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September 2015

# KSP05 / KSP06 NPN Epitaxial Silicon Transistor

## Features

- Collector-Emitter Voltage:  $V_{CEO}$  = KSP05: 60 V  
KSP06: 80 V
- Collector Dissipation:  $P_C$  (max.) = 625 mW
- Complement to KSP55/56



## Ordering Information

Part Number	Top Mark	Package	Packing Method
KSP05TA	KSP05	TO-92 3L	Ammo
KSP06BU	KSP06	TO-92 3L	Bulk
KSP06TA	KSP06	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	KSP05	60
		KSP06	80
$V_{CEO}$	Collector-Emitter Voltage	KSP05	60
		KSP06	80
$V_{EBO}$	Emitter-Base Voltage	4	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	$^\circ\text{C}$

KSP05 / KSP06 — NPN Epitaxial Silicon Transistor

## Electrical Characteristics

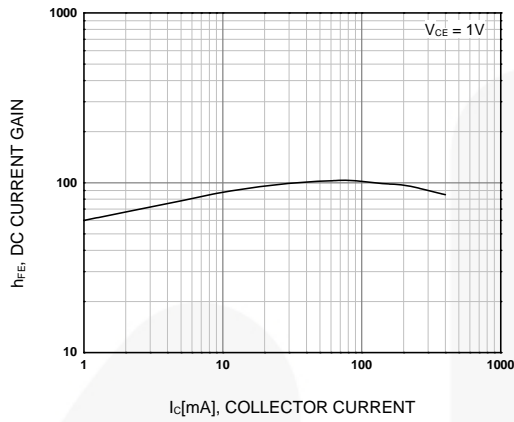
Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit	
$BV_{CEO}$	Collector-Emitter Breakdown Voltage <sup>(1)</sup>	KSP05	$I_C = 1\text{ mA}, I_B = 0$	60		V
		KSP06		80		
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\ \mu\text{A}, I_C = 0$	4		V	
$I_{CBO}$	Collector Cut-Off Current	KSP05	$V_{CB} = 60\text{ V}, I_E = 0$		0.1	$\mu\text{A}$
		KSP06		$V_{CB} = 80\text{ V}, I_E = 0$		
$I_{CEO}$	Collector Cut-Off Current	$V_{CE} = 60\text{ V}, I_B = 0$		0.1	$\mu\text{A}$	
$h_{FE}$	DC Current Gain	$V_{CE} = 1\text{ V}, I_C = 10\text{ mA}$	50			
		$V_{CE} = 1\text{ V}, I_C = 100\text{ mA}$	50			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100\text{ mA}, I_B = 10\text{ mA}$		0.25	V	
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = 1\text{ V}, I_C = 100\text{ mA}$		1.2	V	
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 2\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$	100		MHz	

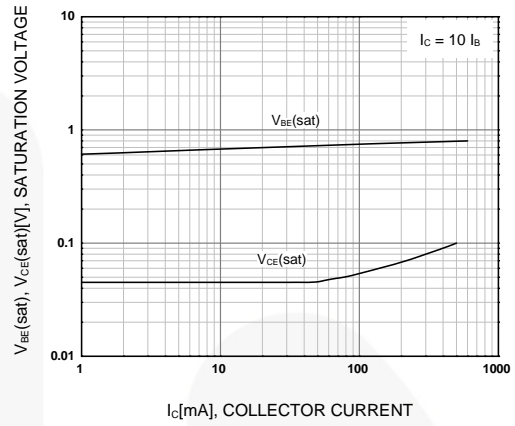
### Note:

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

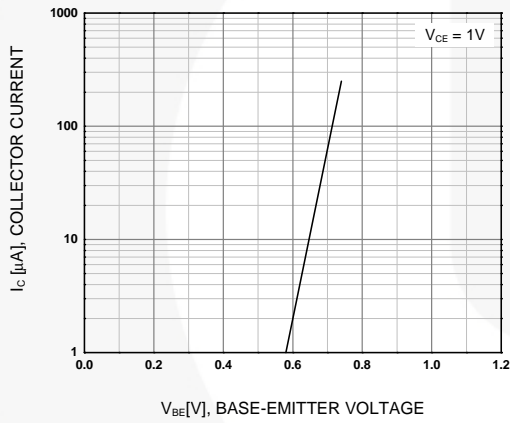
## Typical Performance Characteristics



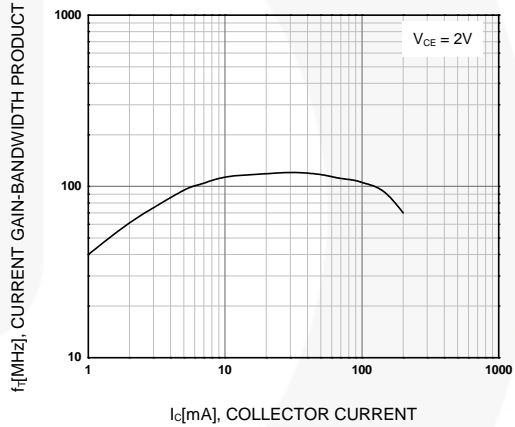
**Figure 1. DC Current Gain**



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

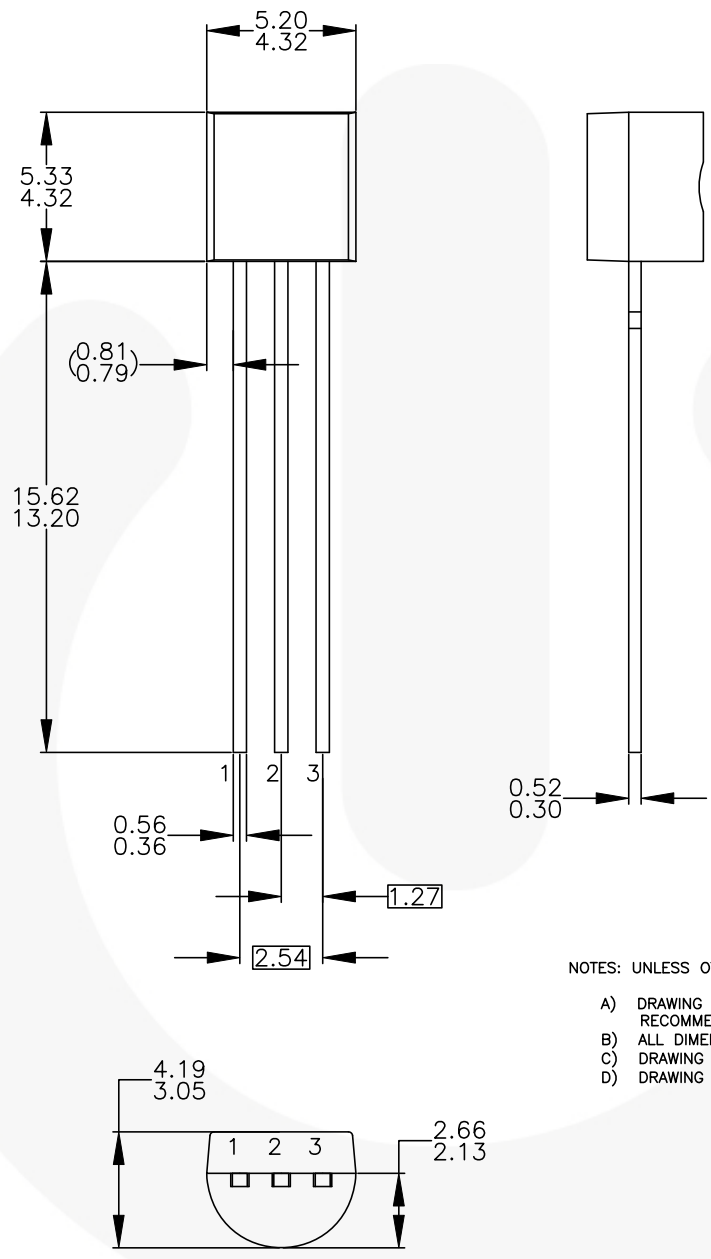


**Figure 3. Base-Emitter On Voltage**



**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

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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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