



## 2SA733

### PNP SILICON TRANSISTOR

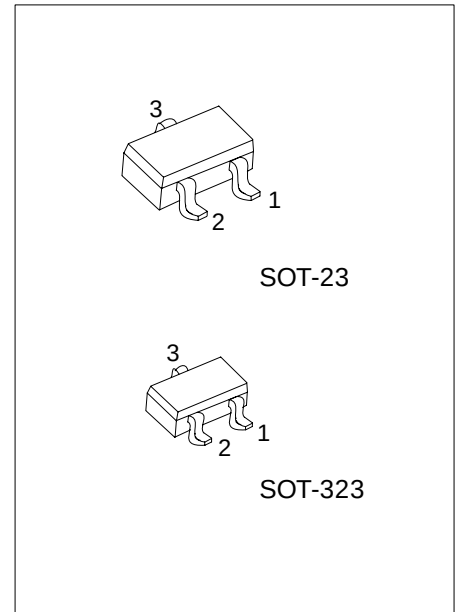
## LOW FREQUENCY AMPLIFIER PNP EPITAXIAL SILICON TRANSISTOR

### DESCRIPTION

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

### FEATURES

- \* Collector-Emitter voltage:  
 $BV_{CE0} = -50V$
- \* Collector current up to -150mA
- \* High  $h_{FE}$  linearity
- \* Complimentary to 2SC945



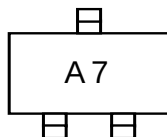
\*Pb-free plating product number:2SA733L

### ORDERING INFORMATION

| Order Number   |                   | Package | Pin Assignment |   |   | Packing   |
|----------------|-------------------|---------|----------------|---|---|-----------|
| Normal         | Lead Free Plating |         | 1              | 2 | 3 |           |
| 2SA733-x-AE3-R | 2SA733L-x-AE3-R   | SOT-23  | E              | C | B | Tape Reel |
| 2SA733-x-AL3-R | 2SA733L-x-AL3-R   | SOT-323 | E              | C | B | Tape Reel |

|                 |                                                                  |                                                                                                                                           |
|-----------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 2SA733L-x-AE3-R | (1)Packing Type<br>(2)Package Type<br>(3)Rank<br>(4)Lead Plating | (1) R: Tape Reel<br>(2) AE3: SOT-23, AL3: SOT-323<br>(3) x: refer to Classification of $h_{FE}$<br>(4) L: Lead Free Plating, Blank: Pb/Sn |
|-----------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|

### MARKING



■ ABSOLUTE MAXIMUM RATING (Ta=25°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    |
| Collector Dissipation(Ta=25°C) | $P_C$     | 250        | mW   |
| Collector Current              | $I_C$     | -150       | mA   |
| Junction Temperature           | $T_J$     | 125        | °C   |
| Storage Temperature            | $T_{STG}$ | -55 ~ +150 | °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 (Ta=25°C, unless otherwise specified)

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

Fig.1 Static Characteristics

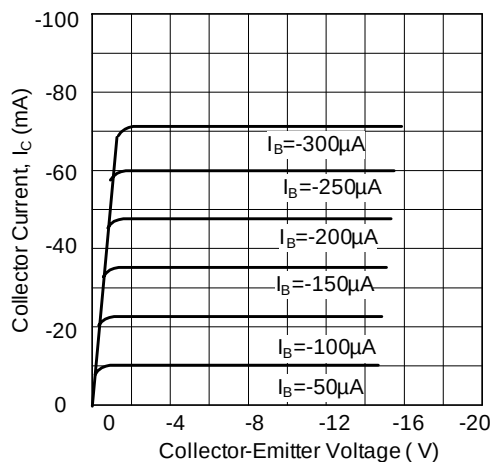


Fig.2 DC Current Gain

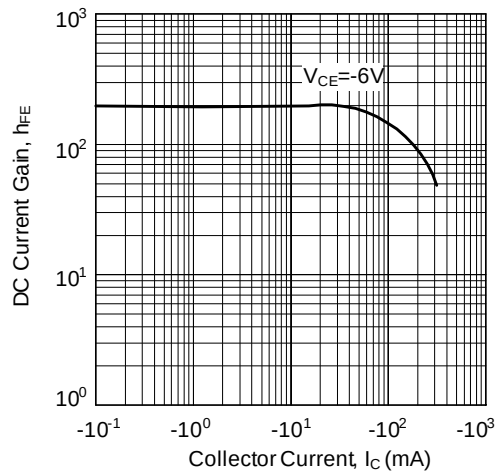


Fig.3 Base-Emitter on Voltage

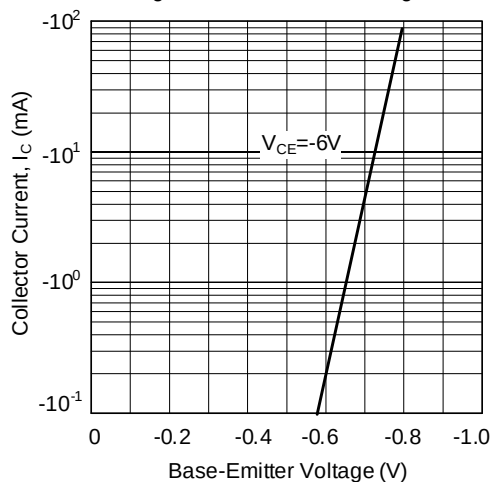


Fig.4 Saturation Voltage

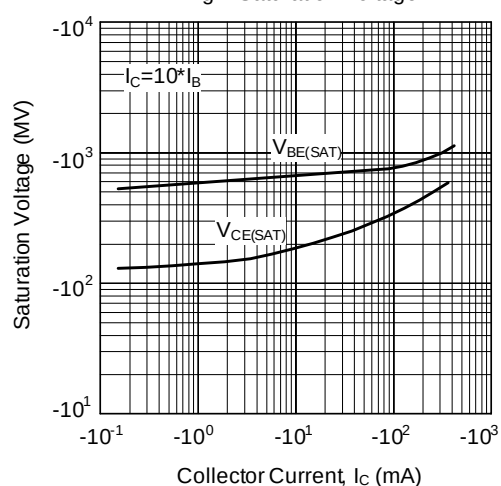


Fig.5 Current Gain-Bandwidth Product

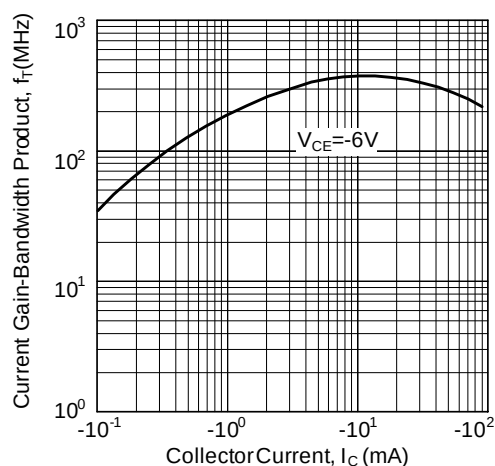
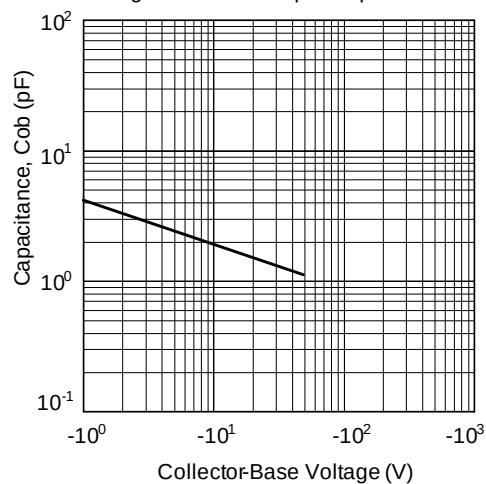


Fig.6 Collector Output Capacitance



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