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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

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

Straight Lead
Bulk Packing

Bent Lead
Tape & Reel
Ammo Packing

TO-92
1. Emitter
2. Base
3. Collector

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°C unless otherwise noted.

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	KSP05	60	V
		KSP06	80	
V_{CEO}	Collector-Emitter Voltage	KSP05	60	V
		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	°C
T_{STG}	Storage Temperature		-55 to 150	°C

Electrical Characteristics

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

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

Note:

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

Typical Performance Characteristics

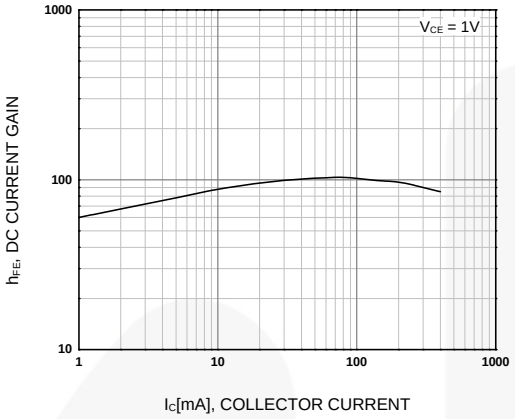

Figure 1. DC Current Gain

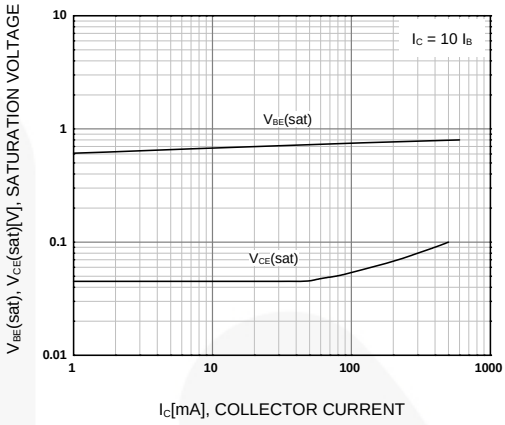

Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

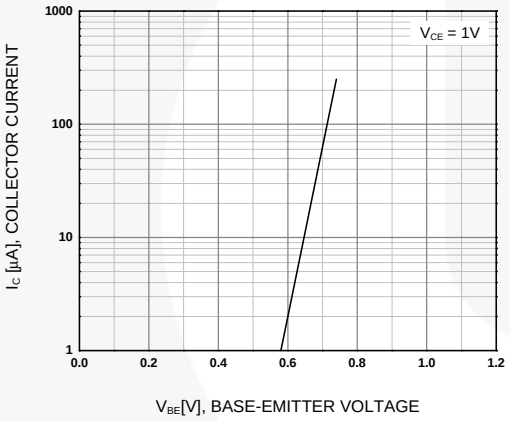

Figure 3. Base-Emitter On Voltage

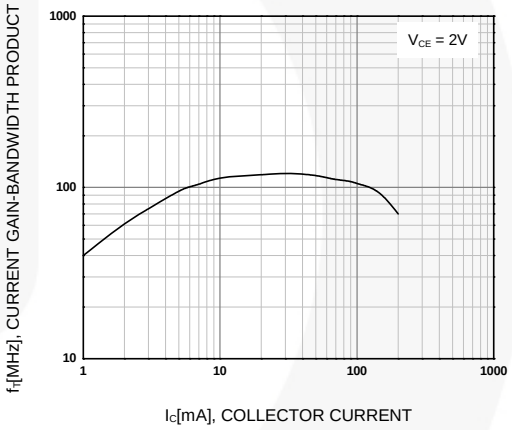

Figure 4. Current Gain Bandwidth Product

Physical Dimensions

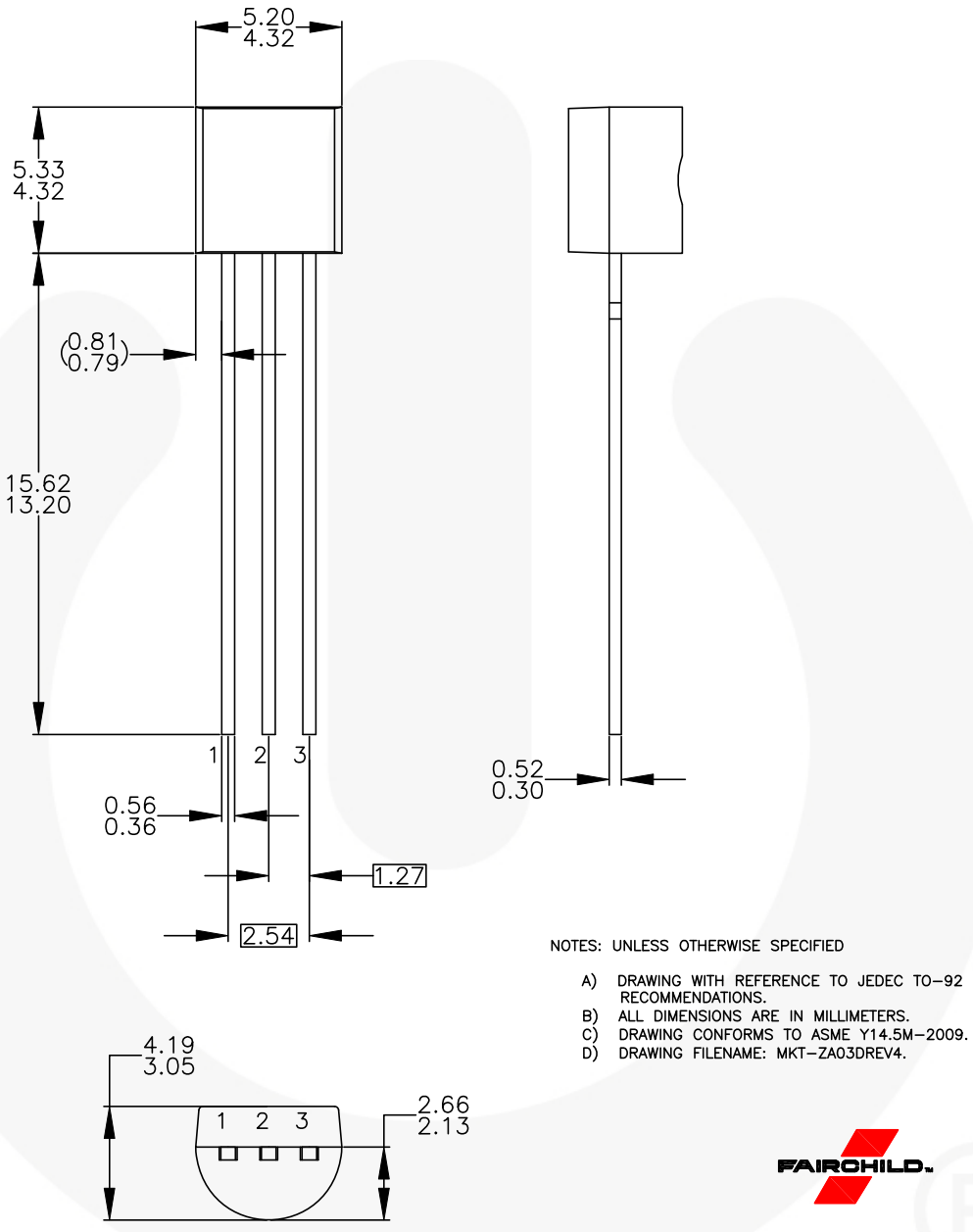

Figure 5. 3-Lead, TO-92, JEDEC TO-92 Compliant Straight Lead Configuration, Bulk Type

Physical Dimensions (Continued)

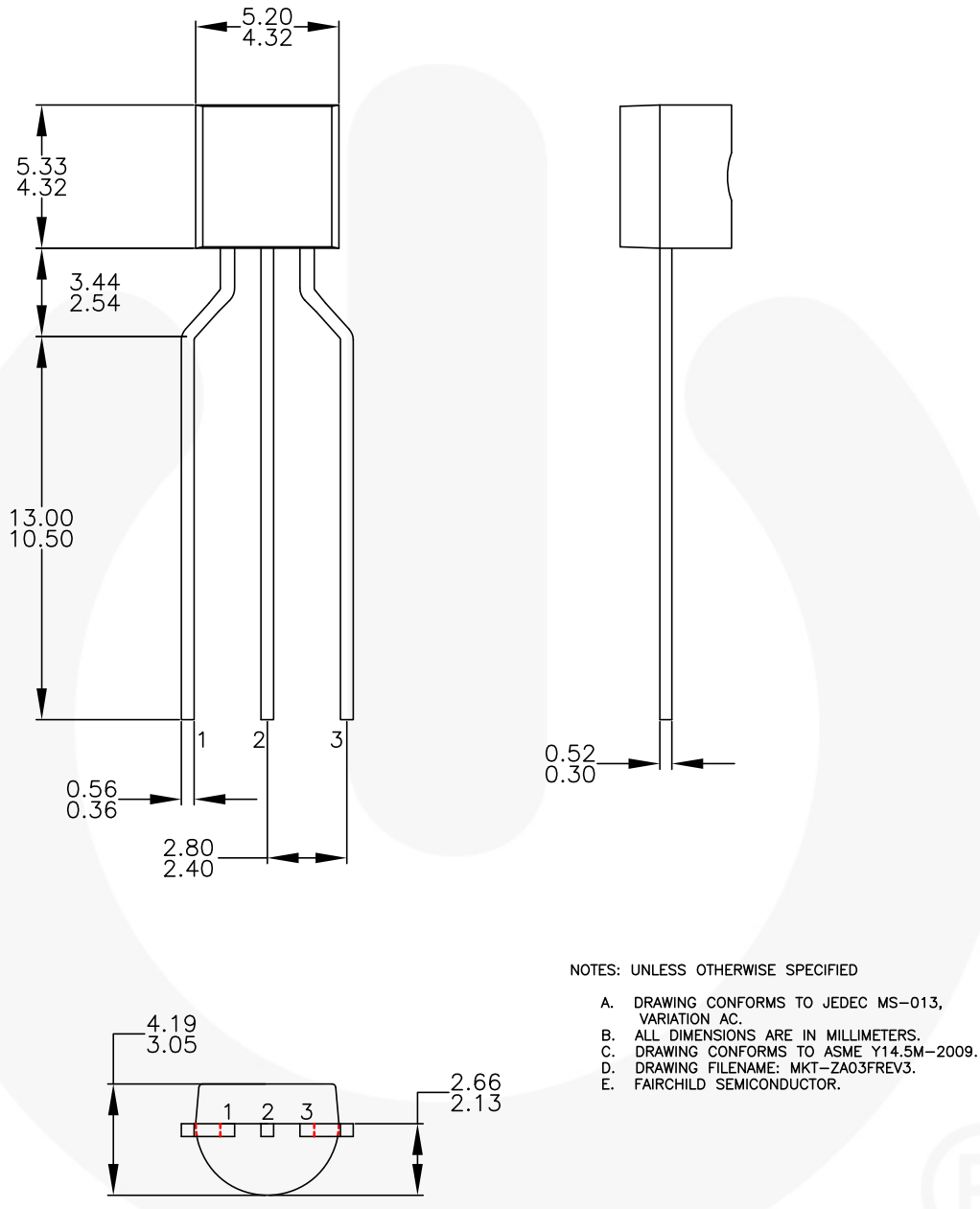

Figure 6. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo, Tape and Reel Type

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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.
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Rev. I76

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