PNP Epitaxial Silicon Transistor

KSA992

Features

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

MAXIMUM RATINGS (Values are at $T_A = 25^{\circ}C$ 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
Ι _Β	Base Current	-10	mA
TJ	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 $T_A = 25^{\circ}C$ unless otherwise noted.) (Note 1)

Symbol	Parameter	Value	Unit
P_{D}	Power Dissipation	500	mW
	Derate Above 25°C	4	mW/°C
$R_{ hetaJA}$	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.



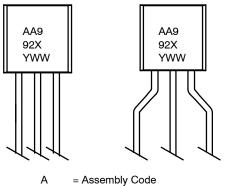
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TO-92 3 4.825x4.76 TO-92 3 4.83x4.70 CASE 135AN LEADFORMED CASE 135AR

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.

KSA992

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

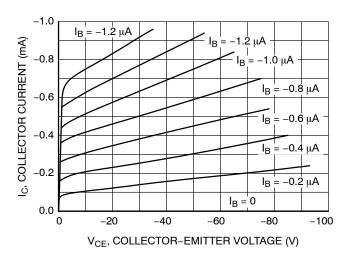
Symbol	Parameter	Conditions	Min	Тур	Max	Unit
I _{CBO}	Collector Cut-Off Current	$V_{CB} = -120 \text{ V}, I_E = 0$	-	-	-50	nA
I _{CEO}	Collector Cut-Off Current	$V_{CE} = -100 \text{ V}, I_B = 0$	-	-	-1	μΑ
I _{EBO}	Emitter Cut-Off Current	$V_{EB} = -5 \text{ V}, I_{C} = 0$	-	-	-50	nA
h _{FE1}	DC Current Gain	$V_{CE} = -6 \text{ V}, I_{C} = -0.1 \text{ mA}$	150	500	-	
h _{FE2}		$V_{CE} = -6 \text{ V}, I_{C} = -1 \text{ mA}$	200	500	800	
V _{BE} (on)	Base-Emitter On Voltage	$V_{CE} = -6 \text{ V}, I_{C} = -1 \text{ mA}$	-0.55	-0.61	-0.65	V
V _{CE} (sat)	Collector-Emitter Saturation Voltage	$I_C = -10 \text{ mA}, I_B = -1 \text{ mA}$	-	-0.09	-0.30	V
f _T	Current Gain Bandwidth Product	$V_{CE} = -6 \text{ V}, I_{C} = -1 \text{ mA}$	50	100	-	MHz
C _{ob}	Output Capacitance	$V_{CB} = -30 \text{ V}, I_{E} = 0, f = 1 \text{ MHz}$	-	2	3	pF
NF	Noise Figure	$V_{CE} = -5 \text{ V, } I_{C} = -1.0 \text{ mA,}$ $R_{S} = 100 \text{ k}\Omega, f = 1 \text{ kHz}$	-	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.

$h_{\mbox{\scriptsize FE}}$ CLASSIFICATION

Classification	Р	F	FA	FB	E
h _{FE2}	200~400	300~600	300~470	430~600	400~800

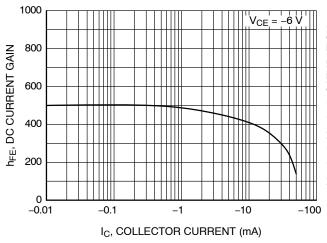
TYPICAL PERFORMANCE CHARACTERISTICS



 $I_B = -24 \mu A$ –20 μA $I_B =$ IC, COLLECTOR CURRENT (mA) -8 <u>−16 μA</u> -6 ·12 μ̈Α I_B -8 μÀ $I_B =$ –4 μÅ $I_B = 0$ 0 -2 -3 -4 0 -5 V_{CE}, COLLECTOR-EMITTER VOLTAGE (V)

Figure 1. Static Characteristic

Figure 2. Static Characteristic



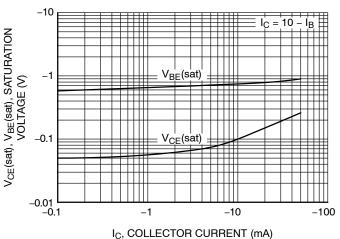
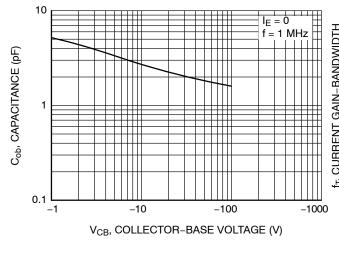


Figure 3. DC Current Gain

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



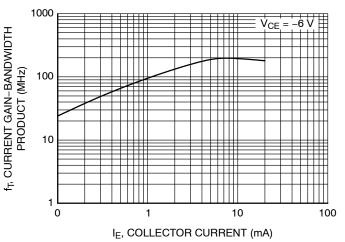


Figure 5. Collector Output Capacitance

Figure 6. Current Gain Bandwidth Product

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TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

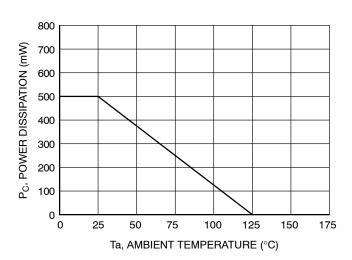


Figure 7. Power Derating

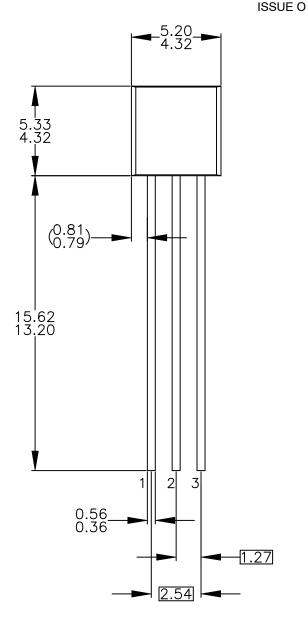
ORDERING INFORMATION

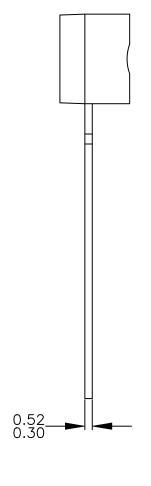
Part Number	Top Mark	Package	Shipping [†]
KSA992FBU	A992	TO-92 3L (Pb-Free)	10000 Units / Bulk
KSA992FTA	A992	TO-92 3L (Pb-Free)	2000 / Tape & Ammo
KSA992FATA	A992	TO-92 3L (Pb-Free)	2000 / Tape & Ammo
KSA992FBTA	A992	TO-92 3L (Pb-Free)	2000 / Tape & Ammo

[†]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.

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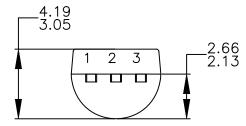
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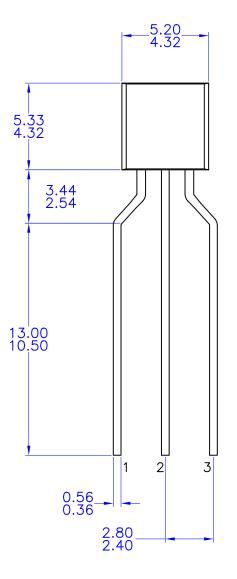
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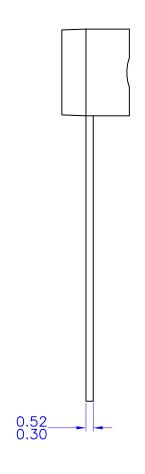
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CASE 135AR ISSUE O

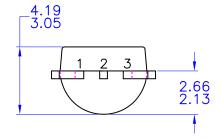
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