



# 2SC1384

## NPN SILICON TRANSISTOR

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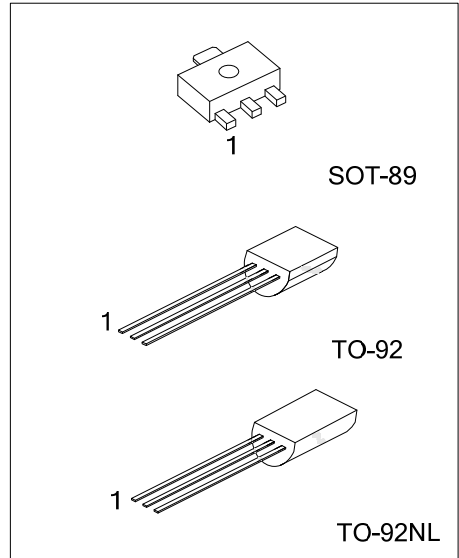
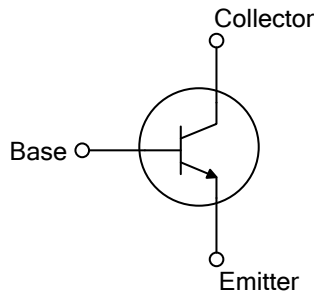
■ DESCRIPTION

The UTC **2SC1384** is power amplifier and driver.

■ FEATURES

- \* Low  $V_{CE(SAT)}$
- \* Complementary pair with 2SA684

■ SYMBOL



■ ORDERING INFORMATION

| Order Number     |                  | Package | Pin Assignment |   |   | Packing   |
|------------------|------------------|---------|----------------|---|---|-----------|
| Lead Free        | Halogen Free     |         | 1              | 2 | 3 |           |
| 2SC1384L-x-AB3-R | 2SC1384G-x-AB3-R | SOT-89  | B              | C | E | Tape Reel |
| 2SC1384L-x-T92-B | 2SC1384G-x-T92-B | TO-92   | E              | C | B | Tape Box  |
| 2SC1384L-x-T92-K | 2SC1384G-x-T92-K | TO-92   | E              | C | B | Bulk      |
| 2SC1384L-x-T9N-B | 2SC1384G-x-T9N-B | TO-92NL | E              | C | B | Tape Box  |
| 2SC1384L-x-T9N-K | 2SC1384G-x-T9N-K | TO-92NL | E              | C | B | Bulk      |

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

|                         |  |
|-------------------------|--|
| <p>2SC1384G-x-AB3-B</p> | <p>(1) R: Tape Reel, B: Tape Box, K: Bulk<br/>                 (2) AB3: SOT-89, T92: TO-92, T9N: TO-92NL<br/>                 (3) x: refer to Classification of <math>h_{FE}</math><br/>                 (4) G: Halogen Free and Lead Free, L: Lead Free</p> |
|-------------------------|--|

■ MARKING

| SOT-89 | TO-92 | TO-92NL |
|--------|-------|---------|
|        |       |         |

■ 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                             |               | $V_{EBO}$ | 5          | V                |
| Peak Collector Current                           |               | $I_{CP}$  | 1.5        | A                |
| Collector Current (DC)                           |               | $I_C$     | 1          | A                |
| Collector Dissipation ( $T_A=25^\circ\text{C}$ ) | SOT-89        | $P_C$     | 500        | mW               |
|  | TO-92/TO-92NL |           | 1000       | mW               |
| Junction Temperature                             |               | $T_J$     | +125       | $^\circ\text{C}$ |
| Operating Temperature                            |               | $T_{OPR}$ | -20 ~ +85  | $^\circ\text{C}$ |
| 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.

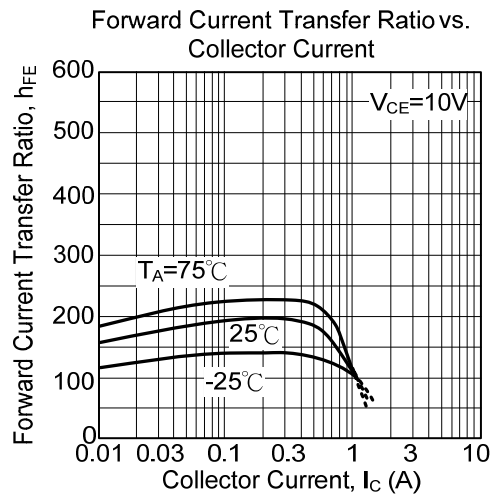
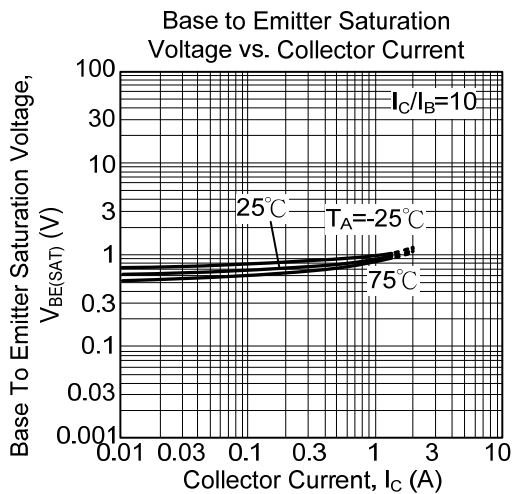
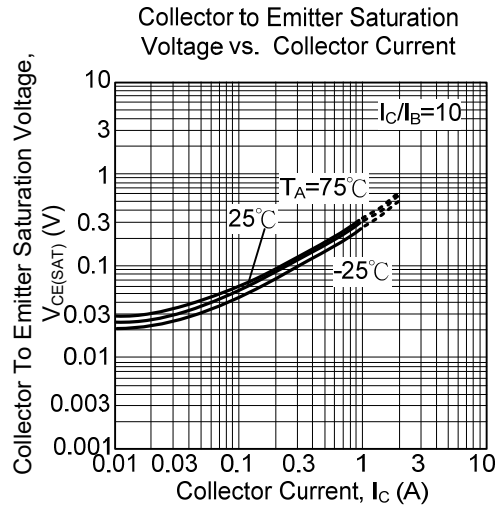
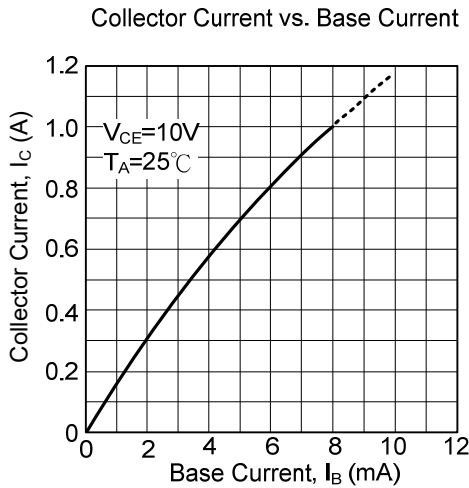
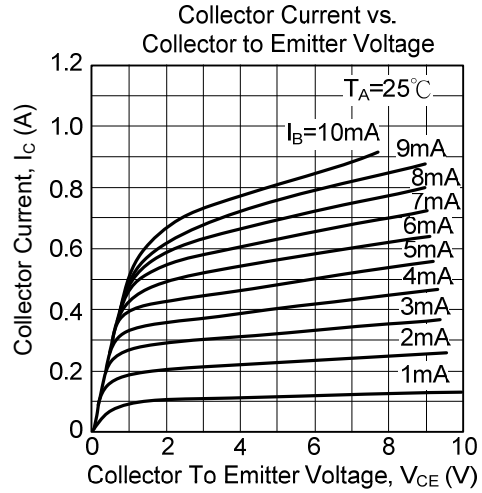
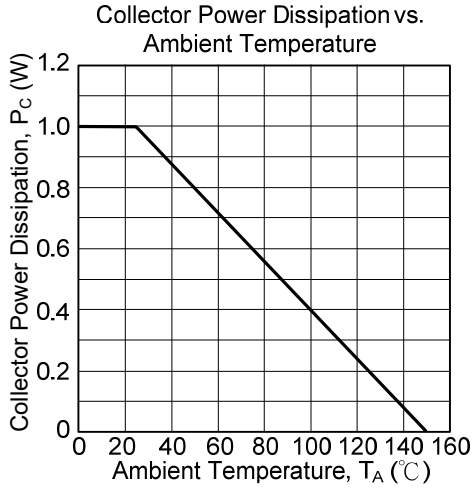
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

| 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  | $BV_{CEO}$    | $I_C=2\text{mA}$ , $I_B=0$                      | 50  |      |     | V             |
| Emitter-Base Breakdown Voltage       | $BV_{EBO}$    | $I_E=10\mu\text{A}$ , $I_C=0$                   | 5   |      |     | V             |
| Collector Cut-Off Current            | $I_{CBO}$     | $V_{CB}=20\text{V}$ , $I_E=0$                   |     |      | 0.1 | $\mu\text{A}$ |
| DC Current Gain                      | $h_{FE1}$     | $V_{CE}=10\text{V}$ , $I_C=500\text{mA}$        | 85  | 160  | 340 |               |
|                                      | $h_{FE2}$     | $V_{CE}=5\text{V}$ , $I_C=1\text{A}$            | 50  | 100  |     |               |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=0.5\text{A}$ , $I_B=50\text{mA}$           |     | 0.2  | 0.4 | V             |
| Base-Emitter Saturation Voltage      | $V_{BE(SAT)}$ | $I_C=0.5\text{A}$ , $I_B=50\text{mA}$           |     | 0.85 | 1.2 | V             |
| Current Gain Bandwidth Product       | $f_T$         | $V_{CE}=10\text{V}$ , $I_B=50\text{mA}$         |     | 200  |     | MHz           |
| Output Capacitance                   | $C_{OB}$      | $V_{CB}=10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$ |     | 11   | 20  | pF            |

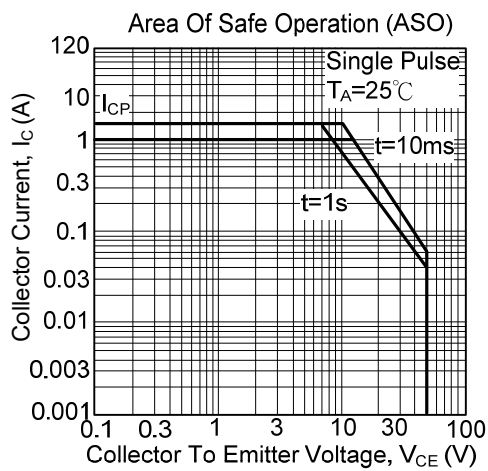
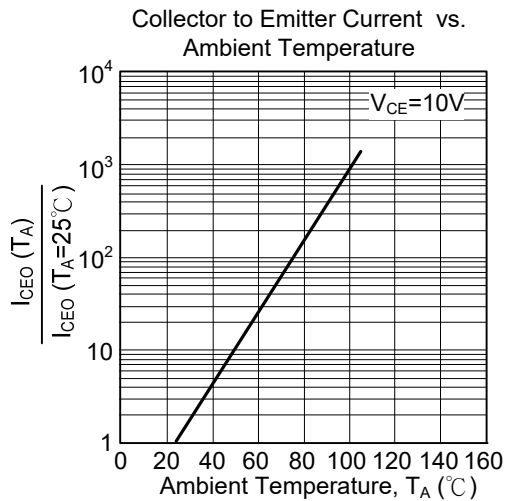
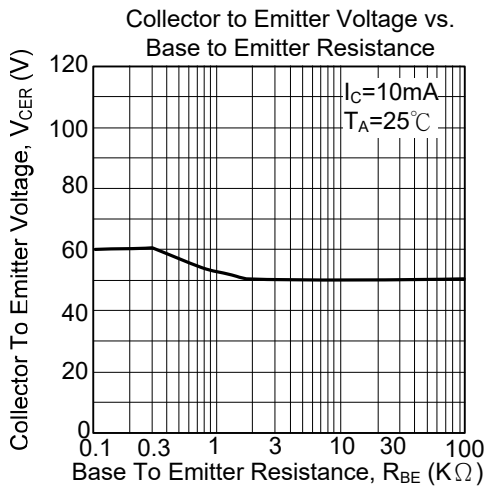
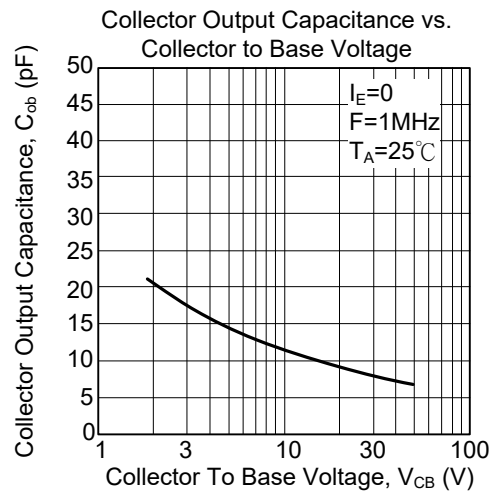
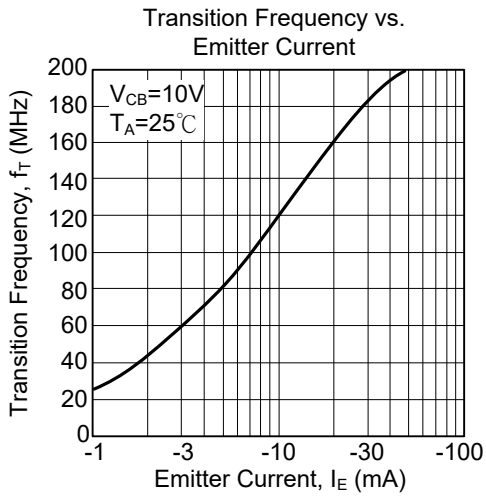
■ CLASSIFICATION OF  $h_{FE}$

| RANK  | Q      | R       | S       |
|-------|--------|---------|---------|
| RANGE | 85-170 | 120-240 | 170-340 |

## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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