

## Features

- A collector current is large.
- Collector saturation voltage is low.

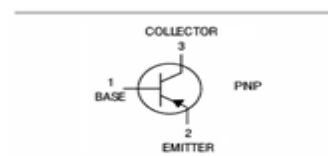
HF

## Applications

- For switching, for muting.

## Mechanical Data

- Case: SOT-23.
- Molding compound, UL flammability classification rating 94V-0.
- Terminals: Matte tin plated leads, solderable per MIL-STD-202, Method 208.



SOT-23

## Ordering Information

| Part Number | Package | Shipping               | Marking Code |
|-------------|---------|------------------------|--------------|
| 2SA2119K    | SOT-23  | 3000 pcs / Tape & Reel | T146         |

## Maximum Ratings (@T<sub>A</sub>=25°C unless otherwise specified)

| Symbol                        | Parameter                              | Value       | Units |
|-------------------------------|----------------------------------------|-------------|-------|
| <b>MAXIMUM RATINGS</b>        |                                        |             |       |
| V <sub>CBO</sub>              | Collector-Base Voltage                 | -15         | V     |
| V <sub>CEO</sub>              | Collector-Emitter Voltage              | -12         | V     |
| V <sub>EBO</sub>              | Emitter-Base Voltage                   | -6          | V     |
| I <sub>C</sub>                | Collector Current - Continuous         | 0.5         | A     |
| <b>Thermal Characteristic</b> |                                        |             |       |
| P <sub>D</sub>                | Power Dissipation T <sub>a</sub> =25°C | 200         | mW    |
| T <sub>J</sub>                | Junction Temperature                   | 150         | °C    |
| T <sub>STG</sub>              | Junction and Storage Temperature       | -55 to +150 | °C    |

## Electrical Characteristics (@T<sub>A</sub>=25°C unless otherwise specified)

| Parameter                                     | Symbol               | Test conditions                                        | MIN | TYP  | MAX   | UNIT |
|-----------------------------------------------|----------------------|--------------------------------------------------------|-----|------|-------|------|
| Collector-base breakdown voltage              | V <sub>(BR)CBO</sub> | I <sub>C</sub> =-10μA, I <sub>E</sub> =0               | -15 | -    | -     | V    |
| Collector-emitter breakdown voltage           | V <sub>(BR)CEO</sub> | I <sub>C</sub> =-1mA, I <sub>B</sub> =0                | -12 | -    | -     | V    |
| Emitter-base breakdown voltage                | V <sub>(BR)EBO</sub> | I <sub>E</sub> =-10μA, I <sub>C</sub> =0               | -6  | -    | -     | V    |
| Collector cut-off current                     | I <sub>CBO</sub>     | V <sub>CB</sub> =-15V, I <sub>E</sub> =0               | -   | -    | -100  | nA   |
| Emitter cut-off current                       | I <sub>EBO</sub>     | I <sub>C</sub> =0, V <sub>EB</sub> =-6V                | -   | -    | -100  | nA   |
| DC Current Gain                               | h <sub>FE</sub>      | V <sub>CE</sub> = -2V, I <sub>C</sub> = -10mA          | 270 | -    | 680   | -    |
| Collector-Emitter Saturation Voltage (Note 2) | V <sub>CE(sat)</sub> | I <sub>C</sub> =-50mA, I <sub>B</sub> =-5mA            | -   | -0.1 | -0.25 | V    |
| Transition frequency                          | f <sub>T</sub>       | V <sub>CE</sub> =-2V, I <sub>E</sub> =10mA<br>f=100MHz | -   | 260  | -     | MHz  |
| Collector output capacitance                  | C <sub>obo</sub>     | V <sub>CB</sub> =-10V, f=1MHz                          | -   | 6.5  | -     | pF   |

Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

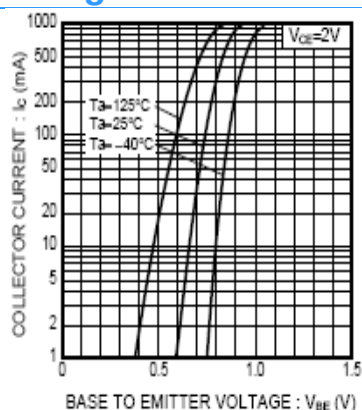


Fig.1 Grounded Emitter Propagation Characteristics

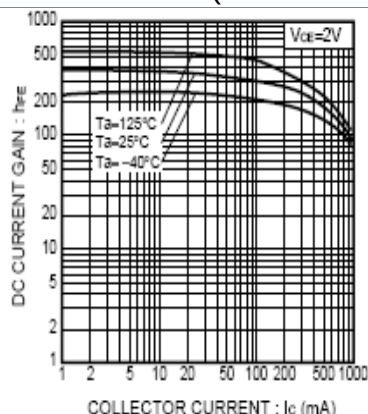


Fig.2 DC Current Gain vs. Collector Current

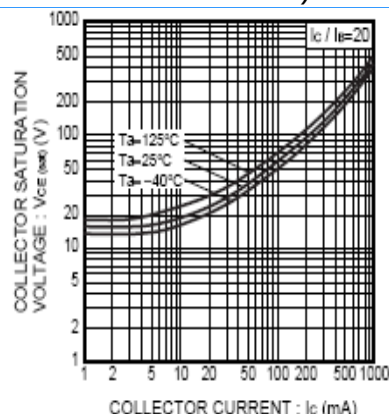


Fig.3 Collector-Emitter Saturation Voltage vs. Collector Current (I)

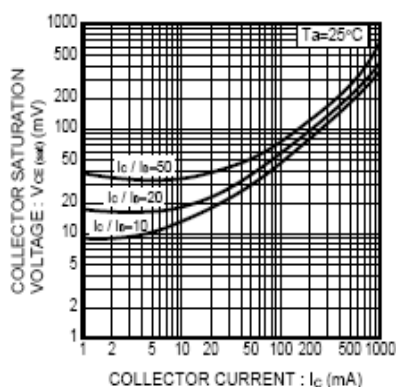


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (II)

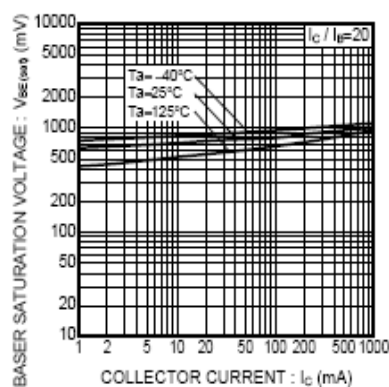


Fig.5 Base-Emitter Saturation Voltage vs. Collector Current

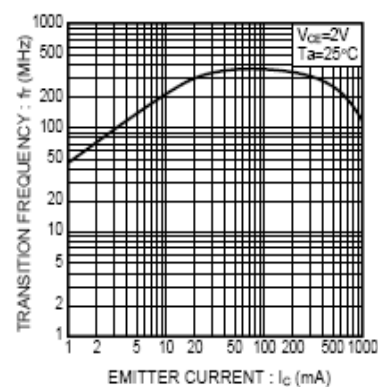


Fig.6 Gain Bandwidth Product vs. Emitter Current

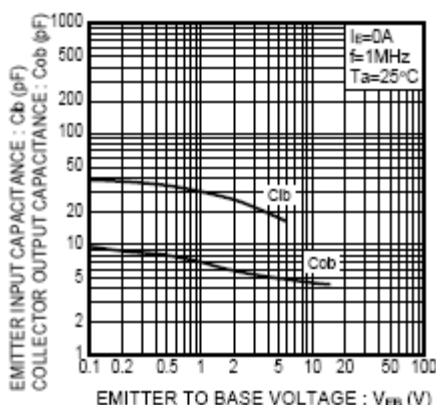
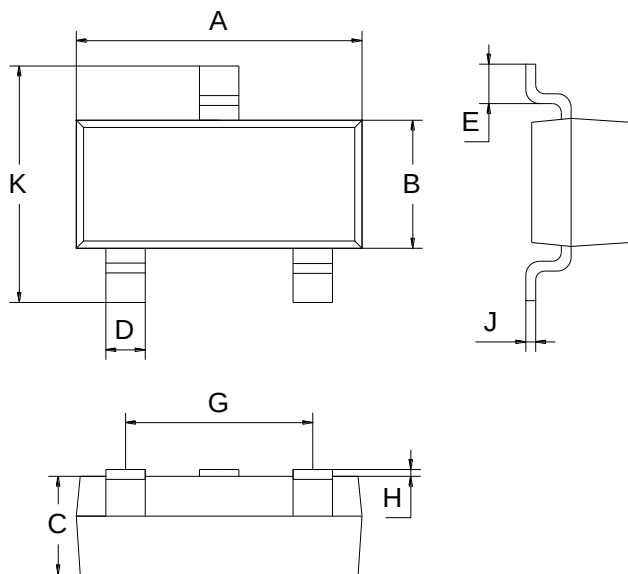


Fig.7 Collector Output Capacitance vs. Collector-Base Voltage  
Emitter Input Capacitance vs. Emitter-Base Voltage

Package Outline Dimensions (unit: mm)

SOT-23



| SOT-23 |      |      |
|--------|------|------|
| Dim    | Min  | Max  |
| A      | 2.70 | 3.10 |
| B      | 1.10 | 1.50 |
| C      | 0.9  | 1.1  |
| D      | 0.3  | 0.5  |
| E      | 0.35 | 0.48 |
| G      | 1.80 | 2.00 |
| H      | 0.02 | 0.1  |
| J      | 0.05 | 0.15 |
| K      | 2.20 | 2.60 |

SOLDERING FOOTPRINT (unit: mm)

SOT-23

