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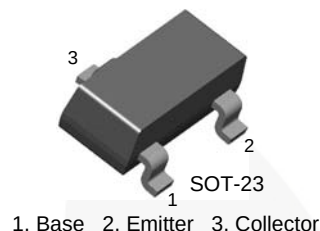


July 2014

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	$^\circ\text{C/W}$

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 ⁽¹⁾	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	μA
I_{EBO}	Emitter Cut-Off Current		$V_{EB} = 5\ \text{V}, I_C = 0$		0.1	μA
h_{FE}	DC Current Gain ⁽¹⁾		$V_{CE} = 10\ \text{V}, I_C = 1\ \text{mA}$	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 ⁽¹⁾		$I_C = 20\ \text{mA}, I_B = 2\ \text{mA}$		0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ⁽¹⁾		$I_C = 20\ \text{mA}, I_B = 2\ \text{mA}$		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

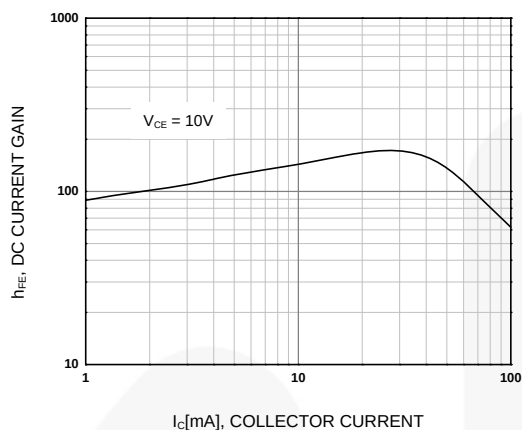


Figure 1. DC Current Gain

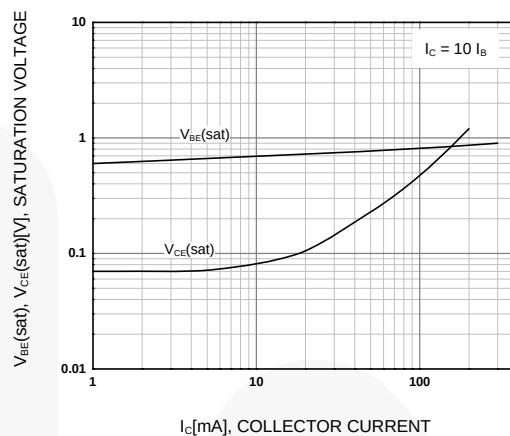


Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

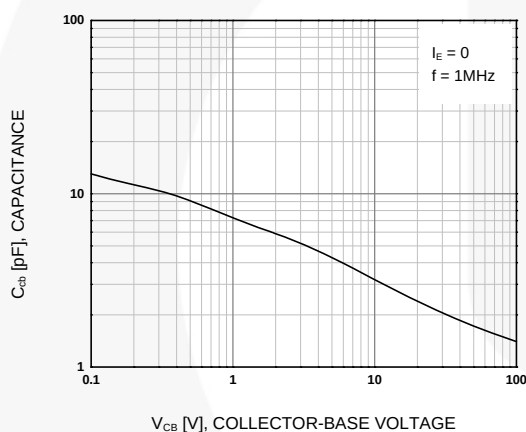


Figure 3. Collector-Base Capacitance

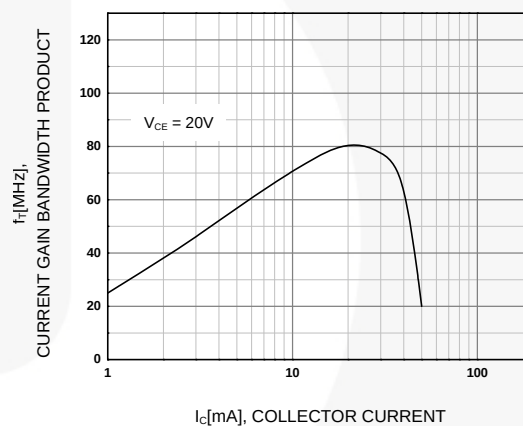


Figure 4. Current Gain Bandwidth Product

Physical Dimensions

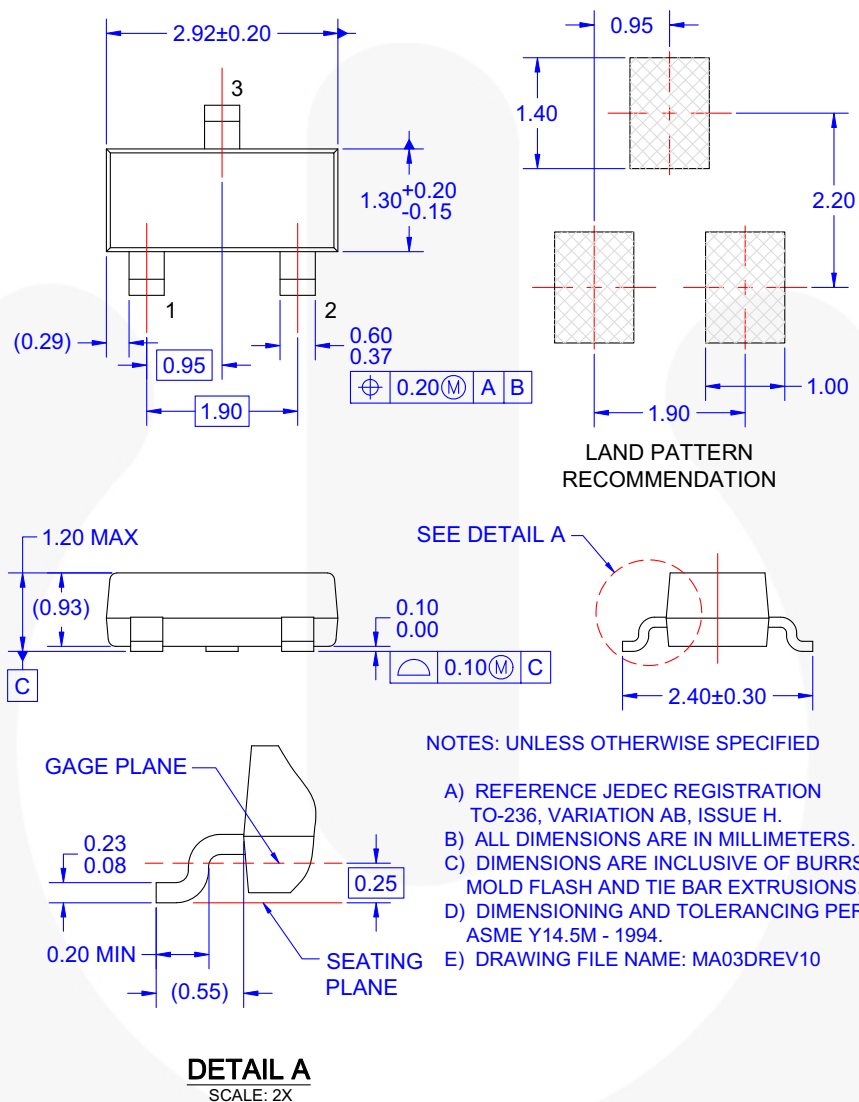


Figure 5. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE (ACTIVE)

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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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