

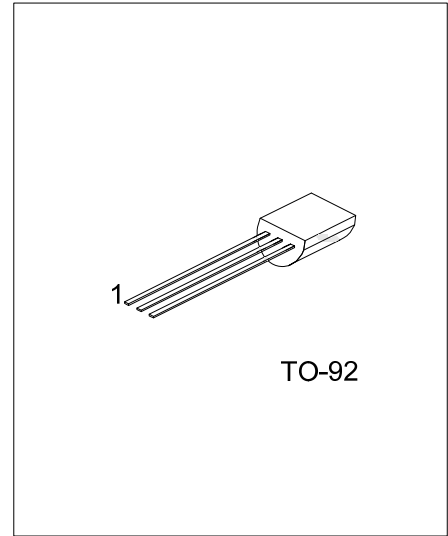


# UNISONIC TECHNOLOGIES CO., LTD

## 2SC945

### NPN SILICON TRANSISTOR

AUDIO FREQUENCY  
AMPLIFIER HIGH FREQUENCY  
OSC NPN TRANSISTOR



#### DESCRIPTION

The UTC **2SC945** is an audio frequency amplifier high frequency OSC NPN transistor.

#### FEATURES

- \* Collector-Emitter voltage:  
 $BV_{CBO}=50V$
- \* Collector current up to 150mA
- \* High  $h_{FE}$  linearity
- \* Complimentary to UTC 2SA733

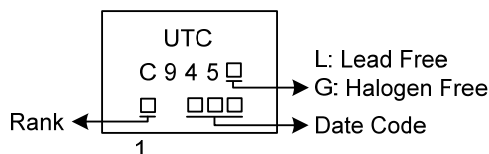
#### ORDERING INFORMATION

| Order Number      |                 | Package | Pin Assignment |   |   | Packing  |
|-------------------|-----------------|---------|----------------|---|---|----------|
| Lead Free Plating | Halogen Free    |         | 1              | 2 | 3 |          |
| 2SC945L-x-T92-B   | 2SC945G-x-T92-B | TO-92   | E              | C | B | Tape Box |
| 2SC945L-x-T92-K   | 2SC945G-x-T92-K | TO-92   | E              | C | B | Bulk     |

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

|  |  |
|--|--|
| <p>2SC945G-x-T92-B</p> <p>(1)Packing Type<br/>(2)Package Type<br/>(3)Rank<br/>(4)Green Package</p> | <p>(1) B: Tape Box, K: Bulk<br/>(2) T92: TO-92<br/>(3) x: refer to Classification of <math>h_{FE}</math><br/>(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    | RATING     | UNIT             |
|--|-----------|------------|------------------|
| Collector-Base Voltage                                 | $V_{CBO}$ | 60         | V                |
| Collector-Emitter Voltage                              | $V_{CEO}$ | 50         | V                |
| Emitter-Base Voltage                                   | $V_{EBO}$ | 5          | V                |
| Collector Power Dissipation ( $T_C=25^\circ\text{C}$ ) | $P_C$     | 750        | mW               |
| Collector Current                                      | $I_C$     | 150        | mA               |
| Base Current   | $I_B$     | 50         | mA               |
| Junction Temperature                                   | $T_J$     | +125       | $^\circ\text{C}$ |
| 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)

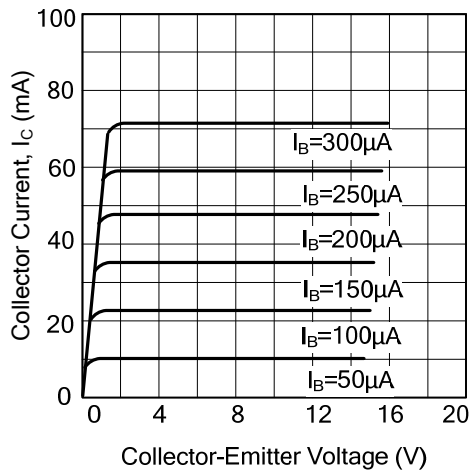
| PARAMETER                            | SYMBOL        | TEST CONDITIONS   | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|-----|-----|-----|------|
| Collector-Base Breakdown Voltage     | $BV_{CBO}$    | $I_C=100\mu\text{A}$ , $I_E=0$  | 60  |     |     | V    |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$    | $I_C=10\text{mA}$ , $I_B=0$   | 50  |     |     | V    |
| Collector Cut-Off Current            | $I_{CBO}$     | $V_{CB}=40\text{V}$ , $I_E=0$   |     |     | 100 | nA   |
| Emitter Cut-Off Current              | $I_{EBO}$     | $V_{EB}=3\text{V}$ , $I_C=0$  |     |     | 100 | nA   |
| DC Current Gain                      | $h_{FE}$      | $V_{CE}=6\text{V}$ , $I_C=1\text{mA}$   | 90  |     | 600 |      |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=100\text{mA}$ , $I_B=10\text{mA}$  |     | 0.1 | 0.3 | V    |
| Current Gain Bandwidth Product       | $f_T$         | $V_{CE}=10\text{V}$ , $I_C=50\text{mA}$   | 100 | 190 |     | MHz  |
| Output Capacitance                   | $C_{ob}$      | $V_{CB}=10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$                                       |     | 2.0 | 3.0 | pF   |
| Noise Figure                         | NF            | $I_C=-0.1\text{mA}$ , $V_{CE}=6\text{V}$<br>$R_G=10\text{k}\Omega$ , $f=100\text{Hz}$ |     | 4.0 | 6.0 | dB   |

■ CLASSIFICATION OF  $h_{FE}$

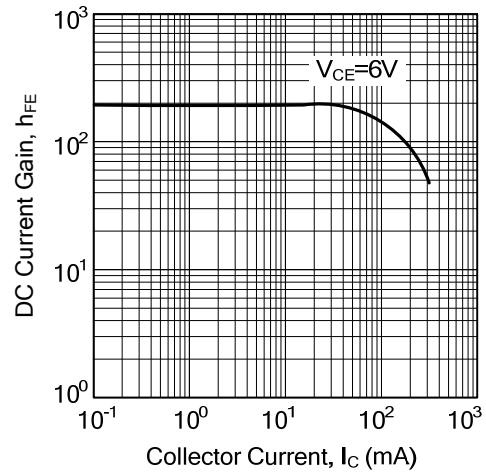
| RANK  | R      | Q       | P       | K       |
|-------|--------|---------|---------|---------|
| RANGE | 90-180 | 135-270 | 200-400 | 300-600 |

## TYPICAL CHARACTERISTICS

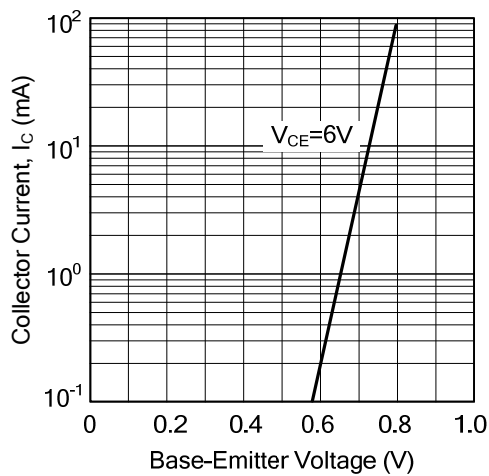
Static Characteristics



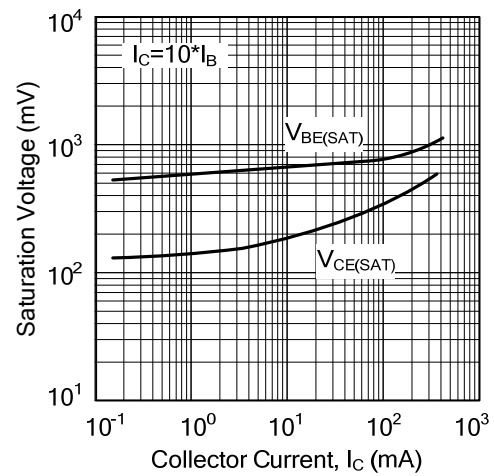
DC Current Gain



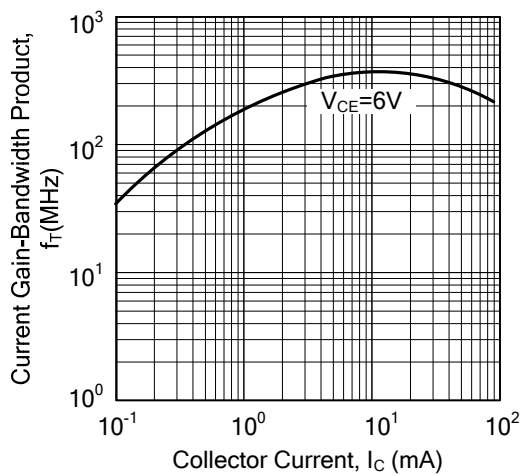
Base-Emitter on Voltage



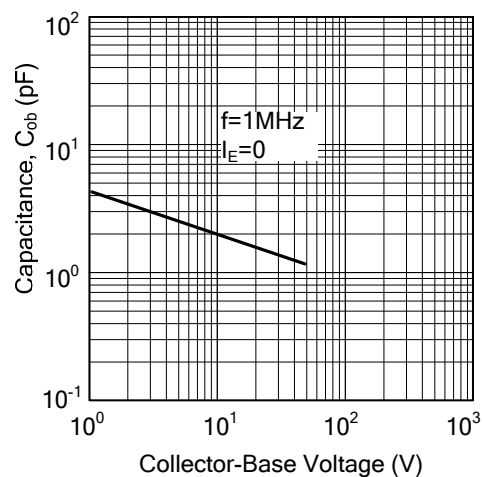
Saturation Voltage



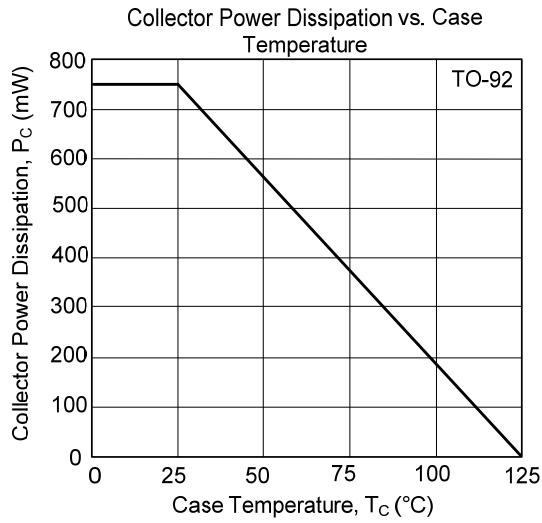
Current Gain-Bandwidth Product



Collector Output Capacitance



■ TYPICAL CHARACTERISTICS (Cont.)



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