I_C=0.1\text{A}, V_{CE}=2\text{V}$ | 40 | | | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=2\text{A}, I_B=0.2\text{A}$ | | | 1.0 | V |
| Base-Emitter On voltage | $V_{BE(ON)}$ | $V_{CE}=2\text{V}, I_C=1\text{A}$ | | | 1.5 | V |
| Gain Band width Product | f_T | $V_{CE}=5\text{V}, I_C=0.5\text{A}$ | | 8 | | MHz |

■ CLASSIFICATION ON h_{FE}

| RANK | C | D | E | F |
|-------|-------|--------|---------|---------|
| RANGE | 40-80 | 60-120 | 100-200 | 160-320 |

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. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.