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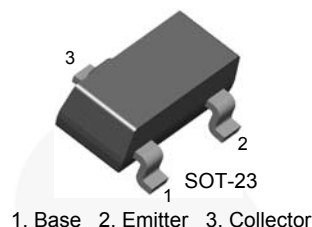
February 2015

# KST2907A

## PNP Epitaxial Silicon Transistor

### Features

- General-Purpose Transistor



### Ordering Information

| Part Number | Marking | Package   | Packing Method |
|-------------|---------|-----------|----------------|
| KST2907AMTF | 2F      | SOT-23 3L | Tape and Reel  |

### Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol    | Parameter                 | Value | Unit             |
|-----------|---------------------------|-------|------------------|
| $V_{CBO}$ | Collector-Base Voltage    | -60   | V                |
| $V_{CEO}$ | Collector-Emitter Voltage | -60   | V                |
| $V_{EBO}$ | Emitter-Base Voltage      | -5    | V                |
| $I_C$     | Collector Current         | -600  | mA               |
| $T_{STG}$ | Storage Temperature       | 150   | $^\circ\text{C}$ |

### Thermal Characteristics<sup>(1)</sup>

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter                               | Max. | Unit                 |
|-----------------|-----------------------------------------|------|----------------------|
| $P_D$           | Total Device Dissipation                | 350  | mW                   |
|                 | Derate Above $25^\circ\text{C}$         | 2.8  | mW/ $^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 357  | $^\circ\text{C/W}$   |

#### Note:

1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol        | Parameter                                           | Conditions                                                                       | Min. | Max.  | Unit          |
|---------------|-----------------------------------------------------|----------------------------------------------------------------------------------|------|-------|---------------|
| $BV_{CBO}$    | Collector-Base Breakdown Voltage                    | $I_C = -10\ \mu\text{A}, I_E = 0$                                                | -60  |       | V             |
| $BV_{CEO}$    | Collector-Emitter Breakdown Voltage <sup>(2)</sup>  | $I_C = -10\ \text{mA}, I_B = 0$                                                  | -60  |       | V             |
| $BV_{EBO}$    | Emitter-Base Breakdown Voltage                      | $I_E = -10\ \mu\text{A}, I_C = 0$                                                | -5   |       | V             |
| $I_{CBO}$     | Collector Cut-Off Current                           | $V_{CB} = -50\ \text{V}, I_E = 0$                                                |      | -0.01 | $\mu\text{A}$ |
| $h_{FE}$      | DC Current Gain                                     | $V_{CE} = -10\ \text{V}, I_C = -0.1\ \text{mA}$                                  | 75   |       |               |
|               |                                                     | $V_{CE} = -10\ \text{V}, I_C = -1.0\ \text{mA}$                                  | 100  |       |               |
|               |                                                     | $V_{CE} = -10\ \text{V}, I_C = -10\ \text{mA}$                                   | 100  |       |               |
|               |                                                     | $V_{CE} = -10\ \text{V}, I_C = -150\ \text{mA}^{(2)}$                            | 100  | 300   |               |
|               |                                                     | $V_{CE} = -10\ \text{V}, I_C = -500\ \text{mA}^{(2)}$                            | 50   |       |               |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage <sup>(2)</sup> | $I_C = -150\ \text{mA}, I_B = -15\ \text{mA}$                                    |      | -0.4  | V             |
|               |                                                     | $I_C = -500\ \text{mA}, I_B = -50\ \text{mA}$                                    |      | -1.6  |               |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage <sup>(2)</sup>      | $I_C = -150\ \text{mA}, I_B = -15\ \text{mA}$                                    |      | -1.3  | V             |
|               |                                                     | $I_C = -500\ \text{mA}, I_B = -50\ \text{mA}$                                    |      | -2.6  |               |
| $f_T$         | Current Gain Bandwidth Product                      | $I_C = -50\ \text{mA}, V_{CE} = -20\ \text{V}, f = 100\ \text{MHz}$              | 200  |       | MHz           |
| $C_{ob}$      | Output Capacitance                                  | $V_{CB} = -10\ \text{V}, I_E = 0, f = 1.0\ \text{MHz}$                           |      | 8     | pF            |
| $t_{ON}$      | Turn-On Time                                        | $V_{CC} = -30\ \text{V}, I_C = -150\ \text{mA}, I_{B1} = -15\ \text{mA}$         |      | 50    | ns            |
| $t_{OFF}$     | Turn-Off Time                                       | $V_{CC} = -6\ \text{V}, I_C = -150\ \text{mA}, I_{B1} = I_{B2} = -15\ \text{mA}$ |      | 110   | ns            |

### Note:

2. Pulse test: pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2.0\%$ .

## Typical Performance Characteristics

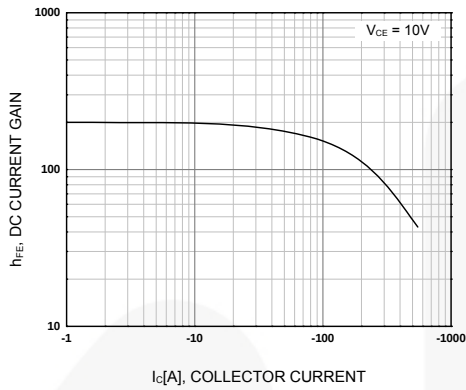


Figure 1. DC Current Gain

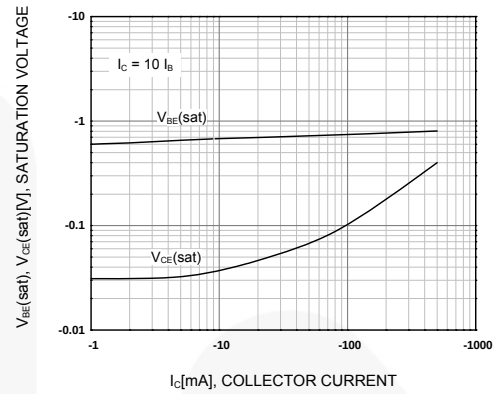


Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

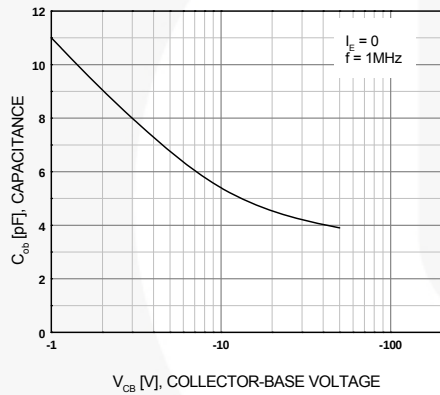


Figure 3. Output Capacitance

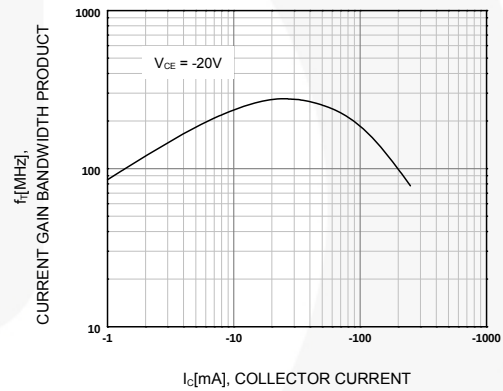


Figure 4. Current Gain Bandwidth Product

## Physical Dimensions

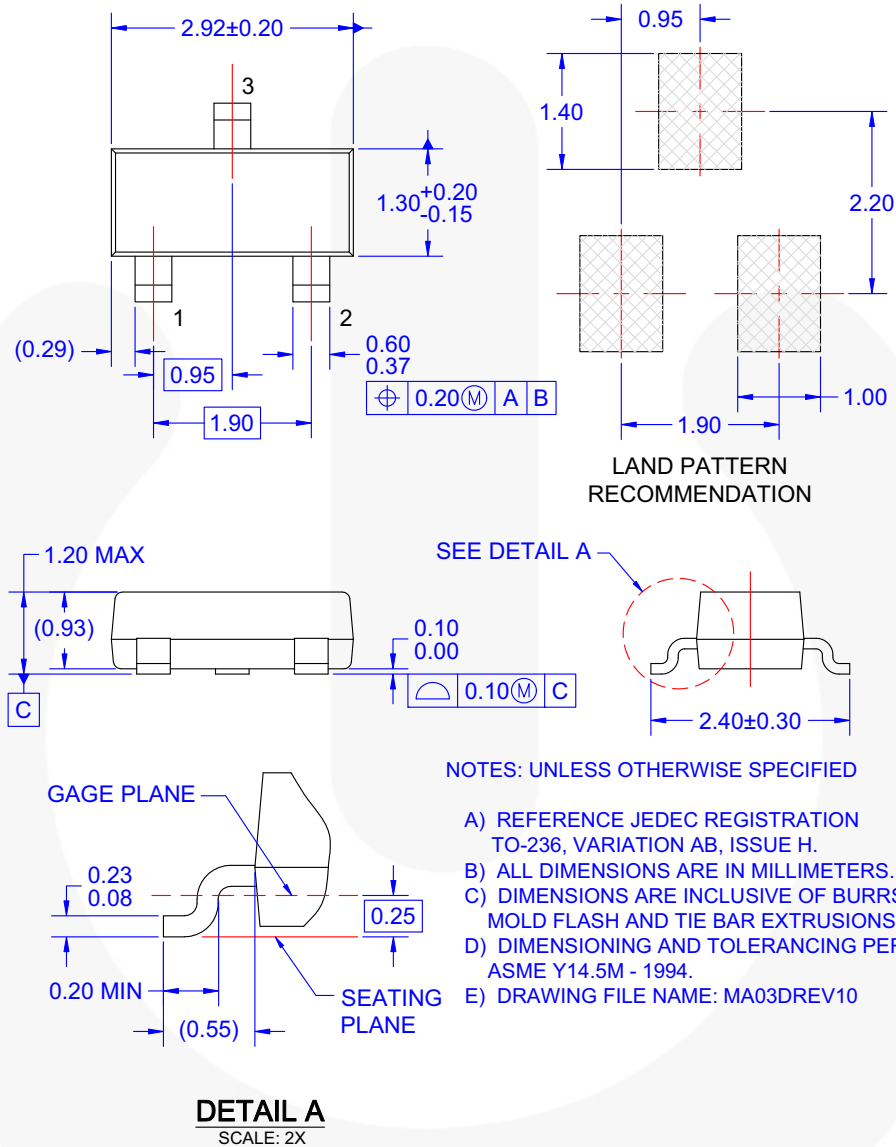


Figure 5. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE



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