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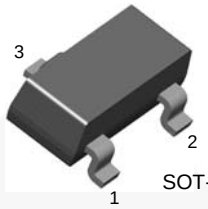
October 2014

# KST10
# NPN Epitaxial Silicon Transistor

## Features

- VHF / UHF Transistor




SOT-23

1. Base 2. Emitter 3. Collector

## Ordering Information

| Part Number | Marking | Package | Packing Method |
|---|---|---|---|
| KST10MTF | 3E | SOT-23 3L | Tape and Reel |

## Absolute Maximum Ratings(1)

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°C unless otherwise noted.

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 30 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 25 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 3 | V |
| $T_{STG}$ | Storage Temperature | 150 | °C |

**Note:**

1. Refer to KSP10 for graphs.

## Thermal Characteristics(2)

Values are at $T_A$ = 25°C unless otherwise noted.

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $P_D$ | Power Dissipation | 350 | mW |
| | Derate Above 25°C | 2.8 | mW/°C |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 357 | °C/W |

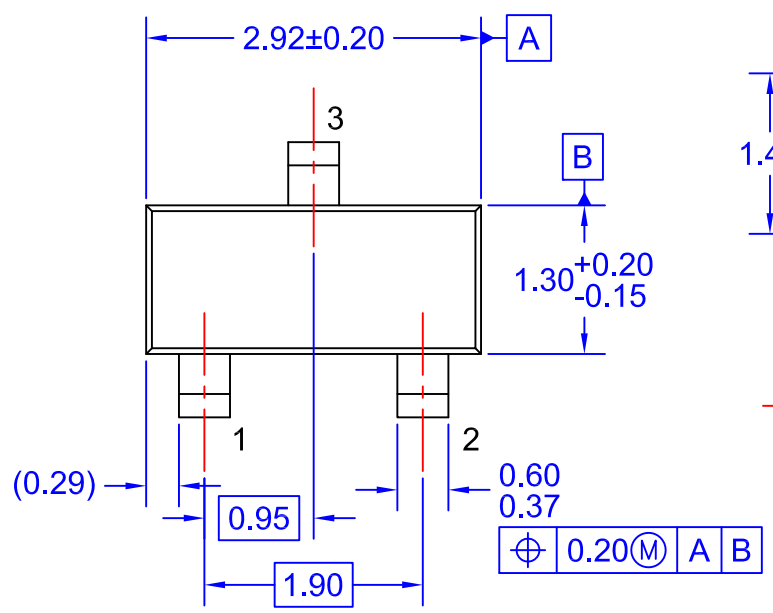
**Note:**

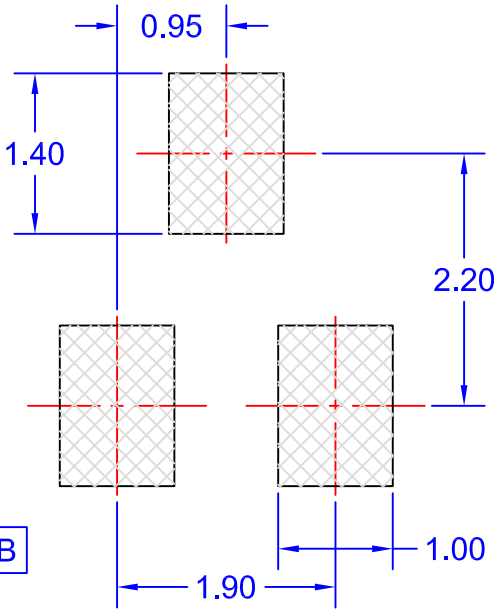
2. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

## Electrical Characteristics

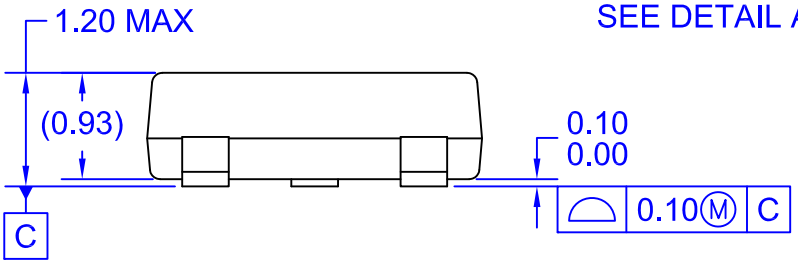
Values are at $T_A$ = 25°C unless otherwise noted.

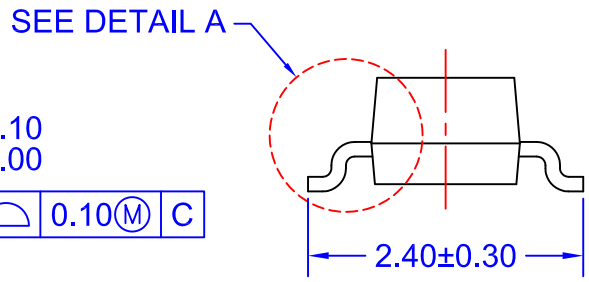
| Symbol | Parameter | Conditions | Min. | Max. | Unit |
|---|---|---|---|---|---|
| $BV_{CBO}$ | Collector-Base Breakdown Voltage | $I_C$ = 100 μA, $I_E$ = 0 | 30 | | V |
| $BV_{CEO}$ | Collector-Emitter Breakdown Voltage | $I_C$ = 1 mA, $I_B$ = 0 | 25 | | V |
| $BV_{EBO}$ | Emitter-Base Breakdown Voltage | $I_E$ = 10 μA, $I_C$ = 0 | 3 | | V |
| $I_{CBO}$ | Collector Cut-Off Current | $V_{CB}$ = 25 V, $I_E$ = 0 | | 100 | nA |
| $I_{EBO}$ | Emitter Cut-Off Current | $V_{EB}$ = 2 V, $I_C$ = 0 | | 100 | nA |
| $h_{FE}$ | DC Current Gain | $V_{CE}$ = 10 V, $I_C$ = 4 mA | 60 | | |
| $V_{CE}$(sat) | Collector-Emitter Saturation Voltage | $I_C$ = 4 mA, $I_B$ = 0.4 mA | | 0.5 | V |
| $V_{BE}$(on) | Base-Emitter On Voltage | $V_{CE}$ = 10 V, $I_C$ = 4 mA | | 0.95 | V |
| $f_T$ | Current Gain Bandwidth Product | $V_{CE}$ = 10 V, $I_C$ = 4 mA, f = 100 MHz | 650 | | MHz |
| $C_{ob}$ | Output Capacitance | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1 MHz | | 0.7 | pF |
| $C_{rb}$ | Common-Base Feedback Capacitance | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1 MHz | | 0.65 | pF |
| $C_{c\cdot rbb'}$ | Collector-Base Time Constant | $V_{CB}$ = 10 V, $I_C$ = 4 mA, f = 31.8 MHz | | 9 | pF |

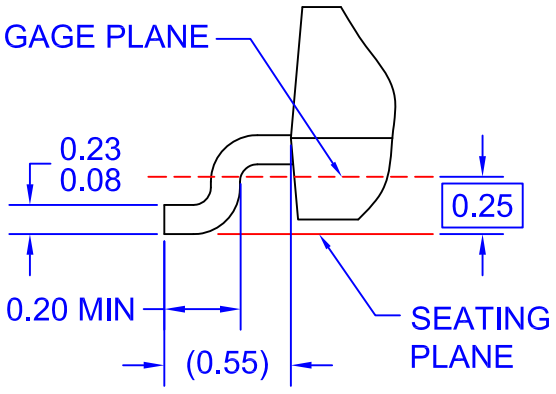



LAND PATTERN
RECOMMENDATION




DETAIL A
SCALE: 2X

NOTES: UNLESS OTHERWISE SPECIFIED

A) REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE H.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONS ARE INCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.
D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M - 2009.
E) DRAWING FILE NAME: MA03DREV12

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