PNP Epitaxial Silicon Transistor

KSA992

Features

- Audio Frequency Low−Noise Amplifier
- Complement to KSC1845
- These are Pb−Free Devices

MAXIMUM RATINGS (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

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (Values are at T_A = 25°C unless otherwise noted.) (Note 1)

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

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.

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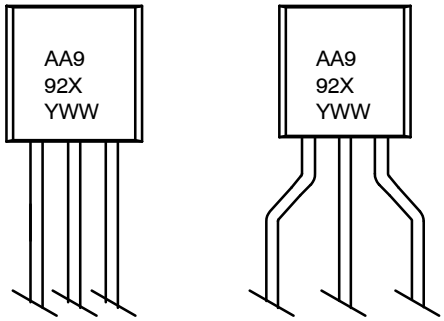
1. Emitter
2. Collector
3. Base

MARKING DIAGRAM



A = Assembly Code
A992 = Device Code
X = F / FA / FB
YWW = Date Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

ELECTRICAL CHARACTERISTICS (Values are at T_A = 25°C unless otherwise noted.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{CBO}	Collector Cut−Off Current	V_{CB} = −120 V, I_E = 0	–	–	−50	nA
I_{CEO}	Collector Cut−Off Current	V_{CE} = −100 V, I_B = 0	–	–	−1	μA
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	500	–	
h_{FE2}		V_{CE} = −6 V, I_C = −1 mA	200	500	800	
V_{BE}(on)	Base−Emitter On Voltage	V_{CE} = −6 V, I_C = −1 mA	−0.55	−0.61	−0.65	V
V_{CE}(sat)	Collector−Emitter Saturation Voltage	I_C = −10 mA, I_B = −1 mA	–	−0.09	−0.30	V
f_T	Current Gain Bandwidth Product	V_{CE} = −6 V, I_C = −1 mA	50	100	–	MHz
C_{ob}	Output Capacitance	V_{CB} = −30 V, I_E = 0, f = 1 MHz	–	2	3	pF
NF	Noise Figure	V_{CE} = −5 V, I_C = −1.0 mA, R_S = 100 kΩ, f = 1 kHz	–	7	–	dB

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

h_{FE} CLASSIFICATION

Classification	P	F	FA	FB	E
h_{FE2}	200~400	300~600	300~470	430~600	400~800

TYPICAL PERFORMANCE CHARACTERISTICS

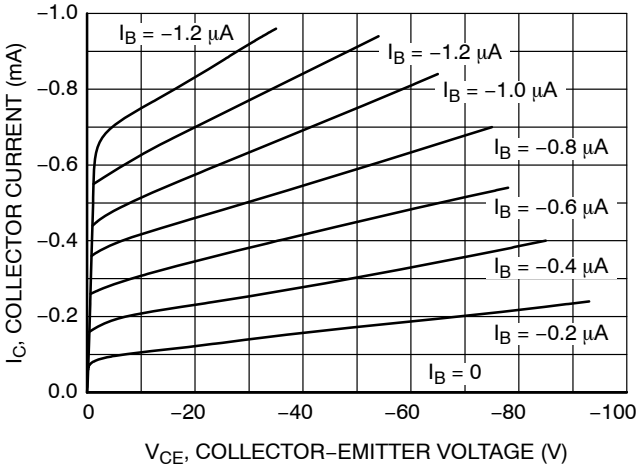


Figure 1. Static Characteristic

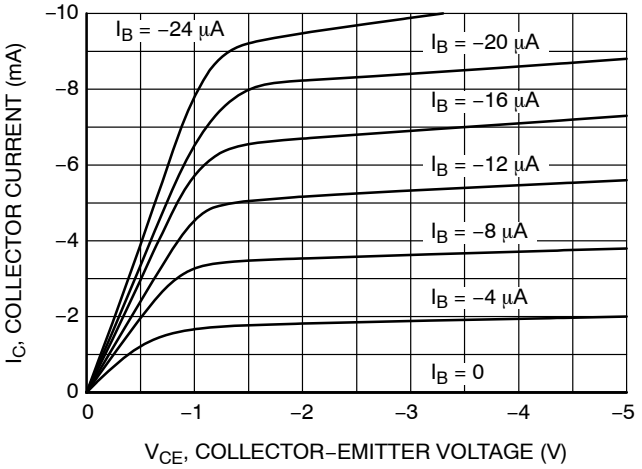


Figure 2. Static Characteristic

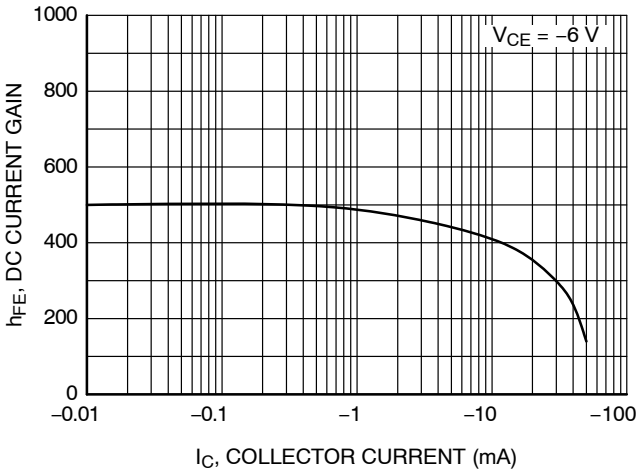


Figure 3. DC Current Gain

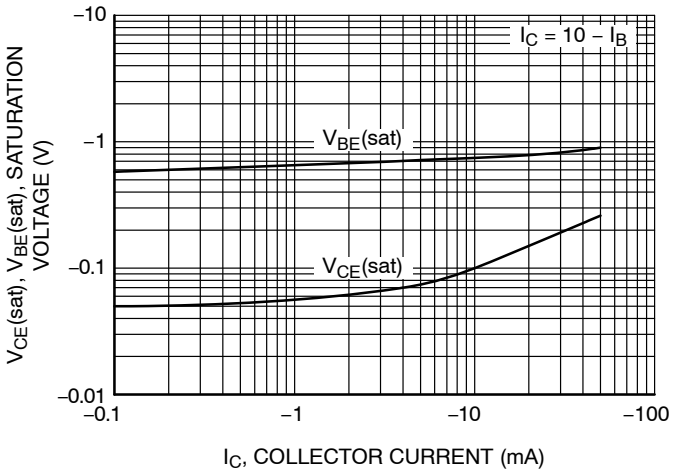


Figure 4. Base−Emitter Saturation Voltage and Collector−Emitter Saturation Voltage

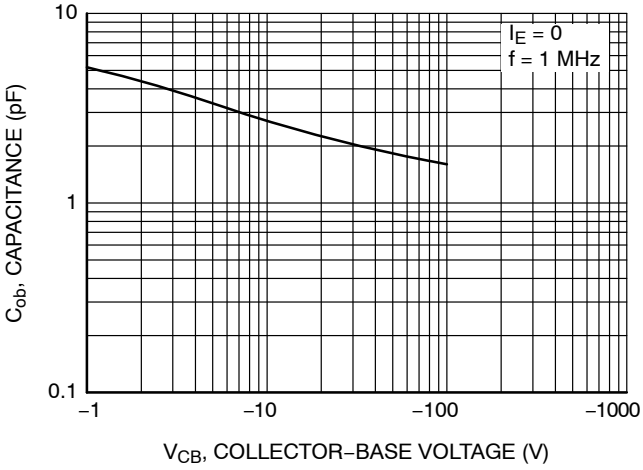


Figure 5. Collector Output Capacitance

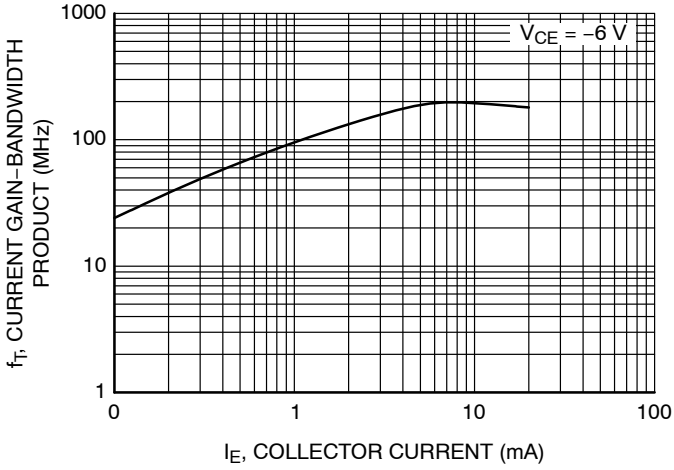


Figure 6. Current Gain Bandwidth Product

TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

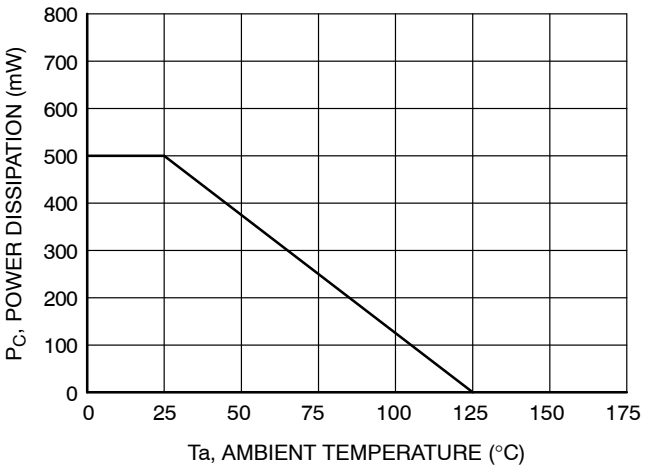


Figure 7. Power Derating

ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping†
KSA992FBU	A992	TO−92 3L (Pb−Free)	10000 Units / Bulk
KSA992FTA	A992	TO−92 3L (Pb−Free)	2000 / Tape & Ammo
KSA992FATA	A992	TO−92 3L (Pb−Free)	2000 / Tape & Ammo
KSA992FBTA	A992	TO−92 3L (Pb−Free)	2000 / Tape & Ammo

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MECHANICAL CASE OUTLINE
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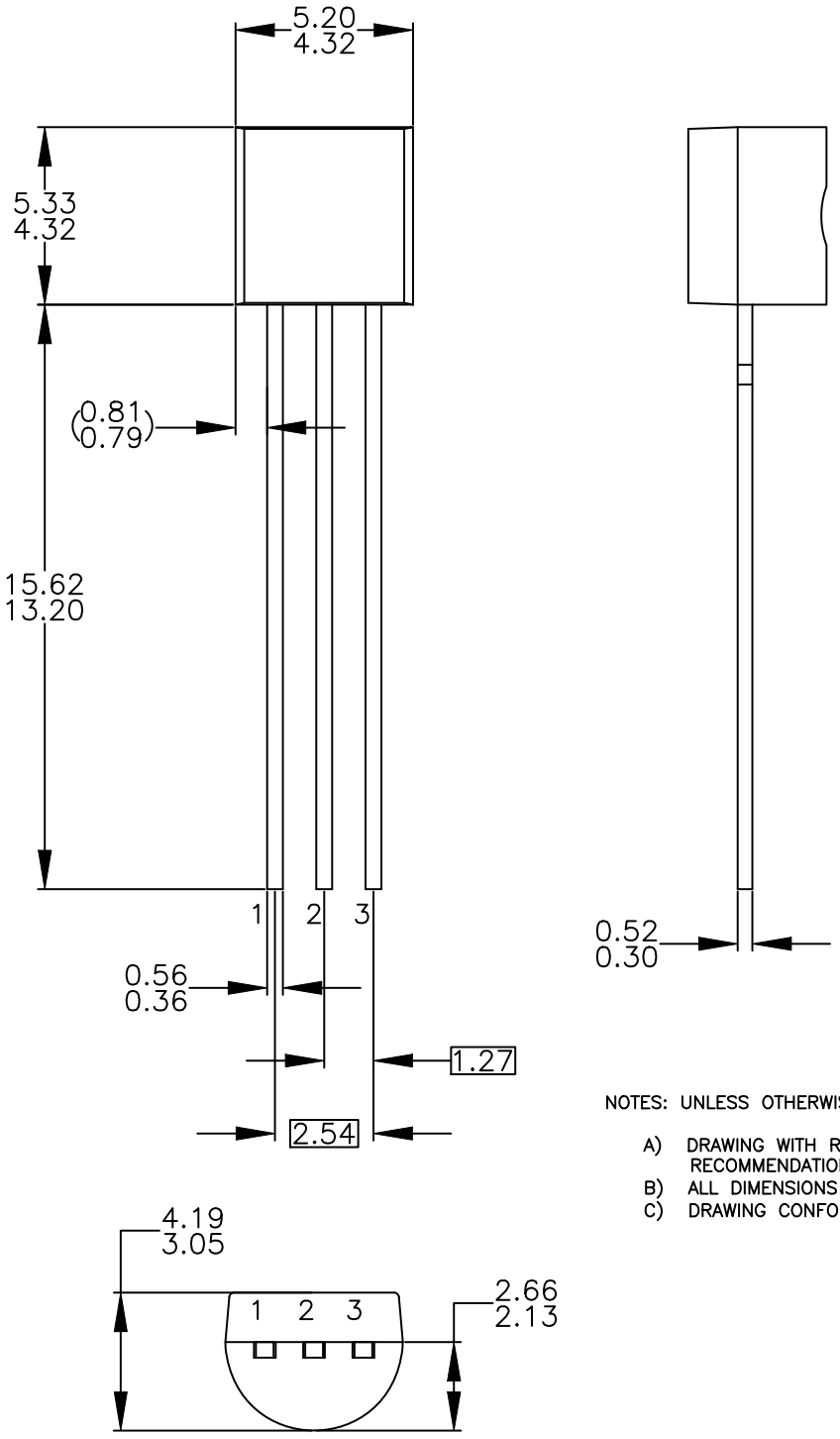

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MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

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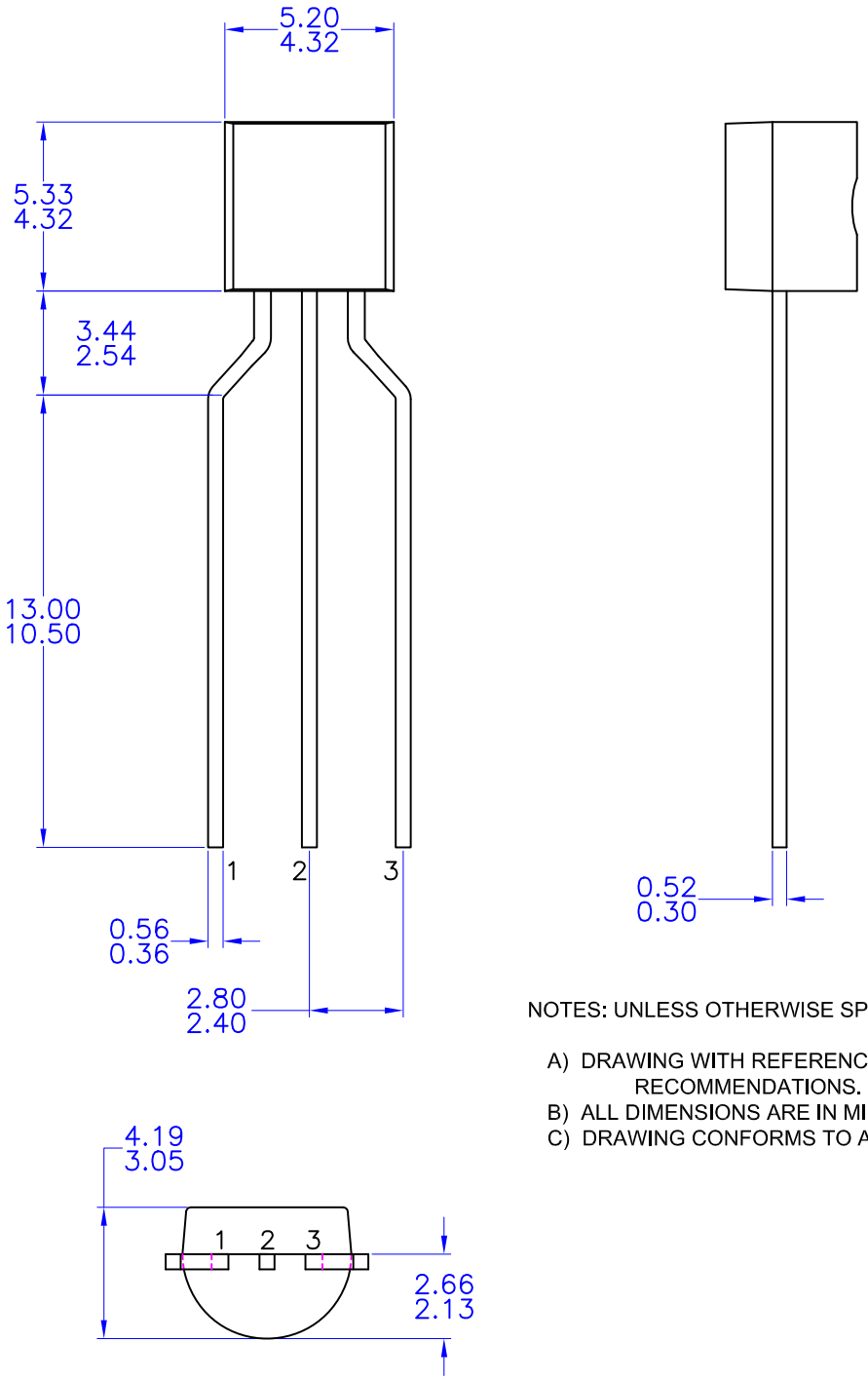

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