# 2SC1384

**NPN SILICON TRANSISTOR**

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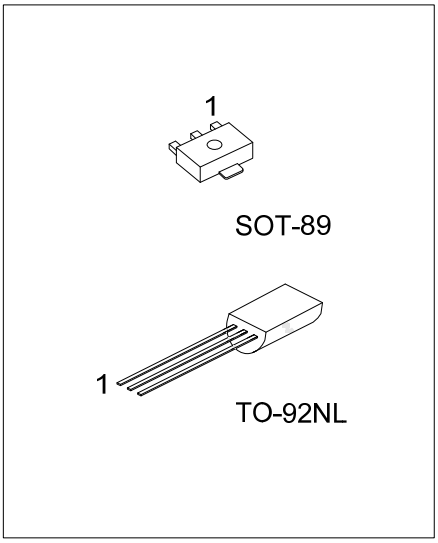



Lead-free: 2SC1384L
Halogen-free: 2SC1384G

### ■ DESCRIPTION

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

### ■ FEATURES

* Low $V_{CE(SAT)}$
* 2~3W output in complementary pair with 2SA684

### ■ ORDERING INFORMATION

| Ordering Number | | | Package | Pin Assignment | | | Packing |
|---|---|---|---|---|---|---|---|
| Normal | Lead Free Plating | Halogen-Free | | 1 | 2 | 3 | |
| 2SC1384-x-AB3-R | 2SC1384L-x-AB3-R | 2SC1384G-x-AB3-R | SOT-89 | B | C | E | Tape Reel |
| 2SC1384-x-T9N-B | 2SC1384L-x-T9N-B | 2SC1384G-x-T9N-B | TO-92NL | E | C | B | Tape Box |
| 2SC1384-x-T9N-K | 2SC1384L-x-T9N-K | 2SC1384G-x-T9N-K | TO-92NL | E | C | B | Bulk |
| 2SC1384-x-T9N-R | 2SC1384L-x-T9N-R | 2SC1384G-x-T9N-R | TO-92NL | E | C | B | Tape Reel |

2SC1384L-x-AB3-B
(1)Packing Type
(2)Package Type
(3)Rank
(4)Lead Plating

(1) K: Bulk, T: Tube, R: Tape Reel
(2) AB3: SOT-89, T9N: TO-92NL
(3) x: refer to Classification of $h_{FE}$
(4)G: Halogen Free, L: Lead Free Plating, Blank: Pb/Sn

## ■ ABSOLUTE MAXIMUM RATINGS (Ta=25℃, 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 (Ta=25℃) | $P_C$ | 1000 | mW |
| Junction Temperature | $T_J$ | 125 | ℃ |
| Operating Temperature | $T_{OPR}$ | -20 ~ +85 | ℃ |
| Storage Temperature | $T_{STG}$ | -40 ~ +150 | ℃ |

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 (Ta=25℃, unless otherwise specified)

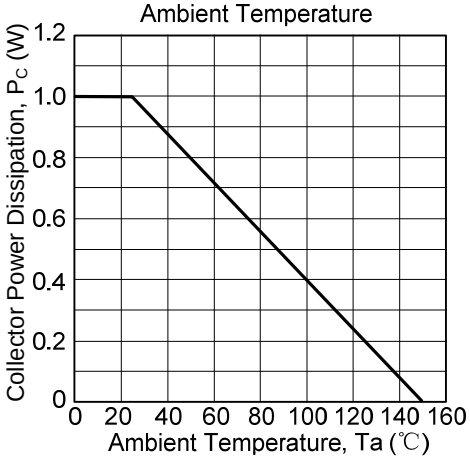
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | $I_C$=10μA, $I_E$=0 | 60 | | | V |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$=2mA, $I_B$=0 | 50 | | | V |
| Emitter-Base Breakdown Voltage | $BV_{EBO}$ | $I_E$=10μA, $I_C$=0 | 5 | | | V |
| Collector Cut-Off Current | $I_{CBO}$ | $V_{CB}$=20V, $I_E$=0 | | | 0.1 | μA |
| DC Current Gain | $h_{FE1}$ | $V_{CE}$=10V, $I_C$=500mA | 85 | 160 | 340 | |
| | $h_{FE2}$ | $V_{CE}$=5V, $I_B$=1A | 50 | 100 | | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C$=0.5A, $I_B$=50mA | | 0.2 | 0.4 | V |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | $I_C$=0.5A, $I_B$=50mA | | 0.85 | 1.2 | V |
| Current Gain Bandwidth Product | $f_T$ | $V_{CE}$=10V, $I_B$=50mA | | 200 | | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=10V, $I_E$=0, f=1MHz | | 11 | 20 | pF |

## ■ CLASSIFICATION OF $h_{FE}$

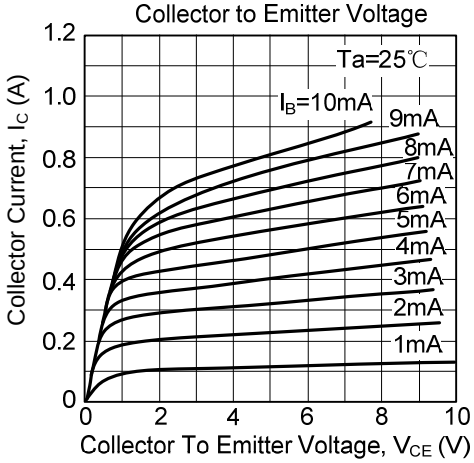
| RANK | Q | R | S |
|---|---|---|---|
| RANGE | 85-170 | 120-240 | 170-340 |

## ■ TYPICAL CHARACTERISTICS

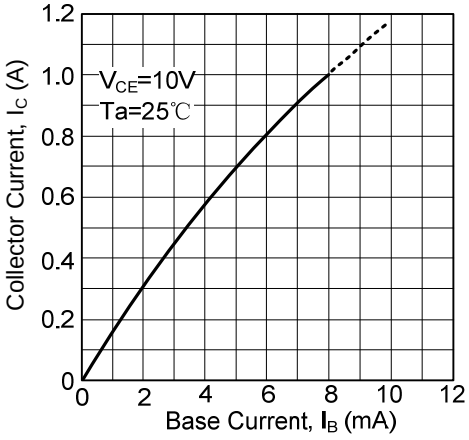
Collector Power Dissipation vs. Ambient Temperature



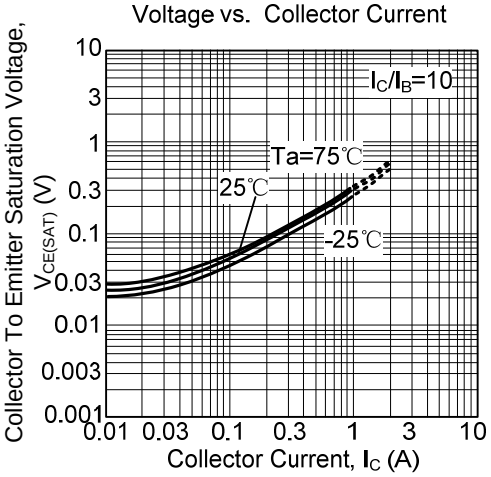

Collector Current vs. Collector to Emitter Voltage



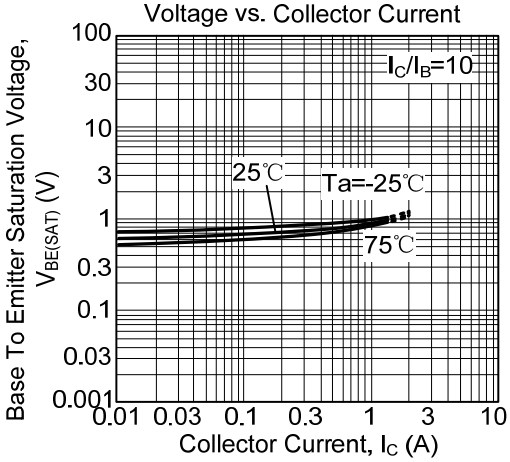

Collector Current vs. Base Current



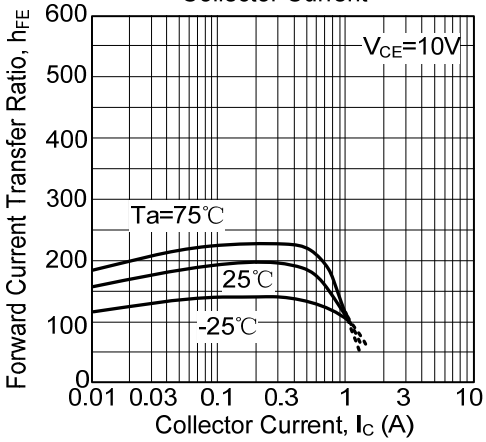

Collector to Emitter Saturation Voltage vs. Collector Current




Base to Emitter Saturation Voltage vs. Collector Current

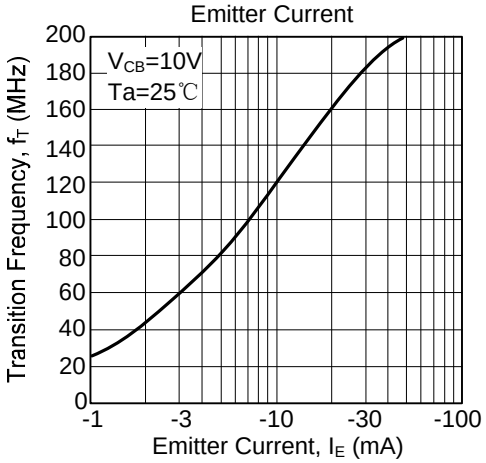



Forward Current Transfer Ratio vs. Collector Current

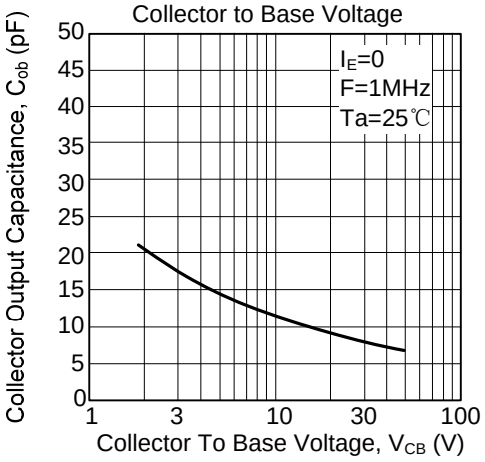


## ■ TYPICAL CHARACTERISTICS(Cont.)

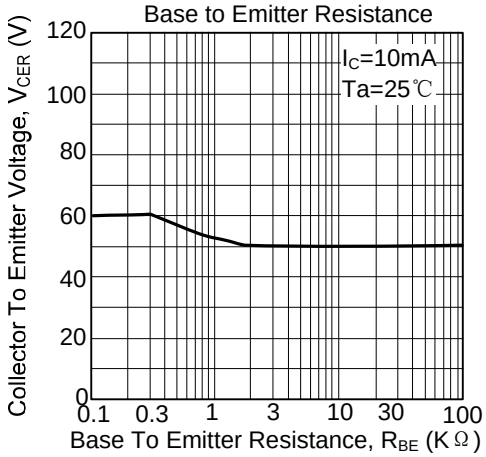
Transition Frequency vs. Emitter Current



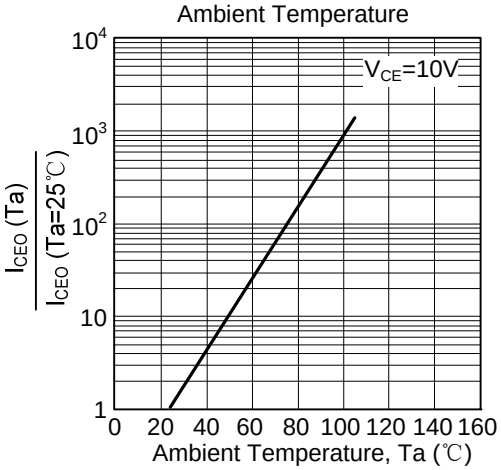

Collector Output Capacitance vs. Collector to Base Voltage




Collector to Emitter Voltage vs. Base to Emitter Resistance




Collector to Emitter Current vs. Ambient Temperature




Area Of Safe Operation (ASO)