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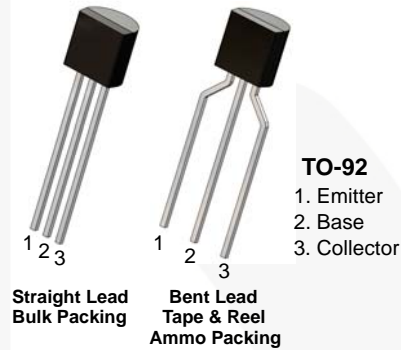


September 2015

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 ⁽¹⁾	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	μA
		KSP06	$V_{CB} = 80\text{ V}, I_E = 0$		0.1	
I_{CEO}	Collector Cut-Off Current		$V_{CE} = 60\text{ V}, I_B = 0$		0.1	μA
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

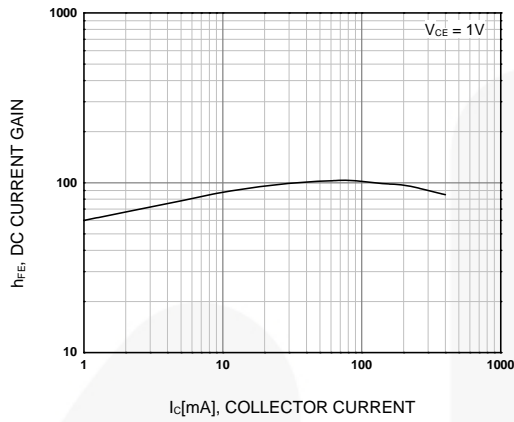


Figure 1. DC Current Gain

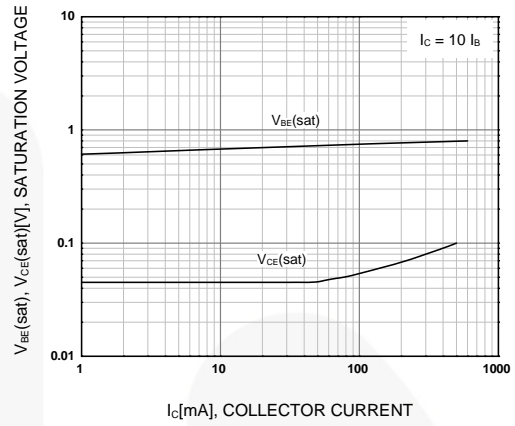


Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

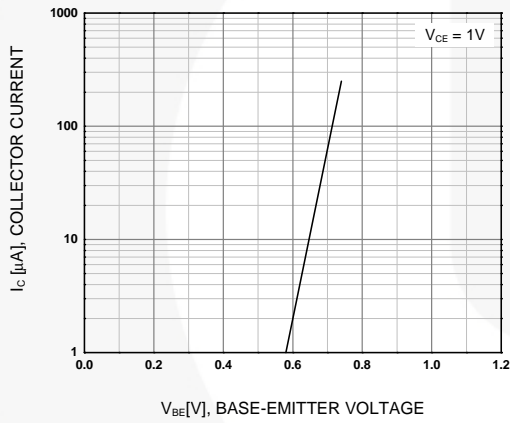


Figure 3. Base-Emitter On Voltage

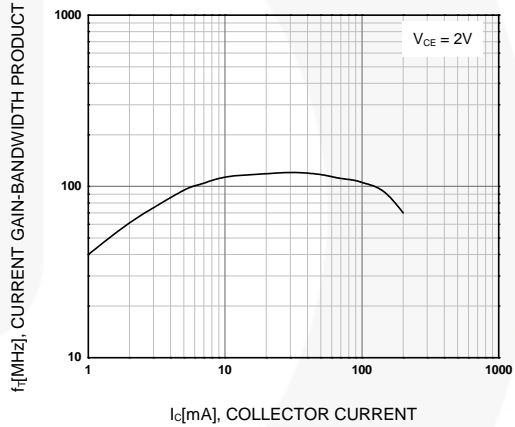
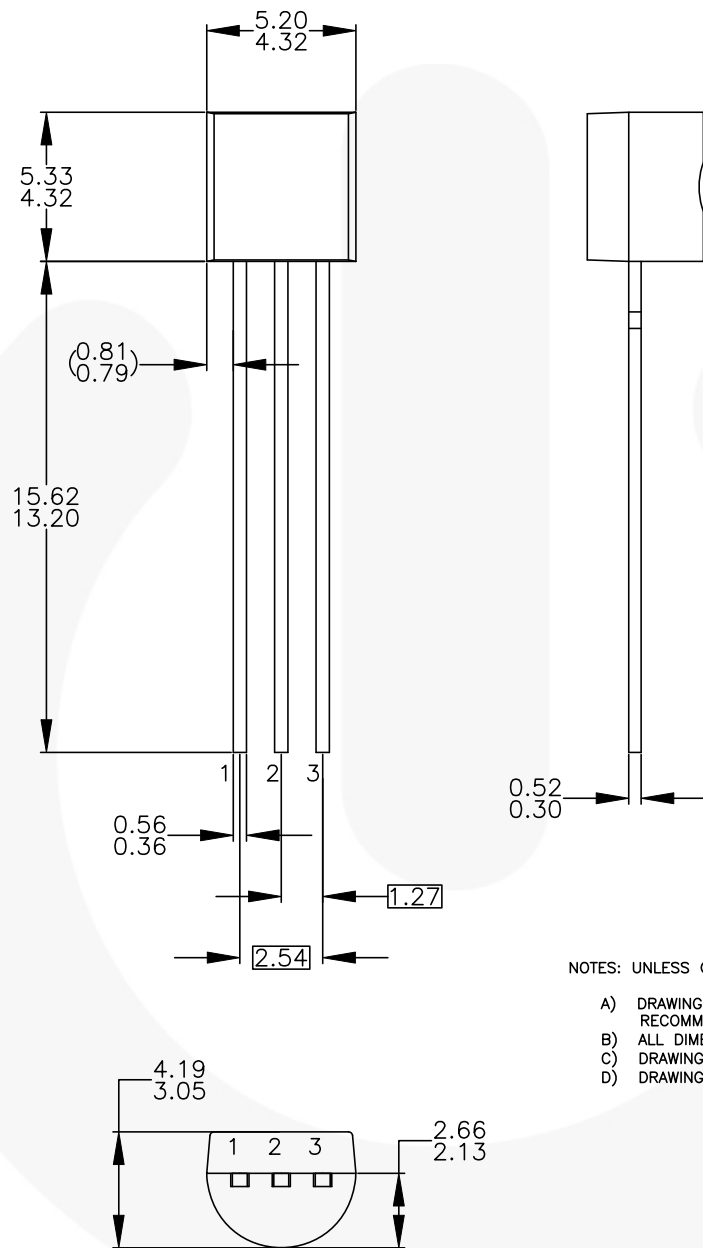


Figure 4. Current Gain Bandwidth Product

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

- A. DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC.
- B. ALL DIMENSIONS ARE IN MILLIMETERS.
- C. DRAWING CONFORMS TO ASME Y14.5M-2009.
- D. DRAWING FILENAME: MKT-ZA03FREV3.
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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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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.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

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