



2SD1802

NPN SILICON TRANSISTOR

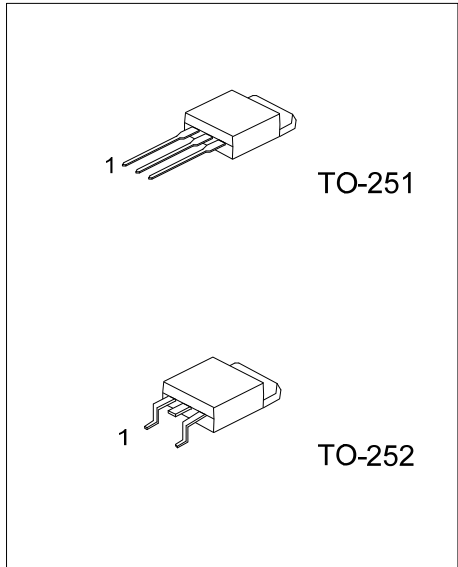
HIGH CURRENT SWITCHING APPLICATION

DESCRIPTION

The UTC **2SD1802** applies to voltage regulators, relay drivers, lamp drivers and electrical equipment.

FEATURES

- * Adoption of FBET, MBIT processes
- * Large current capacity and wide ASO
- * Low collector-to-emitter saturation voltage
- * Fast switching speed



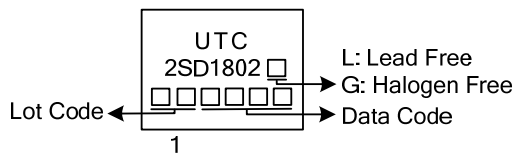
ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|------------------|------------------|---------|----------------|---|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| 2SD1802L-x-TM3-T | 2SD1802G-x-TM3-T | TO-251 | B | C | E | Tube |
| 2SD1802L-x-TN3-T | 2SD1802G-x-TN3-T | TO-252 | B | C | E | Tube |
| 2SD1802L-x-TN3-R | 2SD1802G-x-TN3-R | TO-252 | B | C | E | Tape Reel |

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

| | |
|-------------------------|--|
| <p>2SD1802L-x-TM3-T</p> | <p>(1) T: Tube, R: Tape Reel</p> <p>(2) TM3: TO-251, TN3: TO-252</p> <p>(3) x: refer to Classification of h_{FE}</p> <p>(4) L: Lead Free, G: Halogen Free and Lead Free</p> |
|-------------------------|--|

MARKING



■ ABSOLUTE MAXIMUM RATING ($T_A=25^{\circ}\text{C}$, 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 Power Dissipation | P_C | 1 | W |
| $T_C=25^{\circ}\text{C}$ | | 15 | |
| Collector Current (DC) | I_C | 3 | A |
| Collector Current (PULSE) | I_{CP} | 6 | A |
| 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.

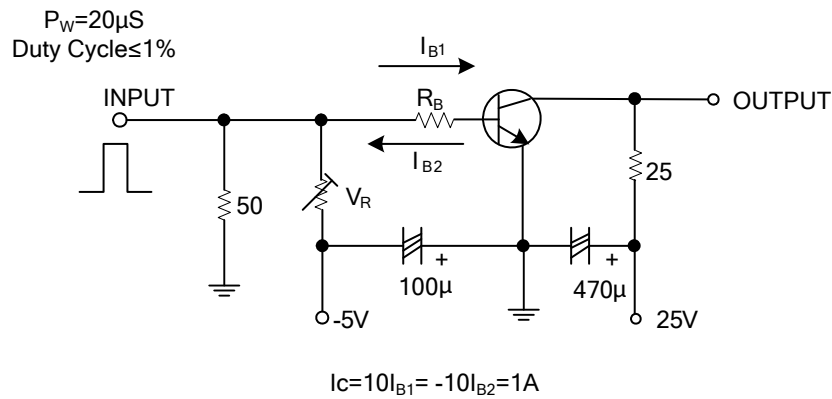
■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------|---------------|--------------------------------------|-----|------|-----|---------------|
| Collector 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 (note) | h_{FE1} | $V_{CE}=2\text{V}, I_C=100\text{mA}$ | 100 | | 560 | |
| | h_{FE2} | $V_{CE}=2\text{V}, I_C=3\text{A}$ | 35 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=10\text{V}, I_C=50\text{mA}$ | | 150 | | MHz |
| Output Capacitance | C_{OB} | $V_{CB}=10\text{V}, f=1\text{MHz}$ | | 25 | | pF |
| C-E Saturation Voltage | $V_{CE(SAT)}$ | $I_C=2\text{A}, I_B=100\text{mA}$ | | 0.19 | 0.5 | V |
| B-E Saturation Voltage | $V_{BE(SAT)}$ | $I_C=2\text{A}, I_B=100\text{mA}$ | | 0.94 | 1.2 | V |
| C-B Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=10\mu\text{A}, I_E=0$ | 60 | | | V |
| C-E Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=1\text{mA}, R_{BE}=\infty$ | 50 | | | V |
| E-B Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=10\mu\text{A}, I_C=0$ | 6 | | | V |
| Turn-on Time | t_{ON} | See test circuit | | 70 | | ns |
| Storage Time | t_{STG} | See test circuit | | 650 | | ns |
| Fall Time | t_F | See test circuit | | 35 | | ns |

■ CLASSIFICATION OF h_{FE1}

| RANK | R | S | T | U |
|-------|---------|---------|---------|---------|
| RANGE | 100-200 | 140-280 | 200-400 | 280-560 |

■ TEST CIRCUIT (Unit : resistance : Ω , capacitance : F)



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