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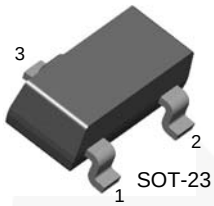
July 2014

KST42 / KST43
NPN Epitaxial Silicon Transistor

Features

- High-Voltage Transistor



SOT-23

1. Base 2. Emitter 3. Collector

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°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	°C

Thermal Characteristics

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

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

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Electrical Characteristics

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

Symbol	Parameter		Conditions	Min.	Max.	Unit
V_{CBO}	Collector-Base Breakdown Voltage	KST42	I_C = 100 μA, I_E = 0	300		V
		KST43		200		
V_{CEO}	Collector-Emitter Breakdown Voltage(1)	KST42	I_C = 1 mA, I_B = 0	300		V
		KST43		200		
V_{EBO}	Emitter-Base Breakdown Voltage		I_E = 100 μA, I_C = 0	6		V
I_{CBO}	Collector Cut-Off Current		V_{CB} = 200 V, I_E = 0		0.1	μA
I_{EBO}	Emitter Cut-Off Current		V_{EB} = 5 V, I_C = 0		0.1	μA
h_{FE}	DC Current Gain(1)		V_{CE} = 10 V, I_C = 1 mA	25		
			V_{CE} = 10 V, I_C = 10 mA	40		
			V_{CE} = 10 V, I_C = 30 mA	40		
V_{CE}(sat)	Collector-Emitter Saturation Voltage(1)		I_C = 20 mA, I_B = 2 mA		0.5	V
V_{BE}(sat)	Base-Emitter Saturation Voltage(1)		I_C = 20 mA, I_B = 2 mA		0.9	V
C_{ob}	Output Capacitance	KST42	V_{CB} = 20 V, I_E = 0, f = 1 MHz		3	pF
		KST43			4	
f_T	Current Gain Bandwidth Product		V_{CE} = 20 V, I_C = 10 mA, f = 100 MHz	50		MHz

Note:

1. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2%.

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Typical Performance Characteristics

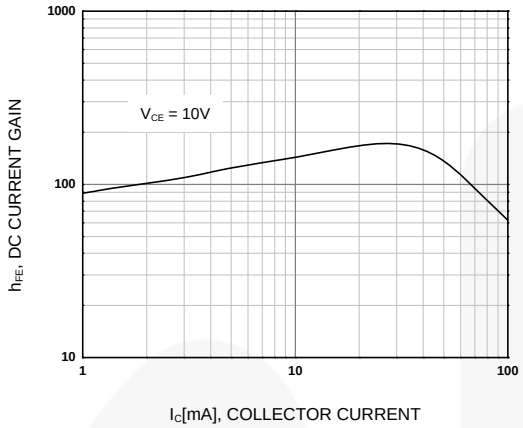

Figure 1. DC Current Gain

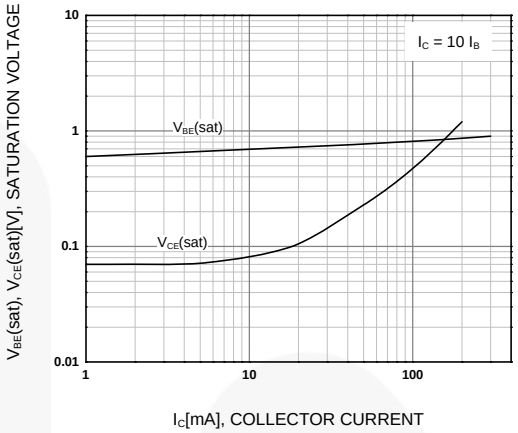

Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

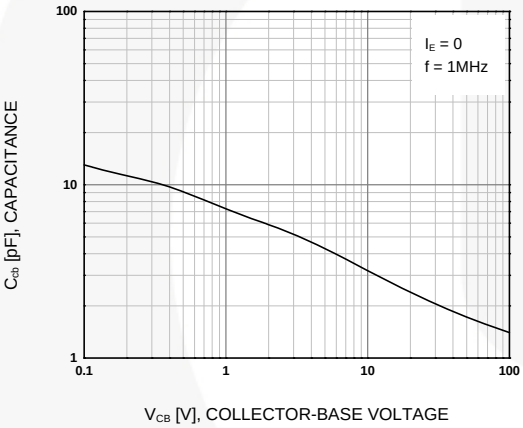

Figure 3. Collector-Base Capacitance

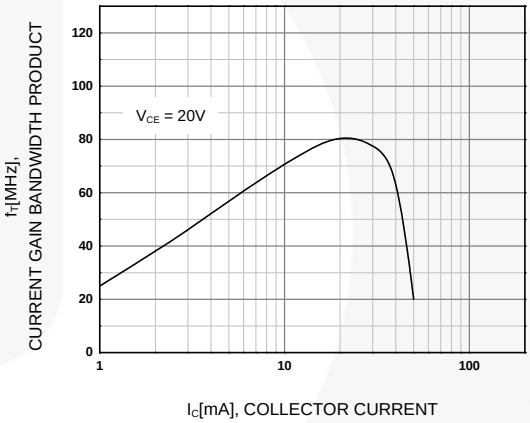

Figure 4. Current Gain Bandwidth Product

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Physical Dimensions

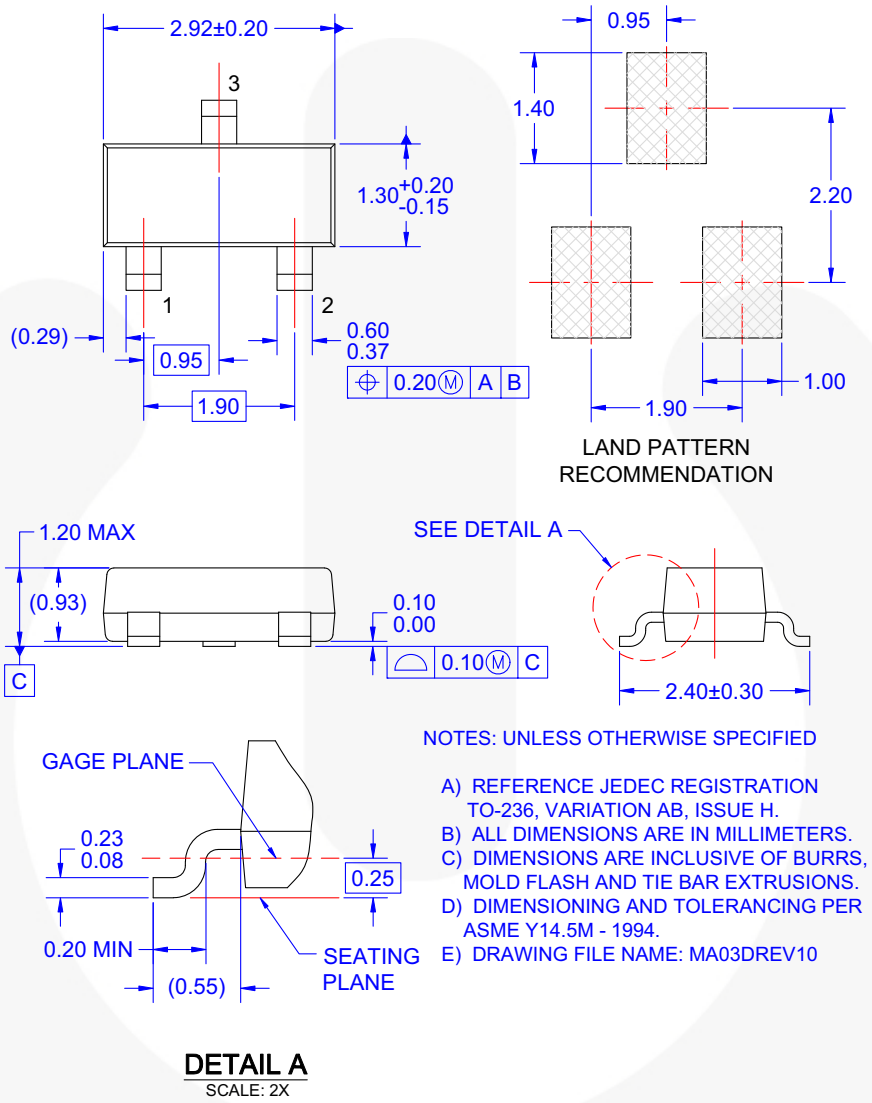

Figure 5. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE (ACTIVE)

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