September 2015

KSC1845
NPN Epitaxial Silicon Transistor

Features

- Audio Frequency Low-Noise Amplifier
- Complement to KSA992

Straight Lead
Bulk Packing

Bent Lead
Tape & Reel
Ammo Packing

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

Ordering Information

Part Number	Top Mark	Package	Packing Method
KSC1845FTA	C1845	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	120	V
V_{CEO}	Collector-Emitter Voltage	120	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	50	mA
I_B	Base Current	10	mA
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 to 150	°C

Thermal Characteristics[1]

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

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	500	mW
	Derate Above 25°C	4	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	250	°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	120			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 1 mA, I_B = 0	120			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 100 μA, I_C = 0	5			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = 120 V, I_E = 0			50	nA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 5 V, I_C = 0			50	nA
h_{FE1}	DC Current Gain	V_{CE} = 6 V, I_C = 0.1 mA	150	580		
h_{FE2}	DC Current Gain	V_{CE} = 6 V, I_C = 1 mA	200	600	1200	
V_{BE}(on)	Base-Emitter On Voltage	V_{CE} = 6 V, I_C = 1 mA	0.55	0.59	0.65	V
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 10 mA, I_B = 1 mA		0.07	0.30	V
f_T	Current Gain Bandwidth Product	V_{CE} = 6 V, I_C = 1 mA	50	110		MHz
C_{ob}	Output Capacitance	V_{CB} = 30 V, I_E = 0, f = 1 MHz		1.6	2.5	pF
NL	Noise Level	V_{CE} = 5.0 V, I_C = 1.0 mA, R_G = 100kΩ, G_V = 80 dB, f = 10 Hz to 1.0 kHz		25	40	mV

h_{FE} Classification

Classification	P	F	E	U
h_{FE2}	200 ~ 400	300 ~ 600	400 ~ 800	600 ~ 1200

Typical Performance Characteristics

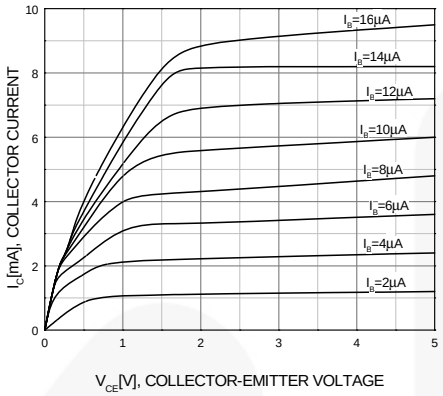

Figure 1. Static Characteristic

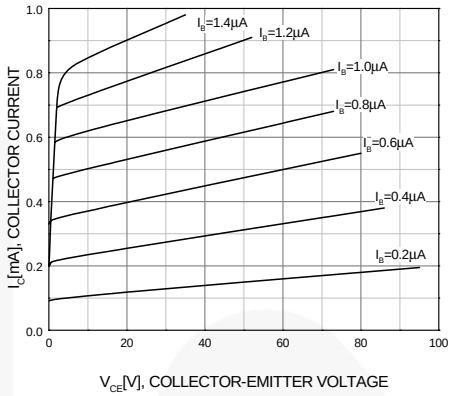

Figure 2. Static Characteristic

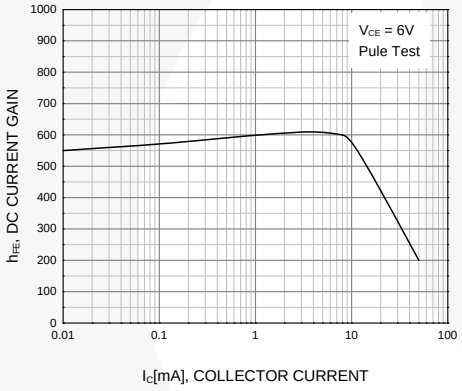

Figure 3. DC Current Gain

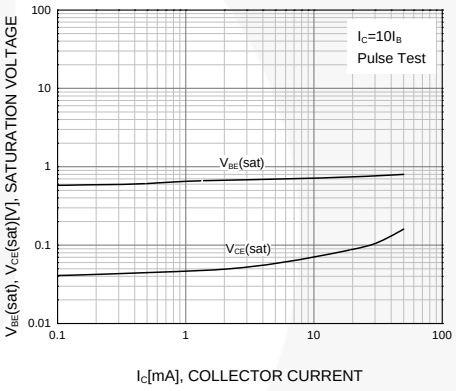

Figure 4. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

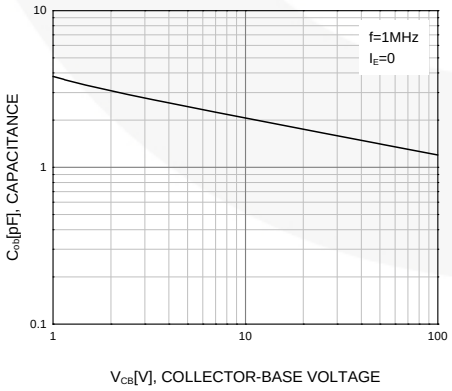

Figure 5. Collector Output Capacitance

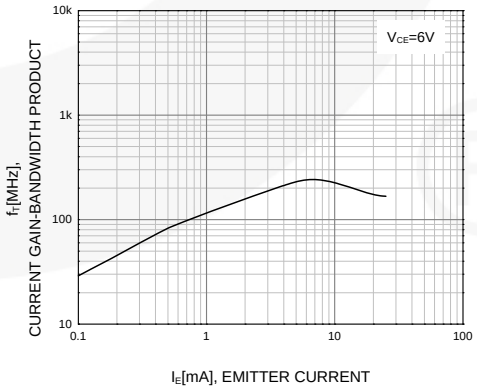

Figure 6. Current Gain Bandwidth Product

Typical Performance Characteristics (Continued)

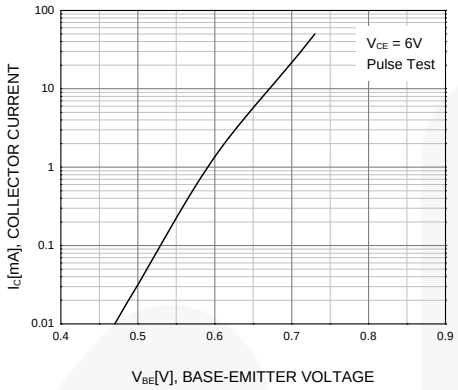

Figure 7. Collector Current vs. Base-Emitter Voltage

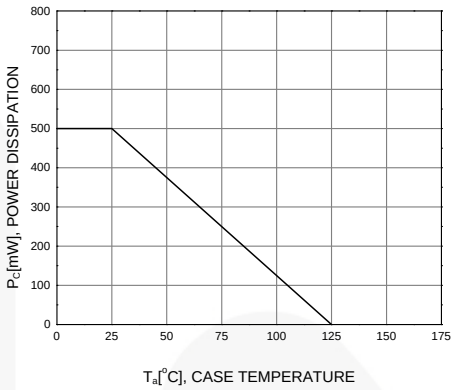

Figure 8. Power Derating

Physical Dimensions

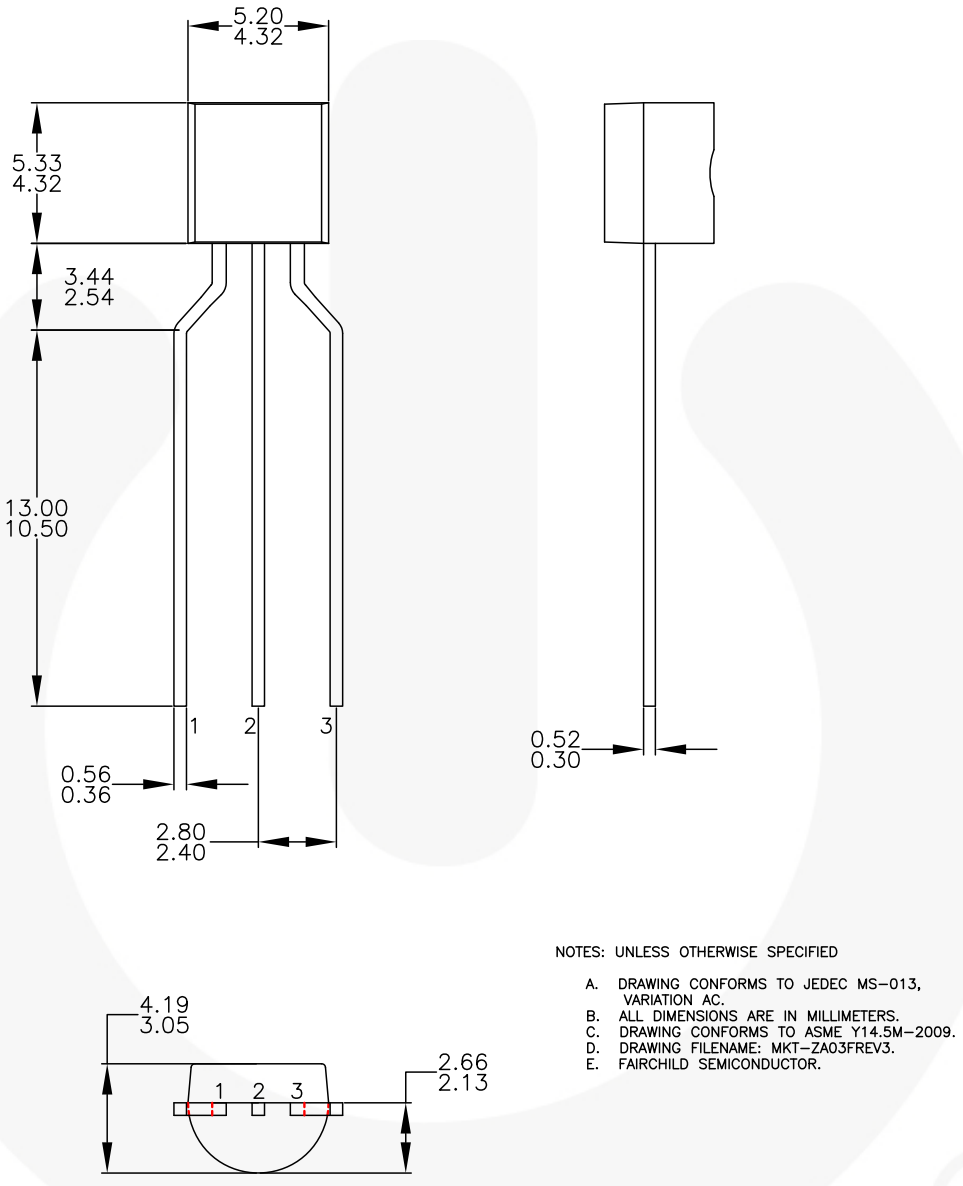

Figure 9. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo Type

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