

# NPN Epitaxial Silicon Transistor

## KSC1008

### Features

- Low-Frequency Amplifier Medium Speed Switching
- High Collector-Base Voltage:  $V_{CBO} = 80\text{ V}$
- Collector Current:  $I_C = 700\text{ mA}$
- Suffix “-C” means Center Collector (1. Emitter 2. Collector 3. Base)
- Non Suffix “-C” means Side Collector (1. Emitter 2. Base 3. Collector)
- Complement to KSA708
- These are Pb-Free Devices

### ABSOLUTE MAXIMUM RATINGS

( $T_A = 25^\circ\text{C}$  unless otherwise noted.)

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	80	V
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	8	V
$I_C$	Collector Current	700	mA
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 to 150	$^\circ\text{C}$

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

( $T_A = 25^\circ\text{C}$  unless otherwise noted.) (Note 1)

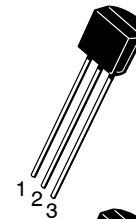
Symbol	Parameter	Value	Unit
$P_D$	Power Dissipation	800	mW
	Derate Above $25^\circ\text{C}$	6.4	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	156	$^\circ\text{C}/\text{W}$

1. PCB size: FR-4, 76 mm  $\times$  114 mm  $\times$  1.57 mm (3.0 inch  $\times$  4.5 inch  $\times$  0.062 inch) with minimum land pattern size.

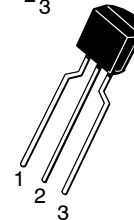


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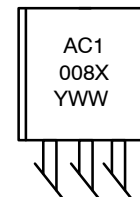
TO-92-3  
CASE 135AN



TO-92-3 LF  
CASE 135AR

KSC1008: 1. Emitter 2. Base 3. Collector  
KSC1008C: 1. Emitter 2. Collector 3. Base

### MARKING DIAGRAM



A = Assembly Code  
C1008 = Device Code  
X = O/Y/YC/G  
YWW = Date Code

### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

# KSC1008

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	80	-	-	V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10 \text{ mA}, I_B = 0$	60	-	-	V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A}, I_C = 0$	8	-	-	V
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = 60 \text{ V}, I_E = 0$	-	-	0.1	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 5 \text{ V}, I_C = 0$	-	-	0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE} = 2 \text{ V}, I_C = 50 \text{ mA}$	40	-	400	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$	-	0.2	0.4	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$	-	0.86	1.10	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 10 \text{ V}, I_C = 50 \text{ mA}$	30	50	-	MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	-	8	-	pF

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	O	Y	G
$h_{FE}$	70 ~ 140	120 ~ 240	200 ~ 400

## ORDERING INFORMATION (Note 2)

Part Number	Top Mark	Package	Shipping
KSC1008OBU	C1008 O-	TO-92-3 (Pb-Free)	10000 / Bulk Bag
KSC1008YBU	C1008 Y-		10000 / Bulk Bag
KSC1008YTA	C1008 Y-	TO-92-3 LR (Pb-Free)	2000 / Fan-Fold
KSC1008CYTA	C1008 YC		2000 / Fan-Fold
KSC1008GTA	C1008 G-		2000 / Fan-Fold

2. Affix "-C-" means center collector pin. Affix "-O-, -Y-, -G-" means  $h_{FE}$  classification. Suffix "-BU" means bulk packing, straight lead form. Suffix "-TA" means tape and ammo packing, 0.200 in-line spacing lead form.

TYPICAL PERFORMANCE CHARACTERISTICS

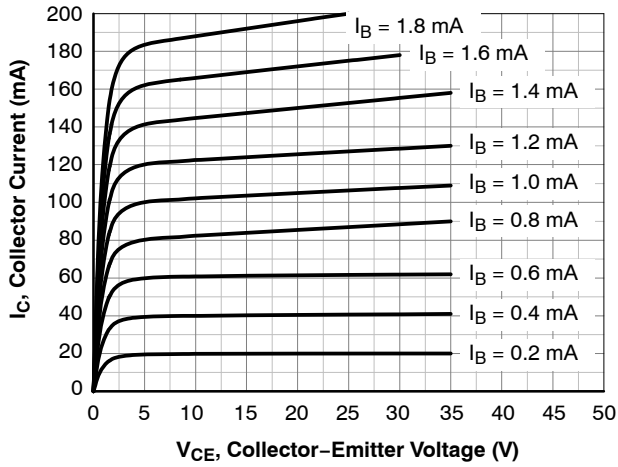


Figure 1. Static Characteristic

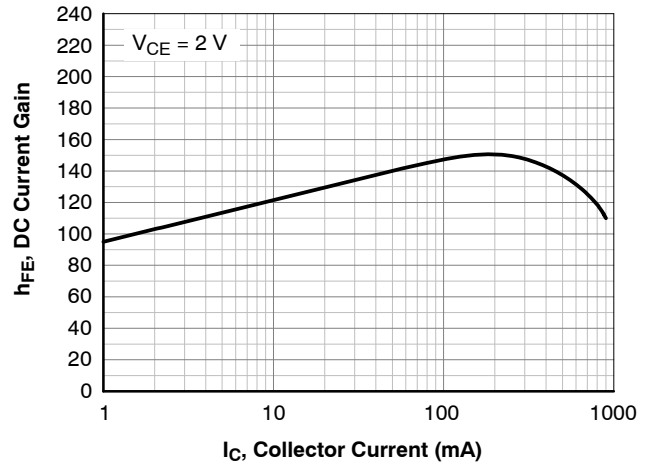


Figure 2. DC Current Gain

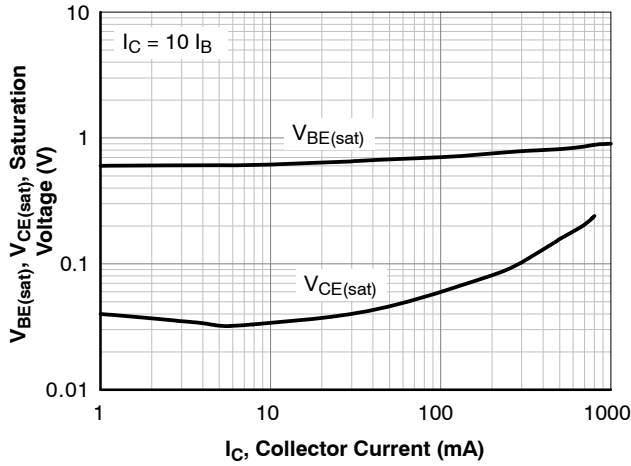


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

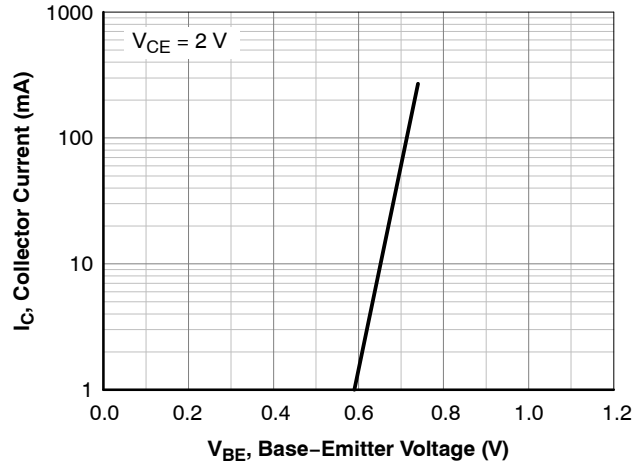


Figure 4. Base-Emitter On Voltage

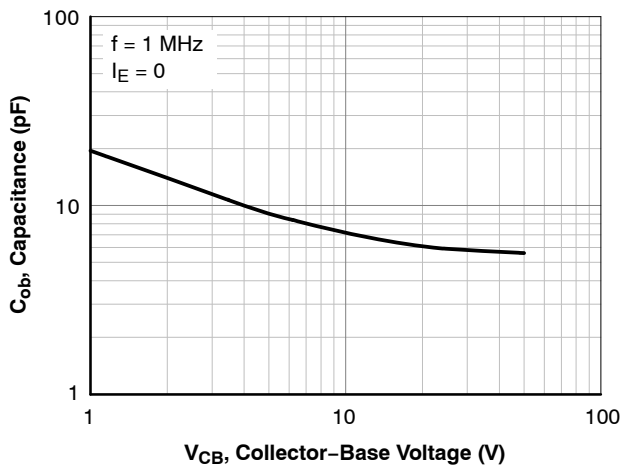


Figure 5. Collector Output Capacitance

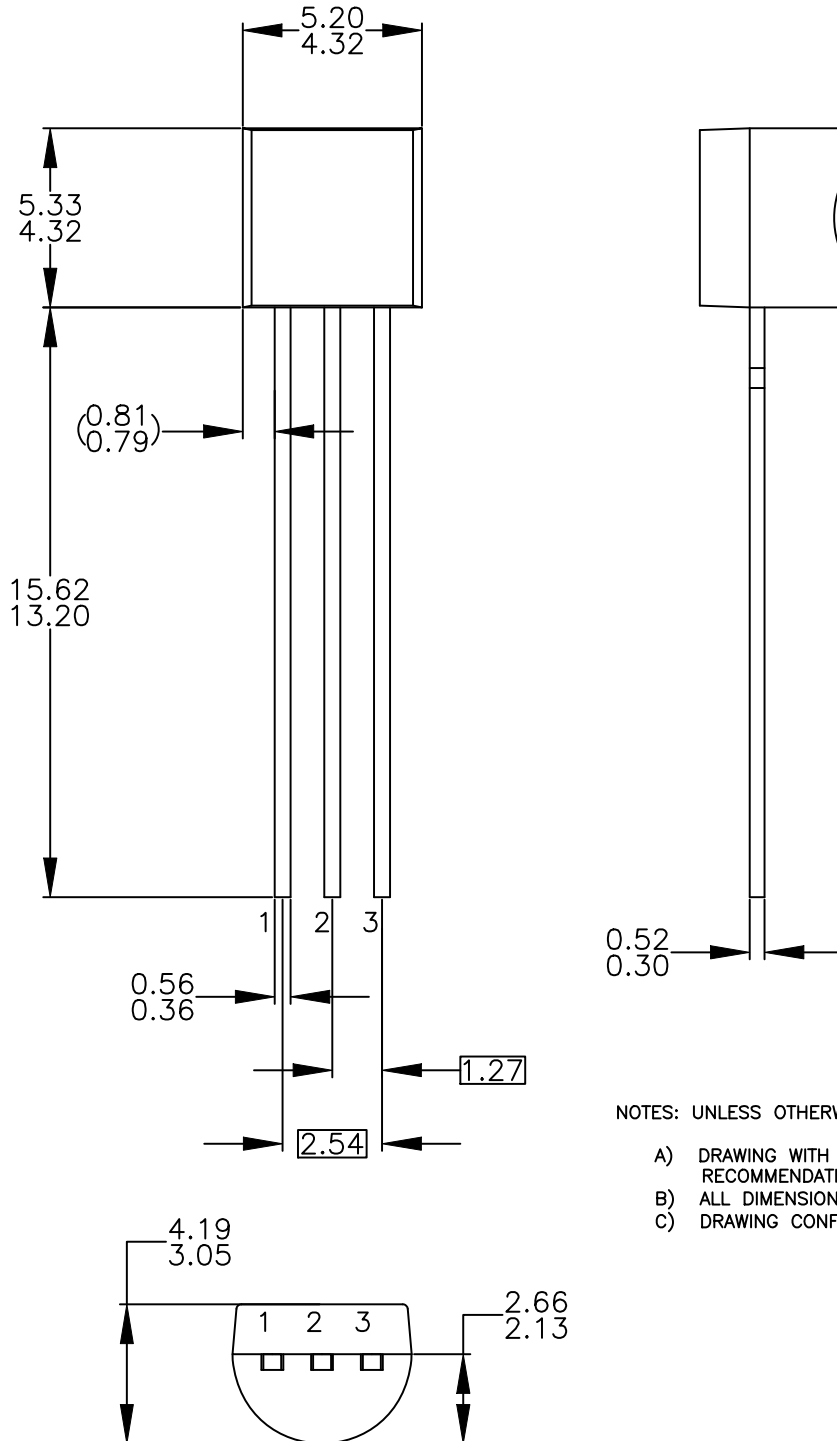
**MECHANICAL CASE OUTLINE**  
**PACKAGE DIMENSIONS**

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**TO-92 3 4.825x4.76**  
**CASE 135AN**  
**ISSUE O**

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