



2SD1803

NPN SILICON TRANSISTOR

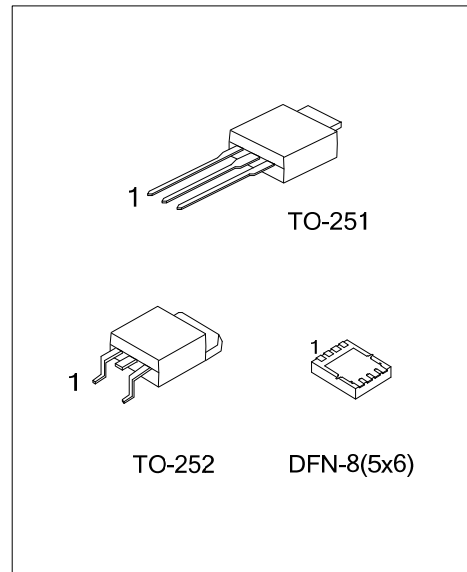
HIGH CURRENT SWITCHING APPLICATION

■ DESCRIPTION

The UTC **2SD1803** applies to relay drivers, high-speed inverters, converters, and other general high-current switching applications.

■ FEATURES

- *Low Collector-To-Emitter Saturation Voltage.
- *High Current And High f_T .
- *Excellent Linearity Of h_{FE} .
- *Fast Switching Time.



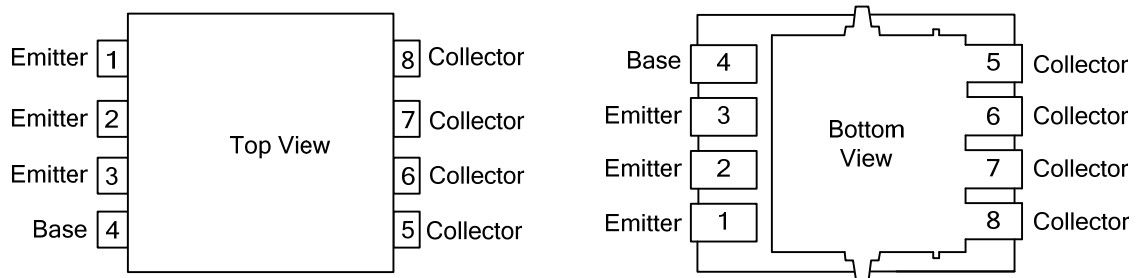
■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | | | | | | Packing | |
|-----------------------|-----------------------|------------|----------------|---|---|---|---|---|---|---|---------|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| 2SD1803L-x-TM3-T | 2SD1803G-x-TM3-T | TO-251 | B | C | E | - | - | - | - | - | - | Tube |
| 2SD1803L-x-TN3-R | 2SD1803G-x-TN3-R | TO-252 | B | C | E | - | - | - | - | - | - | Tape Reel |
| 2SD1803L-x-TN3-T | 2SD1803G-x-TN3-T | TO-252 | B | C | E | - | - | - | - | - | - | Tube |
| 2SD1803L-x-K08-5060-R | 2SD1803G-x-K08-5060-R | DFN-8(5x6) | E | E | E | B | C | C | C | C | C | Tape Reel |

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

| | |
|--|--|
| <p>2SD1803L-x-TM3-T</p> <ul style="list-style-type: none"> (1)Packing Type (2)Package Type (3)Rank (4)Lead Plating | <ul style="list-style-type: none"> (1) R: Tape Reel, T: Tube (2) TM3: TO-251, TN3: TO-252, K08-5060: DFN-8(5x6) (3) x: refer to Classification of h_{FE1} (4) L: Lead Free, G: Halogen Free |
|--|--|

■ PIN CONFIGURATION



DFN-8(5x6)

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

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---------------------------|------------------------|------------|------------------|
| Collector-Base Voltage | V_{CBO} | 60 | V |
| Collector-Emitter Voltage | V_{CEO} | 50 | V |
| Emitter-Base Voltage | V_{EBO} | 6 | V |
| Collector Current | DC | I_C | 5 |
| | PULSE | I_{CM} | 8 |
| Power Dissipation | $T_A=25^\circ\text{C}$ | P_D | 1 |
| | $T_C=25^\circ\text{C}$ | | 20 |
| Junction Temperature | T_J | +150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -40 ~ +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.

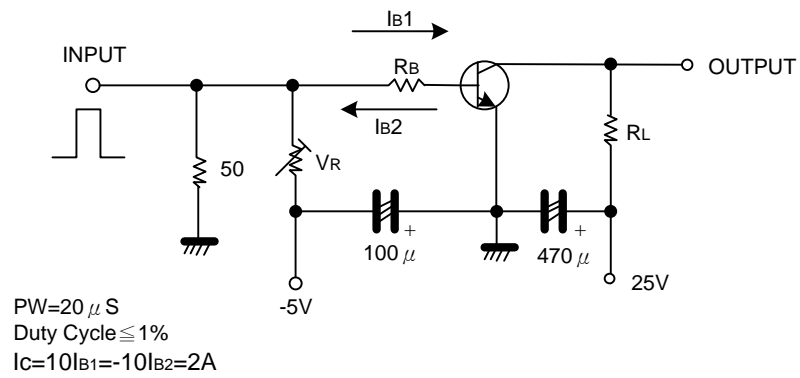
■ ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified.)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|-------------------------------------|---------------|-------------------------------------|-----|------|-----|---------------|
| Collector-Base Breakdown Voltage | BV_{CBO} | $I_C=10\mu\text{A}, I_E=0$ | 60 | | | V |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | $I_C=1\text{mA}, R_{BE}=\infty$ | 50 | | | V |
| Emitter-Base Breakdown Voltage | BV_{EBO} | $I_E=10\mu\text{A}, I_C=0$ | 6 | | | V |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=40\text{V}, I_E=0$ | | | 1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=4\text{V}, I_C=0$ | | | 1 | μA |
| DC Current Gain | h_{FE1} | $V_{CE}=2\text{V}, I_C=0.5\text{A}$ | 70 | | 400 | |
| | h_{FE2} | $V_{CE}=2\text{V}, I_C=4\text{A}$ | 35 | | | |
| C-E Saturation Voltage | $V_{CE(SAT)}$ | $I_C=3\text{A}, I_B=0.15\text{A}$ | | 220 | 400 | mV |
| B-E Saturation Voltage | $V_{BE(SAT)}$ | $I_C=3\text{A}, I_B=0.15\text{A}$ | | 0.95 | 1.3 | V |
| Gain-Bandwidth Product | f_T | $V_{CE}=5\text{V}, I_C=1\text{A}$ | | 180 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=10\text{V}, f=1\text{MHz}$ | | 40 | | pF |
| Turn-on Time | t_{ON} | See Test Circuit | | 50 | | ns |
| Storage Time | t_S | See Test Circuit | | 500 | | ns |
| Fall Time | t_F | See Test Circuit | | 20 | | ns |

■ CLASSIFICATION OF h_{FE1}

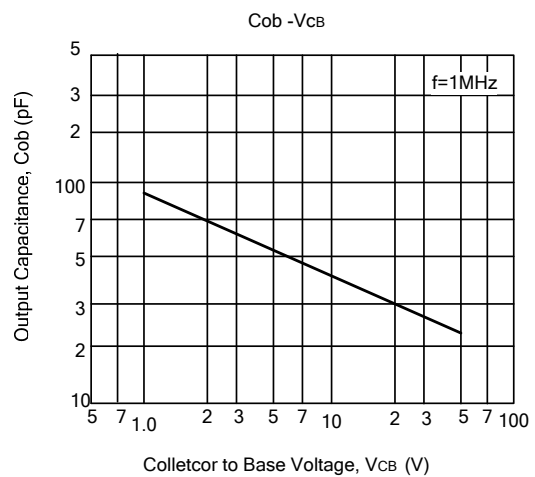
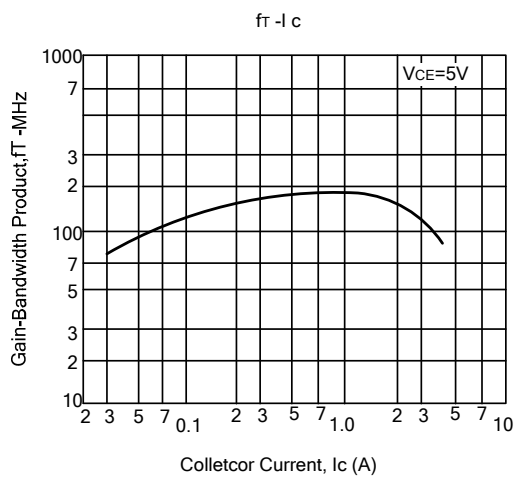
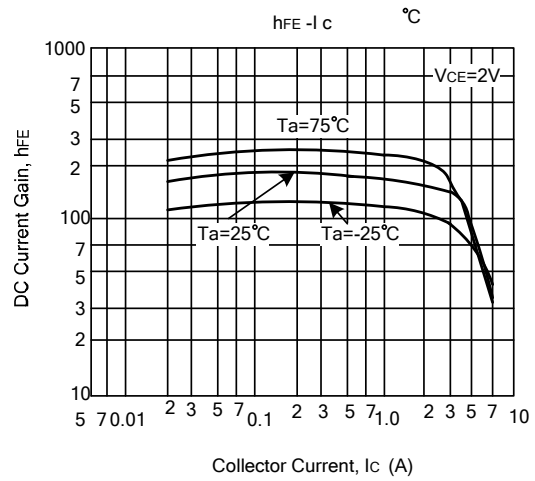
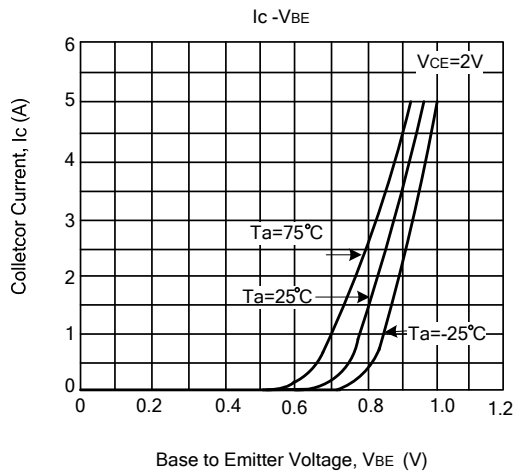
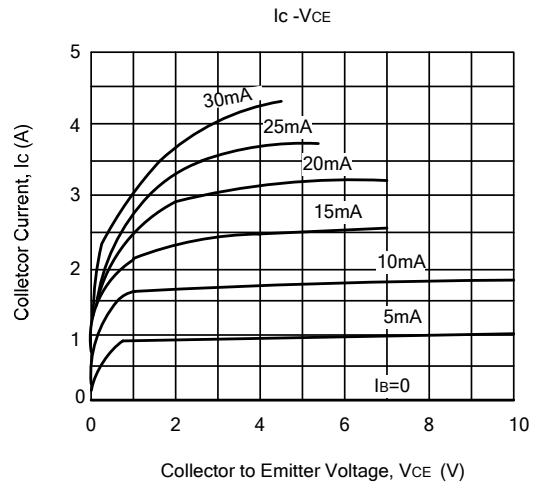
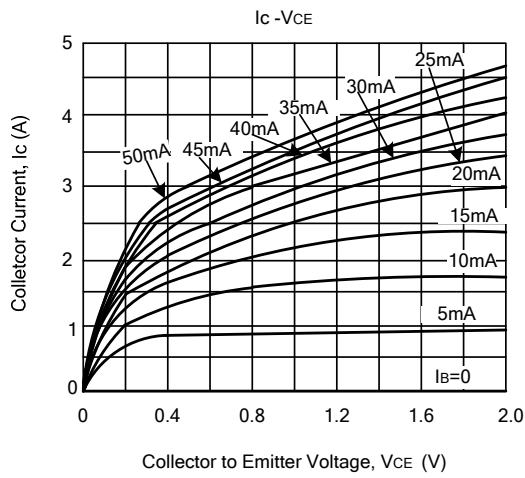
| RANK | Q | R | S | T |
|-------|----------|-----------|-----------|-----------|
| RANGE | 70 ~ 140 | 100 ~ 200 | 140 ~ 280 | 200 ~ 400 |

■ TEST CIRCUIT

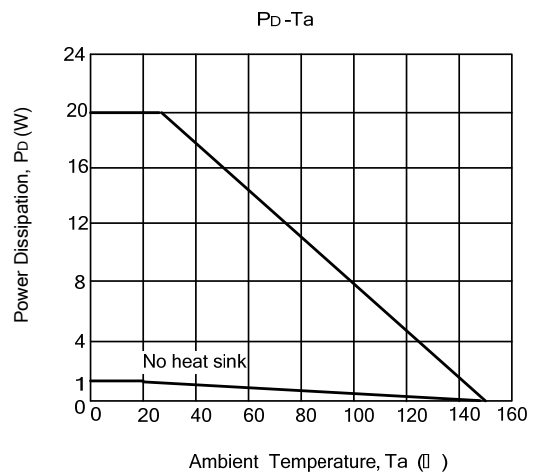
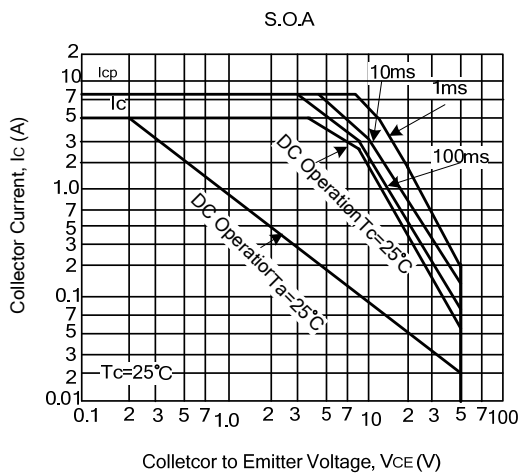
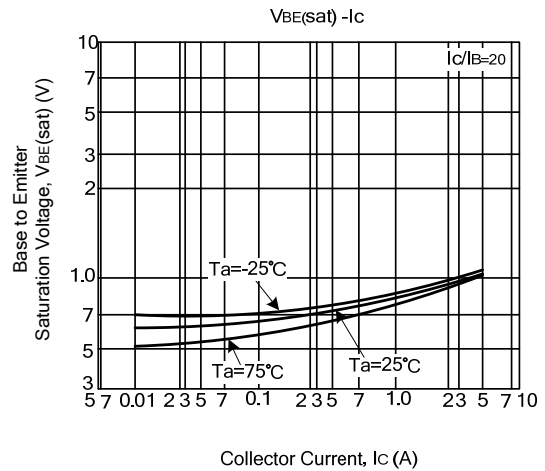
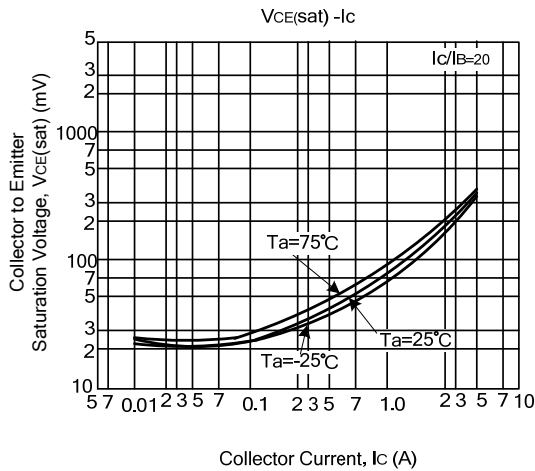


(Unit : (resistance : Ω , capacitance : F))

■ TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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.