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September 2015

KSP42 / KSP43 NPN Epitaxial Silicon Transistor

Features

- Collector-Emitter Voltage: V_{CEO} = KSP42: 300 V
KSP43: 200 V
- Collector Dissipation: P_C (max.) = 625 mW



Ordering Information

Part Number	Top Mark	Package	Packing Method
KSP42BU	KSP42	TO-92 3L	Bulk
KSP42TA	KSP42	TO-92 3L	Ammo
KSP43BU	KSP43	TO-92 3L	Bulk
KSP43TA	KSP43	TO-92 3L	Ammo

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	KSP42	300
		KSP43	200
V_{CEO}	Collector-Emitter Voltage	KSP42	300
		KSP43	200
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	500	mA
P_C	Collector Power Dissipation	625	mW
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 to 150	$^\circ\text{C}$

KSP42 / KSP43 — NPN Epitaxial Silicon Transistor

Electrical Characteristics

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

Symbol	Parameter	Conditions	Min.	Max.	Unit	
BV_{CBO}	Collector-Base Breakdown Voltage	KSP42	$I_C = 100\ \mu\text{A}, I_E = 0$	300		V
		KSP43		200		
BV_{CEO}	Collector-Emitter Breakdown Voltage ⁽¹⁾	KSP42	$I_C = 1\ \text{mA}, I_B = 0$	300		V
		KSP43		200		
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100\ \mu\text{A}, I_C = 0$	6		V	
I_{CBO}	Collector Cut-Off Current	KSP42	$V_{CB} = 200\ \text{V}, I_E = 0$		100	nA
		KSP43	$V_{CB} = 160\ \text{V}, I_E = 0$		100	
I_{EBO}	Emitter Cut-Off Current	KSP42	$V_{EB} = 6\ \text{V}, I_C = 0$		100	nA
		KSP43	$V_{EB} = 4\ \text{V}, I_C = 0$		100	
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	KSP42	$V_{CB} = 20\ \text{V}, I_E = 0,$ $f = 1\ \text{MHz}$		3	pF
		KSP43			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

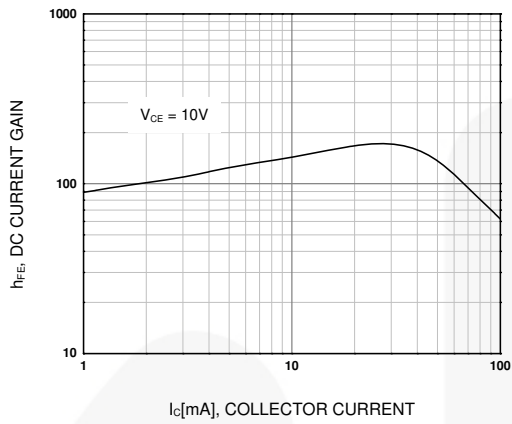


Figure 1. DC Current Gain

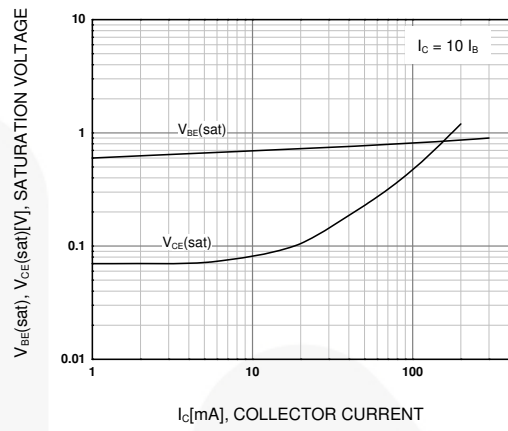


Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

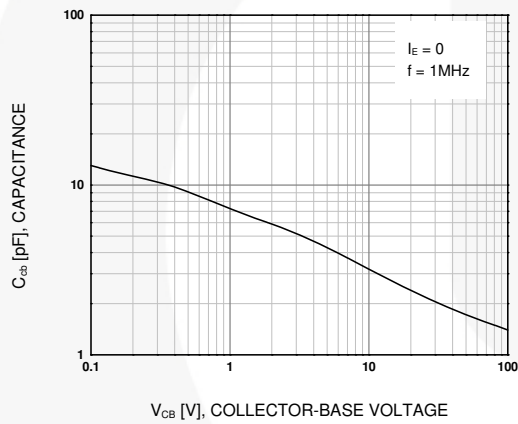


Figure 3. Collector-Base Capacitance

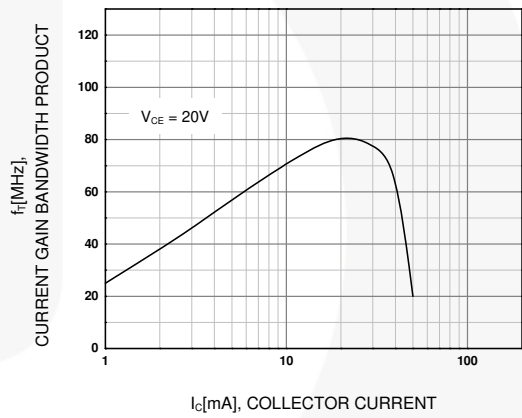
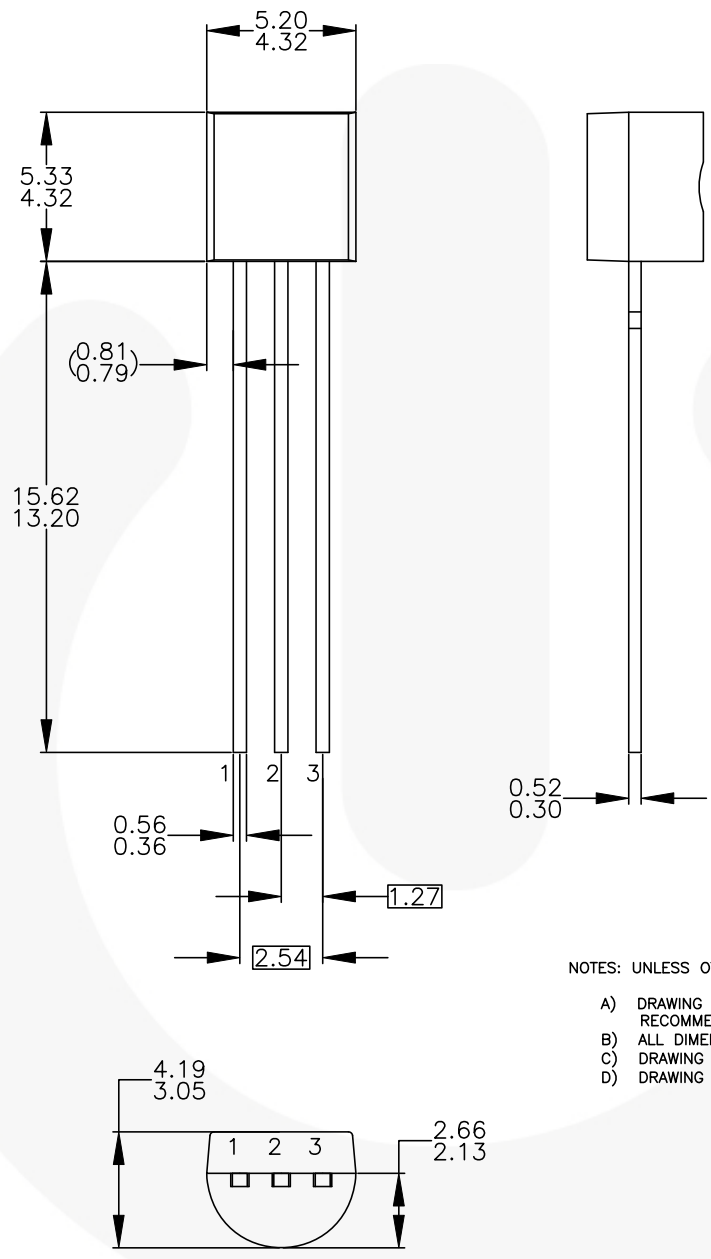


Figure 4. Current Gain Bandwidth Product

Physical Dimensions

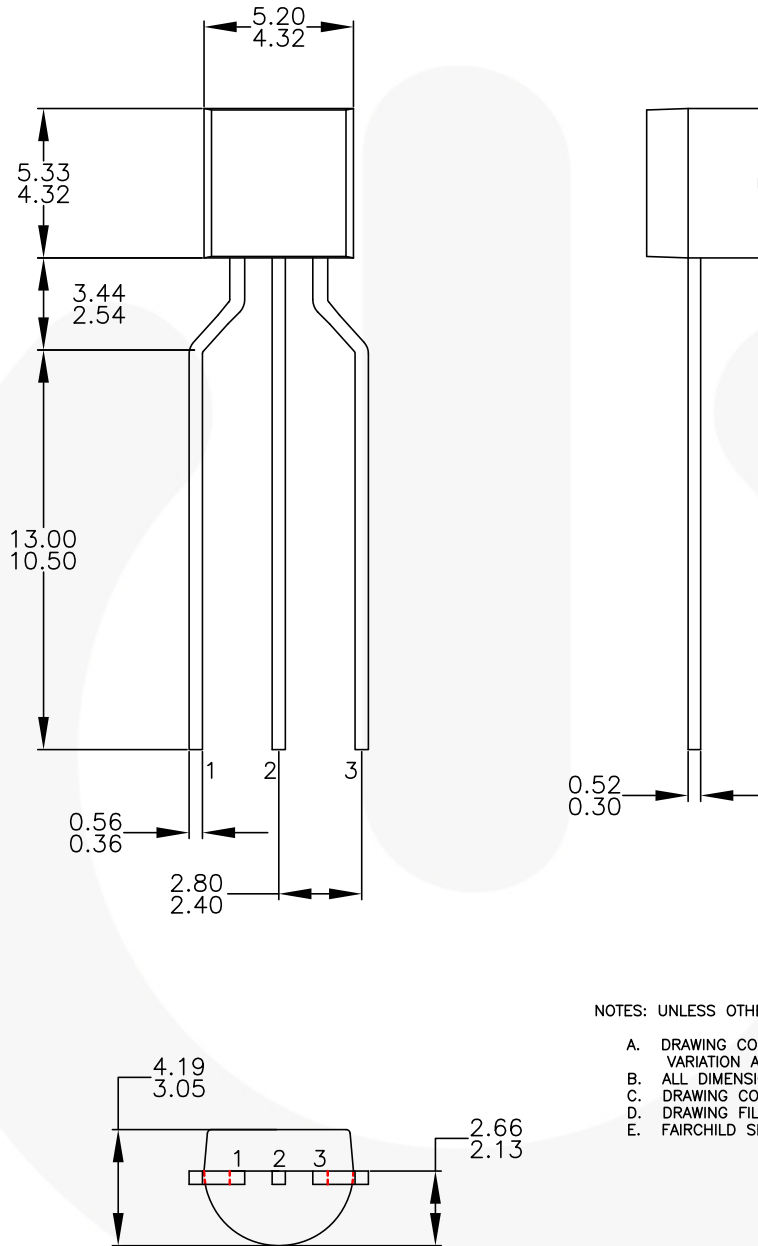


- NOTES: UNLESS OTHERWISE SPECIFIED
- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
 - B) ALL DIMENSIONS ARE IN MILLIMETERS.
 - C) DRAWING CONFORMS TO ASME Y14.5M-2009.
 - D) DRAWING FILENAME: MKT-ZA03DREV4.



Figure 5. 3-Lead, TO-92, JEDEC TO-92 Compliant Straight Lead Configuration, Bulk Type

Physical Dimensions (Continued)



NOTES: UNLESS OTHERWISE SPECIFIED


- A. DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC.
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Figure 6. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo, Tape and Reel Type





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