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FAIRCHILD

September 2015

KSC1009
NPN Epitaxial Silicon Transistor

Features

- High Voltage Amplifier
- High Collector-Base Voltage : V_{CBO} = 160 V
- Collector Current : I_C = 700 mA
- Collector Power Dissipation : P_C = 800 mW
- Complement to KSA709
- Suffix “-C” means Center Collector (1. Emitter 2. Collector 3. Base)
- Non Suffix “-C” means Side Collector (1. Emitter 2. Base 3. Collector)



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
KSC1009YTA	C1009 Y-	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	160	V
V_{CEO}	Collector-Emitter Voltage	140	V
V_{EBO}	Emitter-Base Voltage	8	V
I_C	Collector Current	700	mA
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 to 150	°C

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Thermal Characteristics[1]

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

Symbol	Parameter	Value	Unit
P_C	Collector Power Dissipation	800	mW
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	150	°C/W

Note:

1. 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

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 100 μA, I_E = 0	160			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	140			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 10 μA, I_C = 0	8			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = 60 V, I_E = 0			0.1	μA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 5 V, I_C = 0			0.1	μA
h_{FE}	DC Current Gain	V_{CE} = 2 V, I_C = 50 mA	40		400	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 200 mA, I_B = 20 mA		0.2	0.7	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = 200 mA, I_B = 20 mA		0.86	1.00	V
f_T	Current Gain Bandwidth Product	V_{CE} = 10 V, I_C = 50 mA	30	50		MHz
C_{ob}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz		8		pF

h_{FE} Classification

Classification	R	O	Y	G
h_{FE}	40 ~ 80	70 ~ 140	120 ~ 240	200 ~ 400

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Typical Performance Characteristics

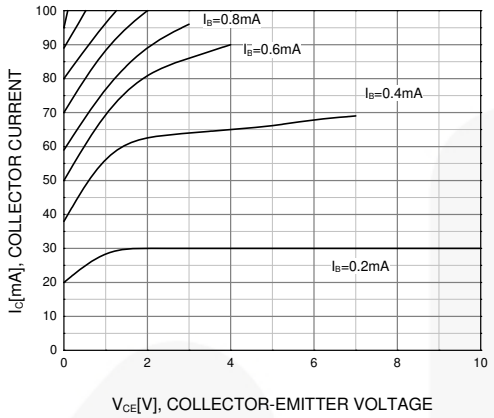

Figure 1. Static Characteristic

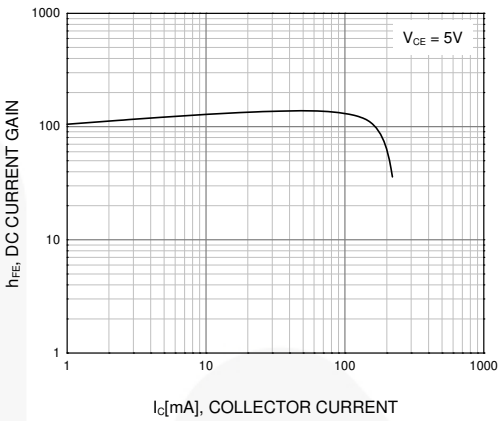

Figure 2. DC Current Gain

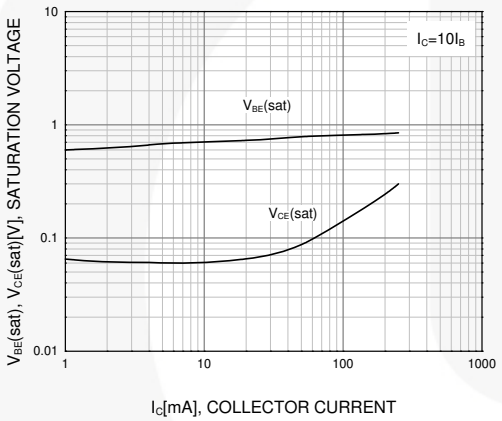

Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

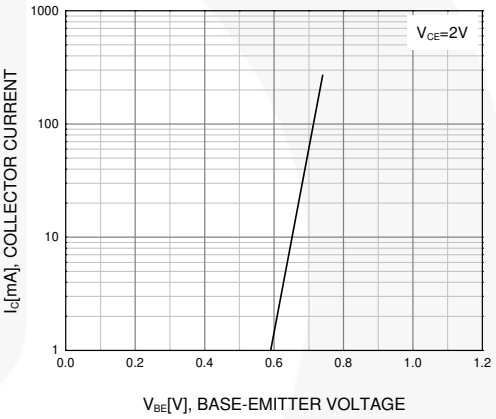

Figure 4. Base-Emitter On Voltage

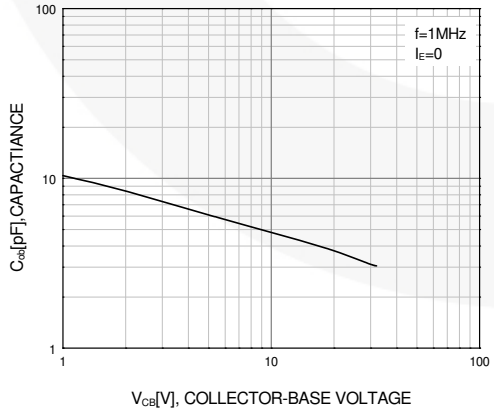

Figure 5. Collector Output Capacitance

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Physical Dimensions

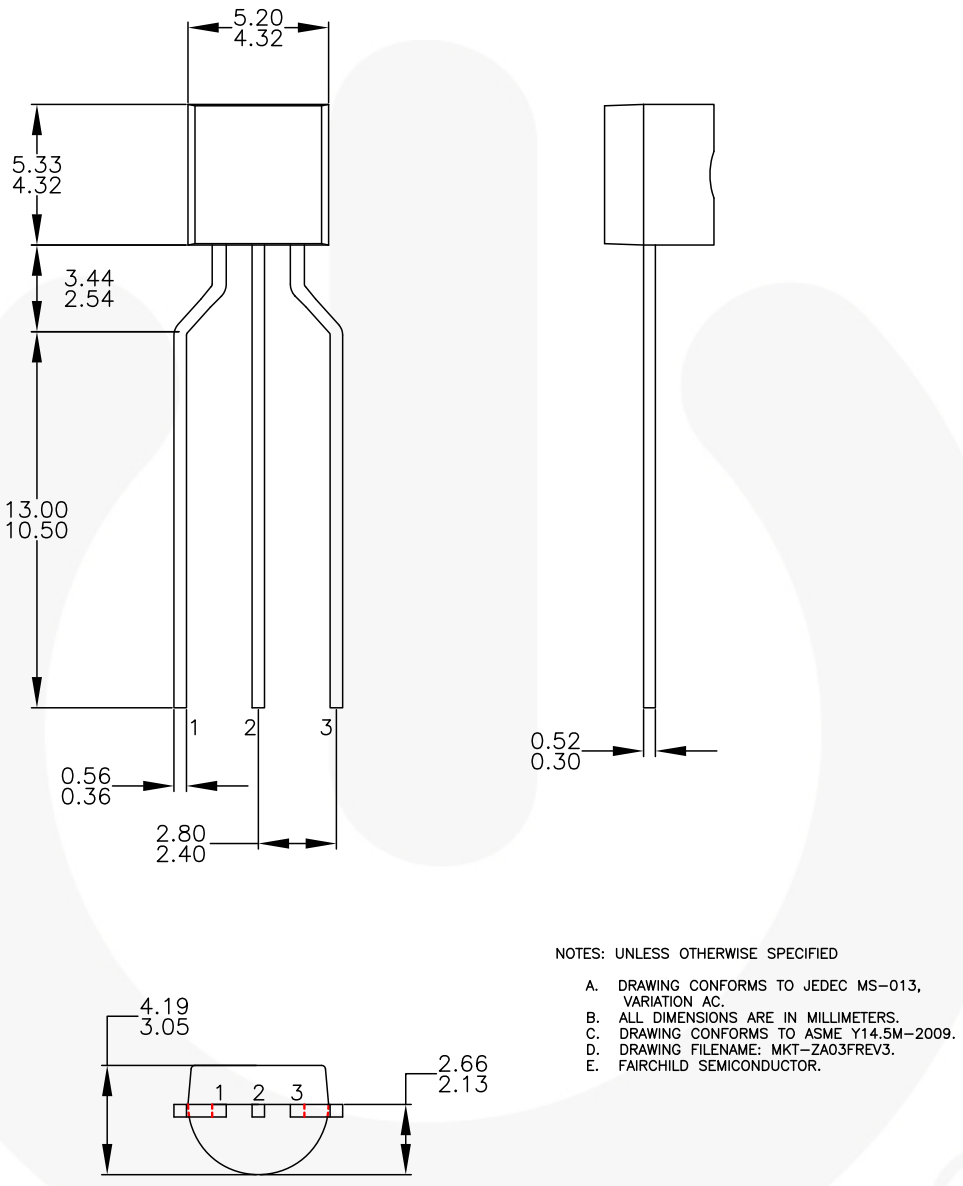

Figure 6. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo Type

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