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February 2016

KSP2907A
PNP General-Purpose Amplifier

Features

- Collector-Emitter Voltage: V_{CEO} = -60 V
- Suffix “-C” means a Center Collector (1.Emitter 2.Collector 3.Base)

TO-92

Straight Lead Bulk Packing

Bent Lead Tape & Reel Ammo Packing

KSP2907A: 1. Emitter 2. Base 3. Collector
KSP2907AC: 1. Emitter 2. Collector 3. Base

Ordering Information(1)

Part Number	Marking	Package	Packing Method
KSP2907ABU	KSP2907A	TO-92 3L	Bulk
KSP2907ATA	KSP2907A	TO-92 3L	Ammo
KSP2907ATF	KSP2907A	TO-92 3L	Tape and Reel
KSP2907ACTA	KSP2907AC	TO-92 3L	Ammo

Note:

1. Affix “-C-” means center collector pin. Suffix “-BU” means bulk packing, and straight lead form. Suffix “-TF” means tape & reel packing, and 0.200 in-line spacing lead form. Suffix “-TA” means ammo packing, and 0.200 in-line spacing lead form.

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	-60	V
V_{CEO}	Collector-Emitter Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-600	mA
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

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Thermal Characteristics

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

Symbol	Parameter	Max.	Unit
P_D	Power Dissipation by $R_{\theta JA}$	625	mW
	Derate Above 25°C	5	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case(2)	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient(3)	200	°C/W

Notes:

2. Infinite heat sink.
3. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics(4)

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

Symbol	Parameter	Conditions	Min.	Max.	Unit
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -10 μA, I_E = 0	-60		V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = -10 mA, I_B = 0	-60		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -10 μA, I_C = 0	-5.0		V
I_{CBO}	Collector Cut-Off Current	V_{CB} = -50 V, I_E = 0		-10	nA
h_{FE}	DC Current Gain	V_{CE} = -10 V, I_C = -0.1 mA	75		
		V_{CE} = -10 V, I_C = -1 mA	100		
		V_{CE} = -10 V, I_C = -10 mA	100		
		V_{CE} = -10 V, I_C = -150 mA	100	300	
		V_{CE} = -10 V, I_C = -500 mA	50		
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = -150 mA, I_B = -15 mA		-0.4	V
		I_C = -500 mA, I_B = -50 mA		-1.6	
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = -150 mA, I_B = -15 mA		-1.3	V
		I_C = -500 mA, I_B = -50 mA		-2.6	
C_{obo}	Output Capacitance	V_{CB} = -10 V, I_E = 0, f = 1.0 MHz		8	pF
f_T	Current Gain Bandwidth Product	I_C = -50 mA, V_{CE} = -20 V, f = 100 MHz	200		MHz
t_{ON}	Turn-On Time	V_{CC} = -30 V, I_C = -150 mA, I_{B1} = -15 mA		45	ns
t_{OFF}	Turn-Off Time	V_{CC} = -6 V, I_C = -150 mA, I_{B1} = I_{B2} = -15 mA		100	ns

Note:

4. DC items are tested by pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2%

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Typical Performance Characteristics

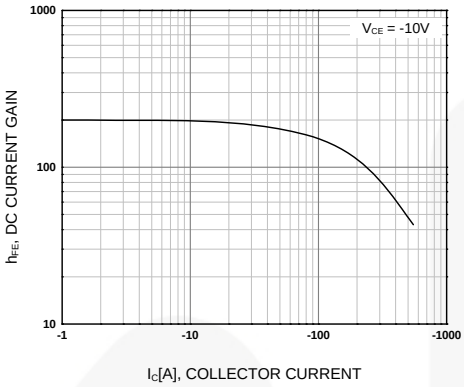

Figure 1. DC Current Gain

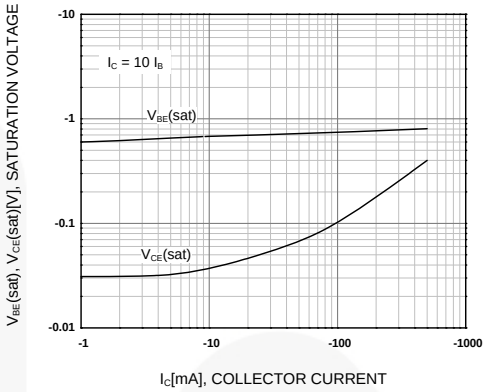

Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

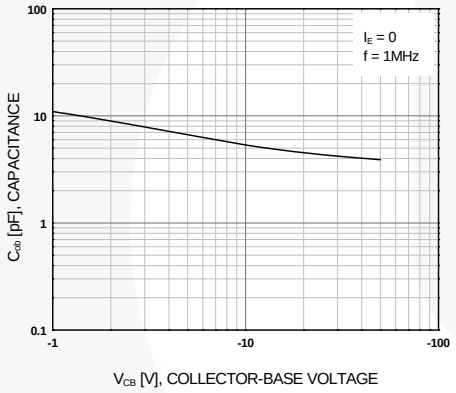

Figure 3. Output Capacitance

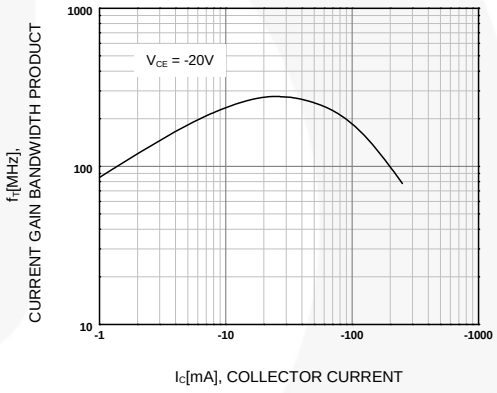

Figure 4. Current Gain Bandwidth Product

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Physical Dimensions

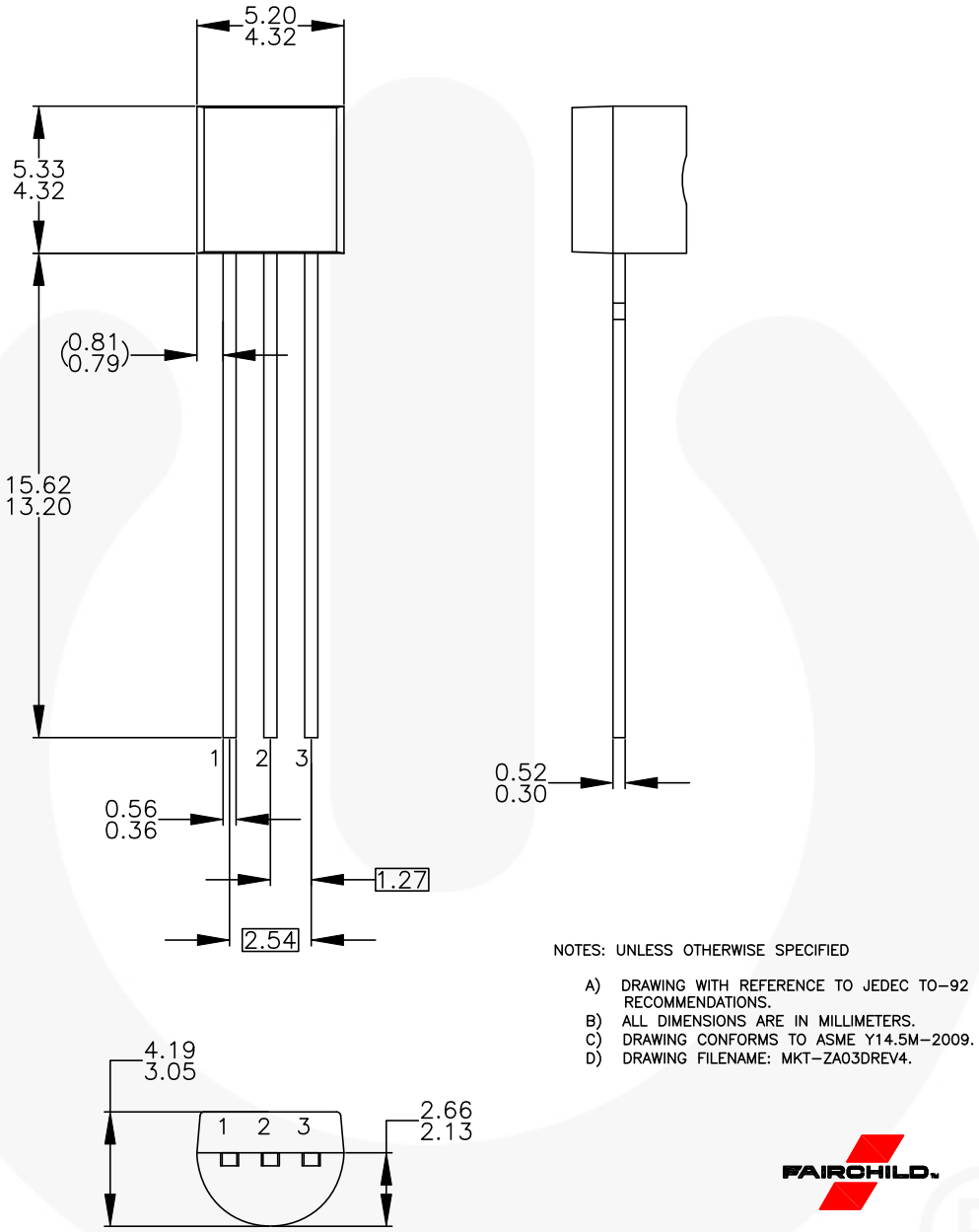

Figure 5. 3-Lead, TO-92, JEDEC TO-92 Compliant Straight Lead Configuration, Bulk Type

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Physical Dimensions (Continued)

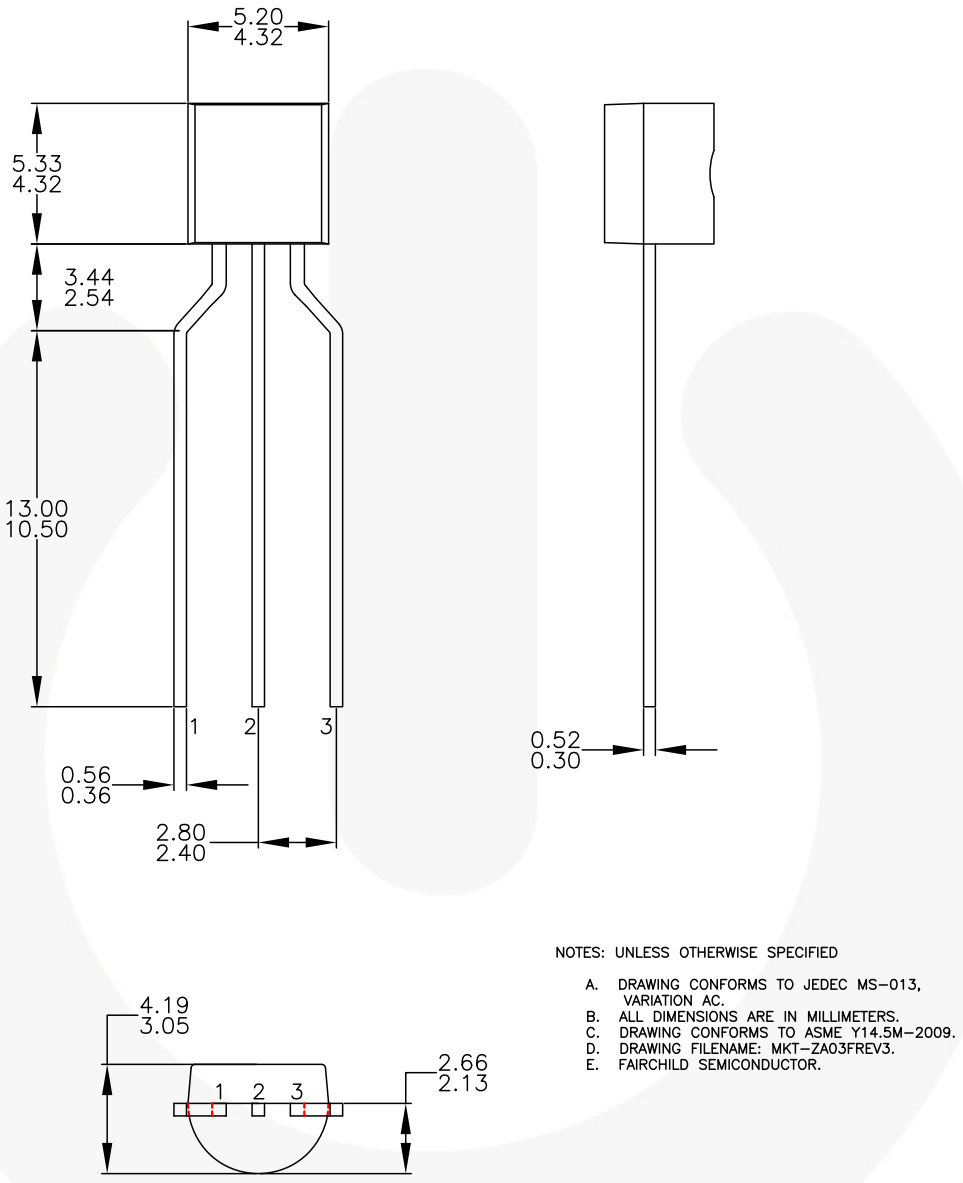

Figure 6. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo, Tape and Reel Type

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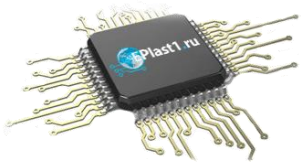

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