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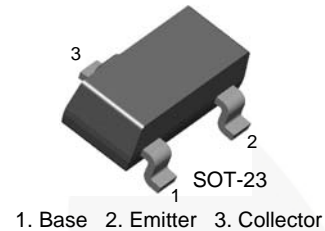
July 2014

# KST92

## PNP Epitaxial Silicon Transistor

### Features

- High-Voltage Transistor



### Ordering Information

| Part Number | Marking | Package   | Packing Method |
|-------------|---------|-----------|----------------|
| KST92MTF    | 2D      | 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                 | -300        | V                |
| $V_{CEO}$      | Collector-Emitter Voltage              | -300        | V                |
| $V_{EBO}$      | Emitter-Base Voltage                   | -5          | V                |
| $I_C$          | Collector Current - Continuous         | -500        | mA               |
| $T_J, T_{STG}$ | Junction and Storage Temperature Range | -55 to +150 | $^\circ\text{C}$ |

### Thermal Characteristics

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

| Symbol          | Parameter                               | Max. | Unit               |
|-----------------|---|------|--------------------|
| $P_C$           | Collector Power Dissipation             | 350  | mW                 |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357  | $^\circ\text{C/W}$ |

## Electrical Characteristics

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

| Symbol        | Parameter   | Conditions   | Min. | Max.  | Unit          |
|---------------|---|--|------|-------|---------------|
| $V_{CBO}$     | Collector-Base Breakdown Voltage                    | $I_C = -100\ \mu\text{A}, I_E = 0$                                       | -300 |       | V             |
| $V_{CEO}$     | Collector-Emitter Breakdown Voltage <sup>(1)</sup>  | $I_C = -1\ \text{mA}, I_B = 0$   | -300 |       | V             |
| $V_{EBO}$     | Emitter-Base Breakdown Voltage                      | $I_E = -100\ \mu\text{A}, I_C = 0$                                       | -5   |       | V             |
| $I_{CBO}$     | Collector Cut-Off Current                           | $V_{CB} = -200\ \text{V}, I_E = 0$                                       |      | -0.25 | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter Cut-Off Current                             | $V_{EB} = -5\ \text{V}, I_C = 0$   |      | -0.1  | $\mu\text{A}$ |
| $h_{FE}$      | DC Current Gain <sup>(1)</sup>                      | $V_{CE} = -10\ \text{V}, I_C = -1\ \text{mA}$                            | 25   |       |               |
|               |   | $V_{CE} = -10\ \text{V}, I_C = -10\ \text{mA}$                           | 40   |       |               |
|               |   | $V_{CE} = -10\ \text{V}, I_C = -30\ \text{mA}$                           | 25   |       |               |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage <sup>(1)</sup> | $I_C = -20\ \text{mA}, I_B = -2\ \text{mA}$                              |      | -0.5  | V             |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage <sup>(1)</sup>      | $I_C = -20\ \text{mA}, I_B = -2\ \text{mA}$                              |      | -0.9  | V             |
| $C_{ob}$      | Output Capacitance                                  | $V_{CB} = -20\ \text{V}, I_E = 0,$<br>$f = 1\ \text{MHz}$                |      | 6     | pF            |
| $f_T$         | Current Gain Bandwidth Product                      | $V_{CE} = -20\ \text{V}, I_C = -10\ \text{mA},$<br>$f = 100\ \text{MHz}$ | 50   |       | MHz           |

**Note:**

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

## Typical Performance Characteristics

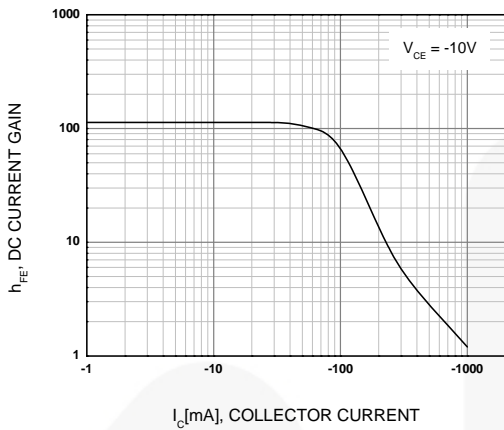


Figure 1. DC Current Gain

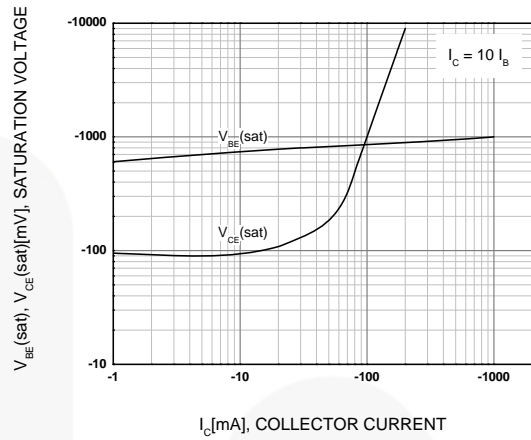


Figure 2. Saturation Voltage

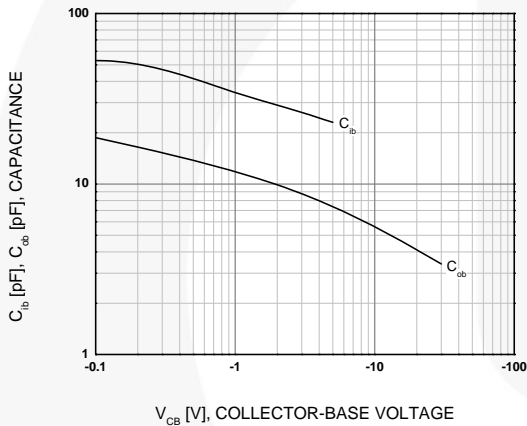


Figure 3. Capacitance

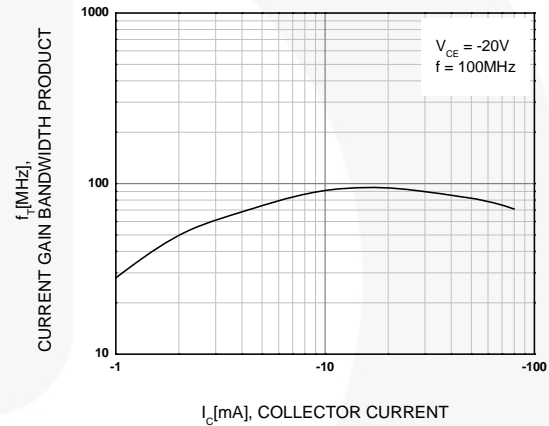


Figure 4. Current Gain Bandwidth Product

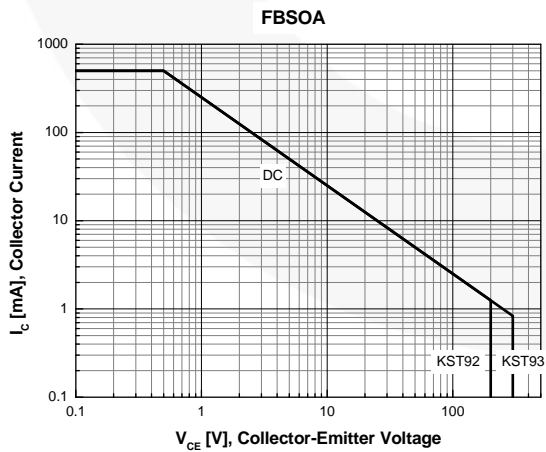
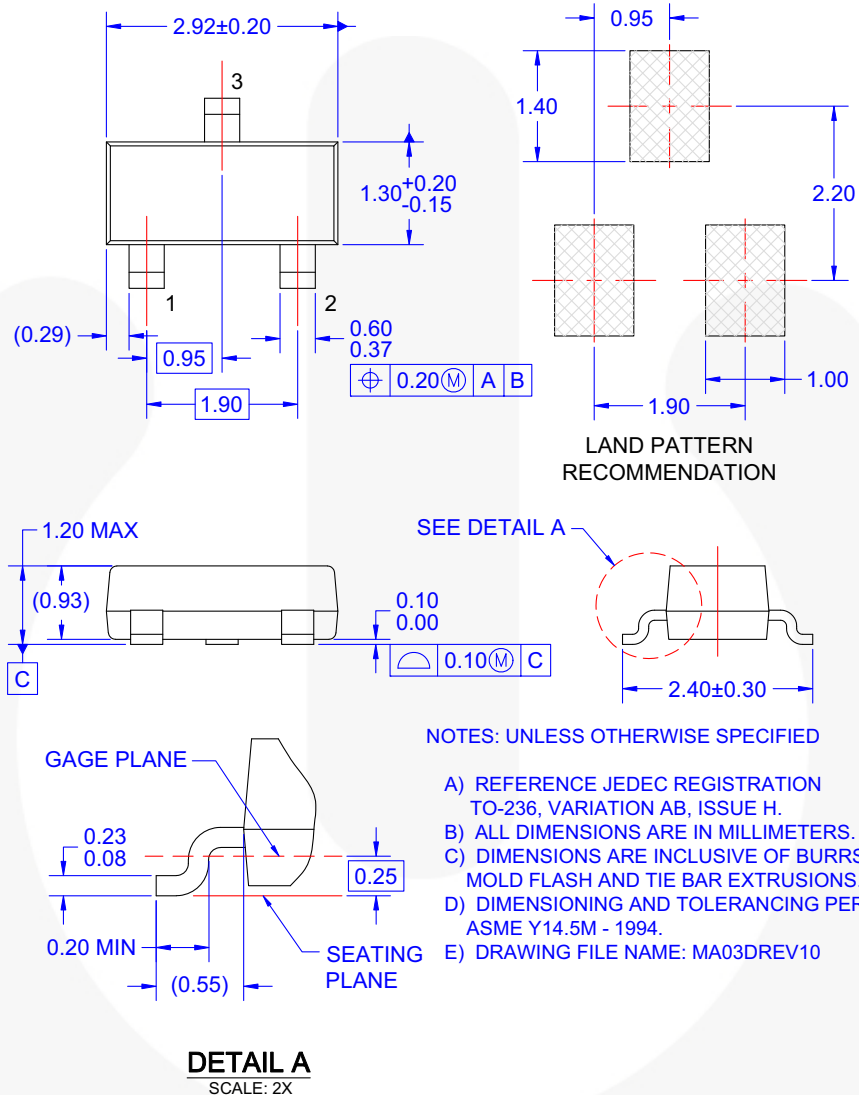


Figure 5. Active-Region Safe Operating Area

## Physical Dimensions



**Figure 6. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE (ACTIVE)**

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