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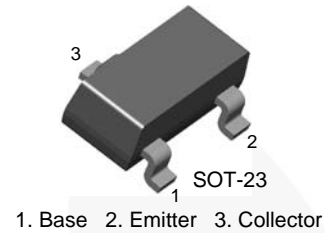


July 2014

# KST42 / KST43 NPN Epitaxial Silicon Transistor

## Features

- High-Voltage Transistor



## Ordering Information

Part Number	Marking	Package	Packing Method
KST42MTF	1D	SOT-23 3L	Tape and Reel
KST43MTF	1E	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	KST42	300	V
		KST43	200	
$V_{CEO}$	Collector-Emitter Voltage	KST42	300	V
		KST43	200	
$V_{EBO}$	Emitter-Base Voltage		6	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	$^\circ\text{C}/\text{W}$

## 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	KST42	$I_C = 100\ \mu\text{A}, I_E = 0$	300	V
		KST43		200	
$V_{CEO}$	Collector-Emitter Breakdown Voltage <sup>(1)</sup>	KST42	$I_C = 1\ \text{mA}, I_B = 0$	300	V
		KST43		200	
$V_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\ \mu\text{A}, I_C = 0$	6		V
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = 200\ \text{V}, I_E = 0$		0.1	$\mu\text{A}$
$I_{EBO}$	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		
		$V_{CE} = 10\ \text{V}, I_C = 30\ \text{mA}$	40		
$V_{CE(sat)}$	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	KST42	$V_{CB} = 20\ \text{V}, I_E = 0,$ $f = 1\ \text{MHz}$	3	pF
		KST43		4	
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 20\ \text{V}, I_C = 10\ \text{mA},$ $f = 100\ \text{MHz}$	50		MHz

### Note:

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

## Typical Performance Characteristics

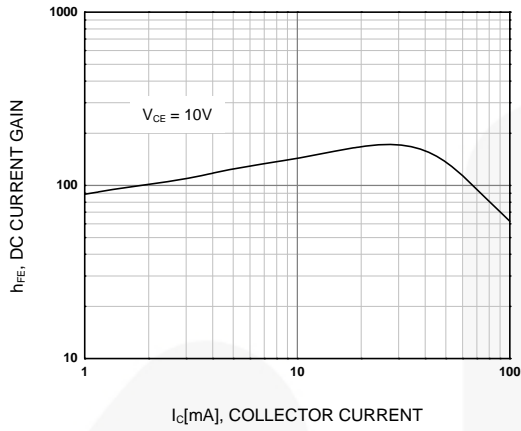


Figure 1. DC Current Gain

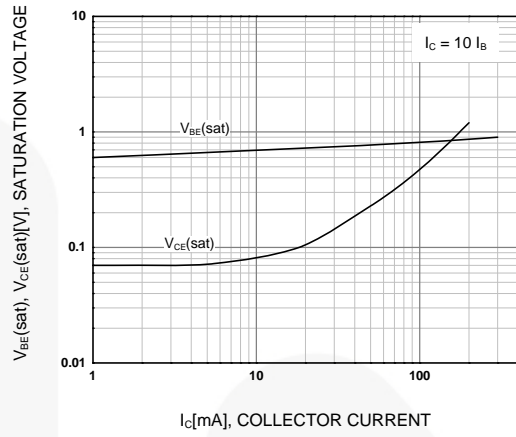


Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

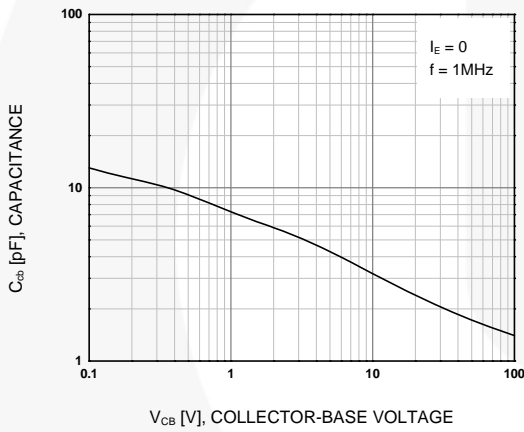


Figure 3. Collector-Base Capacitance

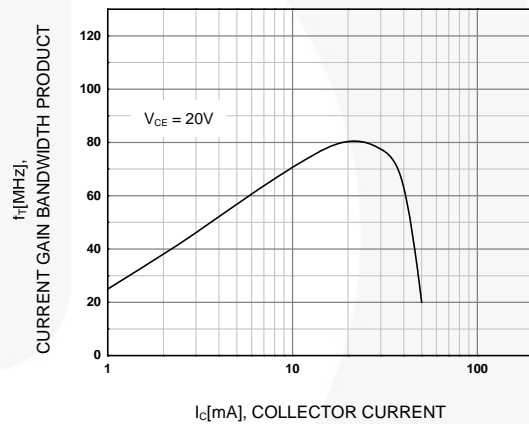
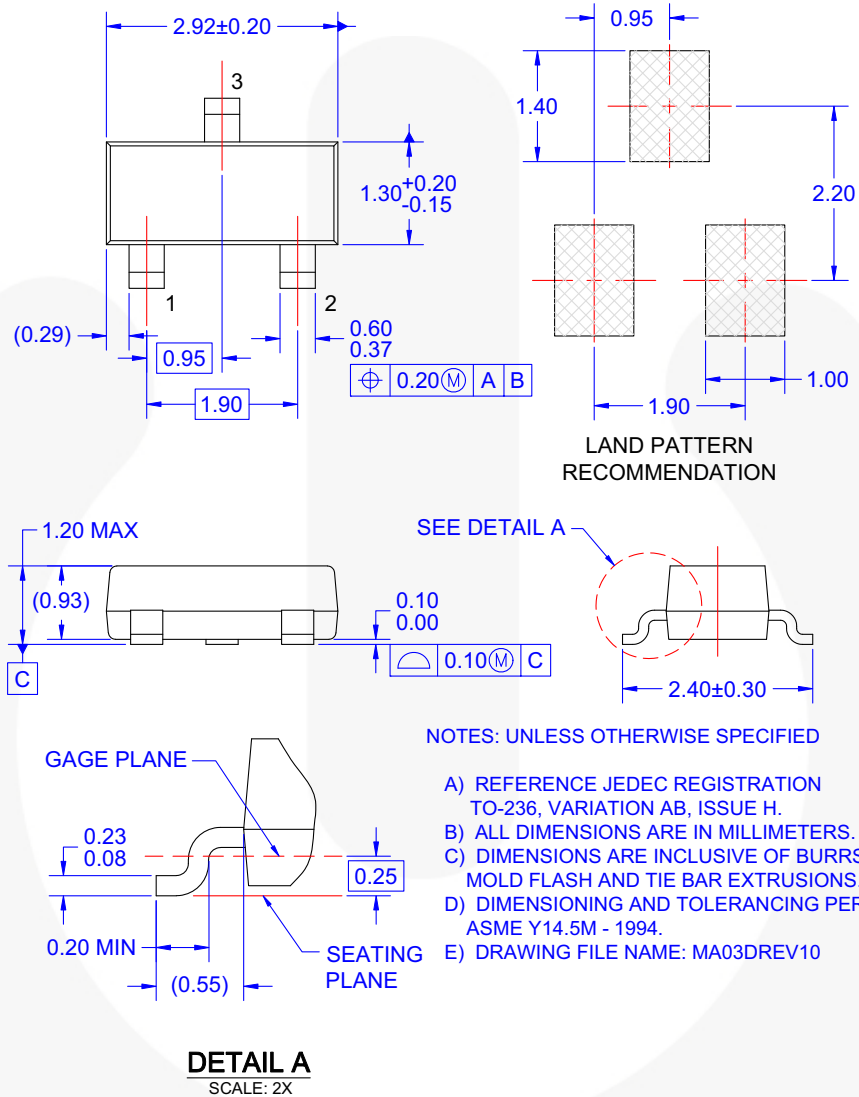


Figure 4. Current Gain Bandwidth Product

## Physical Dimensions



**Figure 5. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE (ACTIVE)**

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