



# 2SA733

## PNP SILICON TRANSISTOR

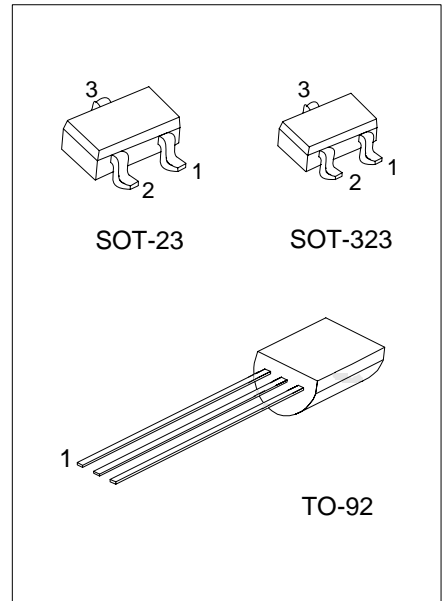
### LOW FREQUENCY AMPLIFIER PNP EPITAXIAL SILICON TRANSISTOR

#### DESCRIPTION

The UTC **2SA733** is a low frequency amplifier.

#### FEATURES

- \* Collector-emitter voltage:  
BV<sub>CBO</sub>=-50V
- \* Collector current up to -150mA
- \* High h<sub>FE</sub> linearity
- \* Complimentary to 2SC945



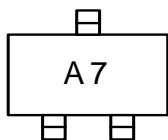
\*Pb-free plating product number:2SA733L

#### ORDERING INFORMATION

| Ordering Number |                   | Package | Pin Assignment |   |   | Packing   |
|-----------------|-------------------|---------|----------------|---|---|-----------|
| Normal          | Lead Free Plating |         | 1              | 2 | 3 |           |
| 2SA733-x-AE3-R  | 2SA733L-x-AE3-R   | SOT-23  | E              | B | C | Tape Reel |
| 2SA733-x-AL3-R  | 2SA733L-x-AL3-R   | SOT-323 | E              | B | C | Tape Reel |
| 2SA733-x-T92-B  | 2SA733L-x-T92-B   | TO-92   | E              | C | B | Tape Box  |
| 2SA733-x-T92-K  | 2SA733L-x-T92-K   | TO-92   | E              | C | B | Bulk      |

|   |   |
|---|---|
| <p>2SA733L-x-AE3-R</p> <p>(1)Packing Type<br/>(2)Package Type<br/>(3)Rank<br/>(4)Lead Plating</p> | <p>(1) B: Tape Box, K: Bulk, R: Tape Reel<br/>(2) AE3: SOT-23, AL3: SOT-323, T92: TO-92<br/>(3) x: refer to Classification of h<sub>FE</sub><br/>(4) L: Lead Free Plating, Blank: Pb/Sn</p> |
|---|---|

#### MARKING (For SOT Package)



■ ABSOLUTE MAXIMUM RATING (Ta=25 , unless otherwise specified)

| PARAMETER                 | SYMBOL           | RATINGS    | UNIT |
|---------------------------|------------------|------------|------|
| Collector-Base Voltage    | V <sub>CBO</sub> | -60        | V    |
| Collector-Emitter Voltage | V <sub>CEO</sub> | -50        | V    |
| Emitter-Base Voltage      | V <sub>EBO</sub> | -5         | V    |
| Collector Dissipation     | SOT-23/SOT-323   | 250        | mW   |
|                           | TO-92            | 1          | W    |
| Collector Current         | I <sub>C</sub>   | -150       | mA   |
| Junction Temperature      | T <sub>J</sub>   | 125        |      |
| Storage Temperature       | T <sub>STG</sub> | -55 ~ +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 <sub>CBO</sub>    | I <sub>C</sub> =-100μA, I <sub>E</sub> =0                                     | -60 |      |      | V    |
| Collector-Emitter Breakdown Voltage  | BV <sub>CEO</sub>    | I <sub>C</sub> =-10mA, I <sub>B</sub> =0                                      | -50 |      |      | V    |
| Collector-Emitter Saturation Voltage | V <sub>CE(SAT)</sub> | I <sub>C</sub> =-100mA, I <sub>B</sub> =-10mA                                 |     | -0.1 | -0.3 | V    |
| Collector Cut-Off Current            | I <sub>CBO</sub>     | V <sub>CB</sub> =-40V, I <sub>E</sub> =0                                      |     |      | -100 | nA   |
| Emitter Cut-Off Current              | I <sub>EBO</sub>     | V <sub>EB</sub> =-3V, I <sub>C</sub> =0                                       |     |      | -100 | nA   |
| DC Current Gain                      | h <sub>FE</sub>      | V <sub>CE</sub> =-6V, I <sub>C</sub> =-1mA                                    | 90  |      | 600  |      |
| Current Gain Bandwidth Product       | f <sub>T</sub>       | V <sub>CE</sub> =-10V, I <sub>C</sub> =-50mA                                  | 100 | 190  |      | MHz  |
| Output Capacitance                   | C <sub>ob</sub>      | V <sub>CB</sub> =-10V, I <sub>E</sub> =0, f=1MHz                              |     | 2.0  | 3.0  | pF   |
| Noise Figure                         | NF                   | I <sub>C</sub> =-0.1mA, V <sub>CE</sub> =-6V<br>R <sub>G</sub> =10kΩ, f=100Hz |     | 4.0  | 6.0  | dB   |

■ CLASSIFICATION OF h<sub>FE</sub>

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

## ■ TYPICAL CHARACTERISTICS

Fig.1 Static Characteristics

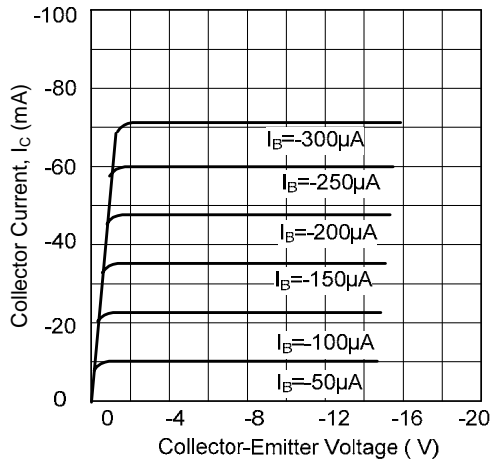


Fig.2 DC Current Gain

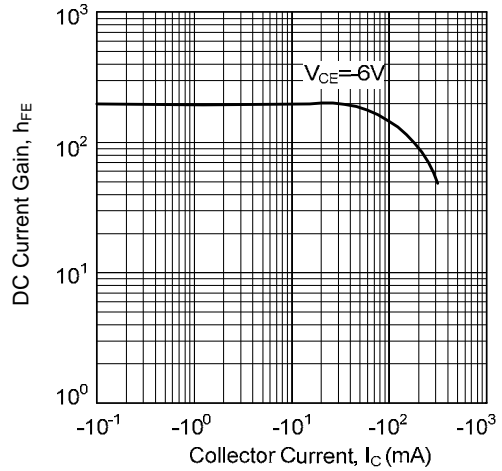


Fig.3 Base-Emmitter on Voltage

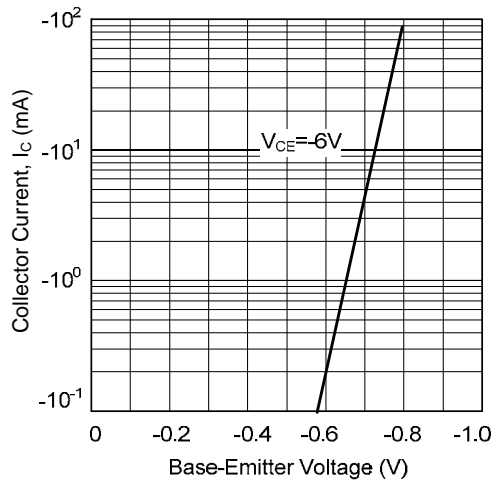


Fig.4 Saturation Voltage

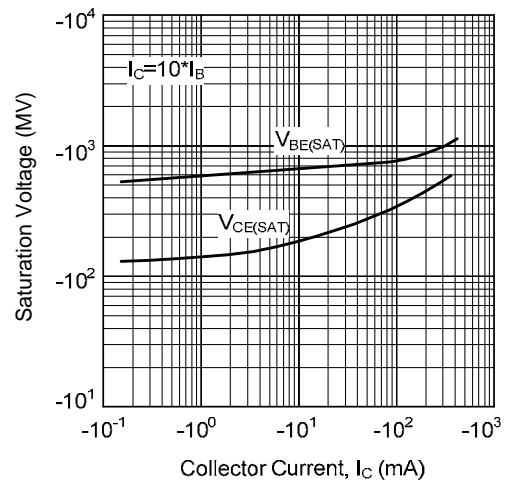


Fig.5 Current Gain-Bandwidth Product

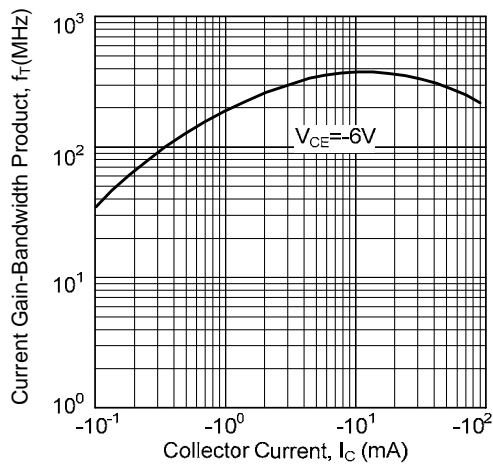
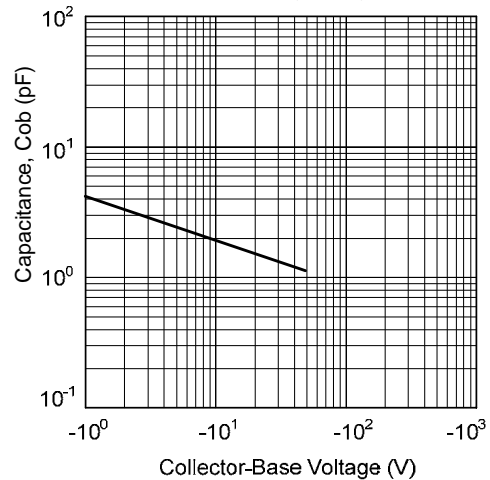


Fig.6 Collector Output Capacitance



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