



**2SA1694**

**PNP EPITAXIAL SILICON TRANSISTOR**

**SILICON PNP EPITAXIAL PLANAR TRANSISTOR**

■ DESCRIPTION

The UTC **2SA1694** is a silicon PNP epitaxial planar transistor, it uses UTC's advanced technology to provide the customers with high DC current gain and high collector-base breakdown voltage, etc.

The UTC **2SA1694** is suitable for audio and general purpose, etc.

■ FEATURES

- \* High DC current gain
- \* High collector-base breakdown voltage

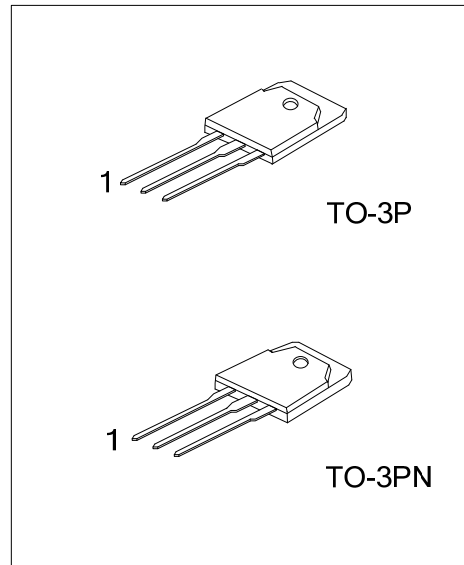
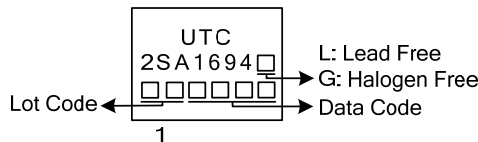
■ ORDERING INFORMATION

| Ordering Number  |                  | Package | Pin Assignment |   |   | Packing |
|------------------|------------------|---------|----------------|---|---|---------|
| Lead Free        | Halogen Free     |         | 1              | 2 | 3 |         |
| 2SA1694L-x-T3P-T | 2SA1694G-x-T3P-T | TO-3P   | B              | C | E | Tube    |
| 2SA1694L-x-T3N-T | 2SA1694G-x-T3N-T | TO-3PN  | B              | C | E | Tube    |

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

|                         |   |
|-------------------------|---|
| <p>2SA1694L-x-T3P-T</p> | <p>(1) T: Tube<br/>                 (2) T3P: TO-3P, T3N: TO-3PN<br/>                 (3) x: reference to Classification of <math>h_{FE}</math><br/>                 (4) L: Lead Free, G: Halogen Free and Lead Free</p> |
|-------------------------|---|

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

| PARAMETER  | SYMBOL    | RATINGS  | UNIT             |
|--|-----------|----------|------------------|
| Collector-Base Voltage                                 | $V_{CBO}$ | -120     | V                |
| Collector-Emitter Voltage                              | $V_{CEO}$ | -120     | V                |
| Emitter-Base Voltage                                   | $V_{EBO}$ | -6       | V                |
| Collector Current                                      | $I_C$     | -8       | A                |
| Base Current   | $I_B$     | -3       | A                |
| Collector Power Dissipation ( $T_C=25^\circ\text{C}$ ) | $P_C$     | 80       | W                |
| Junction Temperature                                   | $T_J$     | 150      | $^\circ\text{C}$ |
| 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.

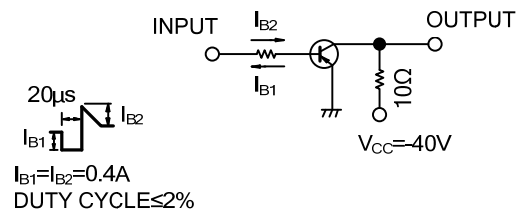
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

| PARAMETER                            | SYMBOL        | TEST CONDITIONS   | MIN  | TYP  | MAX  | UNIT          |
|--------------------------------------|---------------|---|------|------|------|---------------|
| Collector Cut-Off Current            | $I_{CBO}$     | $V_{CB}=-120\text{V}$   |      |      | -10  | $\mu\text{A}$ |
| Emitter Cut-Off Current              | $I_{EBO}$     | $V_{EB}=-6\text{V}$   |      |      | -10  | $\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$    | $I_C=-50\text{mA}$  | -120 |      |      | V             |
| DC Current Gain                      | $h_{FE}$      | $V_{CE}=-4\text{V}$ , $I_C=-3\text{A}$  | 50   |      | 180  |               |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=-3\text{A}$ , $I_B=-0.3\text{A}$   |      |      | -1.5 | V             |
| Current Gain Bandwidth Product       | $f_T$         | $V_{CE}=-12\text{V}$ , $I_E=0.5\text{A}$  |      | 20   |      | MHz           |
| Output Capacitance                   | $C_{ob}$      | $V_{CB}=-10\text{V}$ , $f=1\text{MHz}$  |      | 300  |      | pF            |
| Switching time                       | Turn-on time  | $V_{CC}=-40\text{V}$ , $R_L=10\Omega$ , $I_C=-4\text{A}$ ,<br>$I_{B1}=0.4\text{A}$ $I_{B2}=0.4\text{A}$ |      | 0.14 |      | $\mu\text{S}$ |
|                                      | Storage time  |   |      | 1.40 |      | $\mu\text{S}$ |
|                                      | Fall time     |   |      | 0.21 |      | $\mu\text{S}$ |

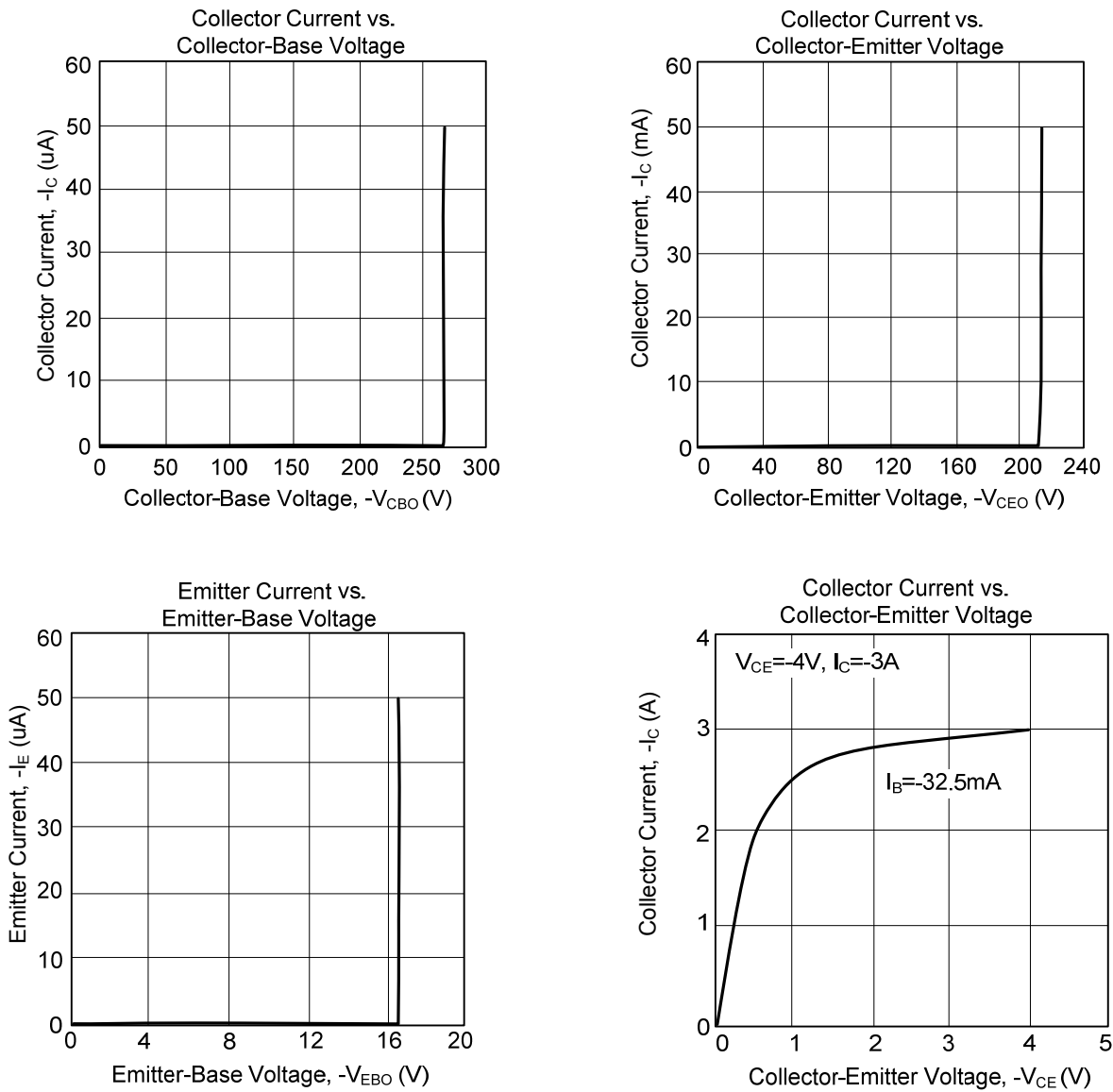
■ CLASSIFICATION OF  $h_{FE}$

| RANK  | O      | P      | Y      |
|-------|--------|--------|--------|
| RANGE | 50~100 | 70~140 | 90~180 |

### ■ TEST CIRCUIT



## ■ TYPICAL CHARACTERISTICS



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