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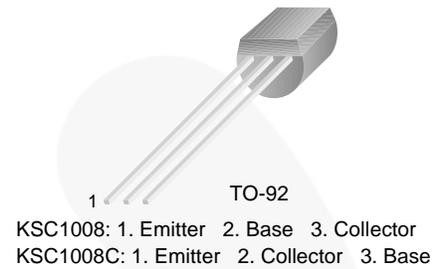


November 2014

# KSC1008 NPN Epitaxial Silicon Transistor

## 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



## Ordering Information<sup>(1)</sup>

Part Number	Top Mark	Package	Packing Method
KSC1008OBU	C1008 O-	TO-92 3L	Bulk
KSC1008YBU	C1008 Y-	TO-92 3L	Bulk
KSC1008YTA	C1008 Y-	TO-92 3L	Ammo, 2000 pcs
KSC1008CYTA	C1008 YC	TO-92 3L	Ammo, 2000 pcs
KSC1008GTA	C1008 G-	TO-92 3L	Ammo, 2000 pcs

### Note:

1. 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.

## 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  $T_A = 25^\circ\text{C}$  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	$^\circ\text{C}$

**Thermal Characteristics<sup>(2)</sup>**

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

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	$^\circ\text{C}/\text{W}$

**Note:**

2. 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  $T_A = 25^\circ\text{C}$  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

 **$h_{FE}$  Classification**

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

## Typical Performance Characteristics

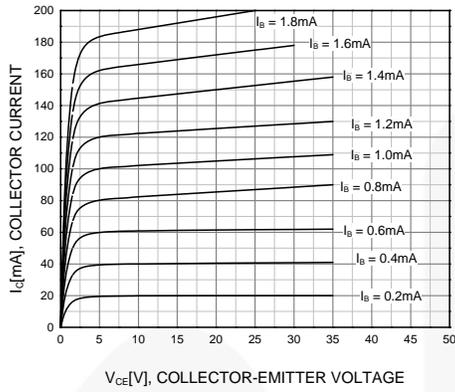


Figure 1. Static Characteristic

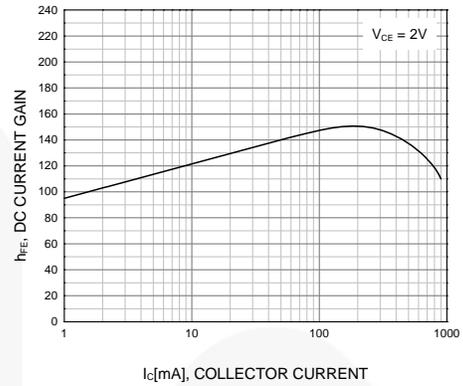


Figure 2. DC Current Gain

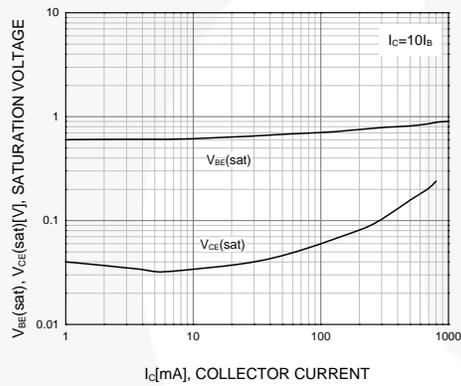


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

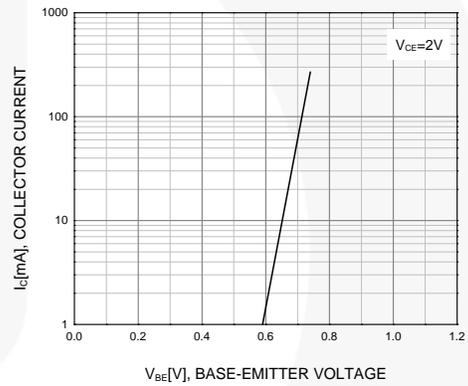


Figure 4. Base-Emitter On Voltage

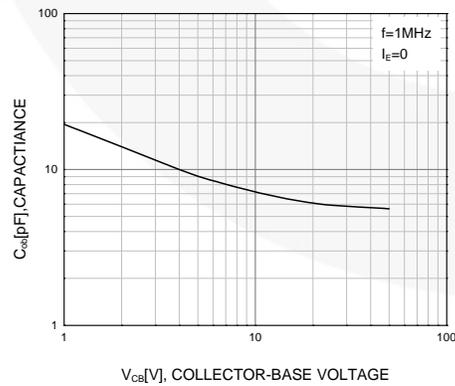
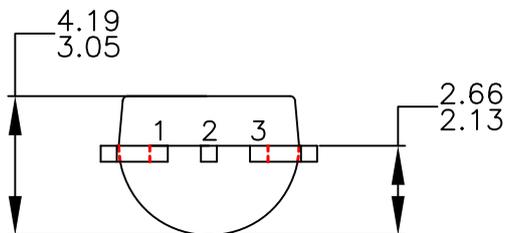
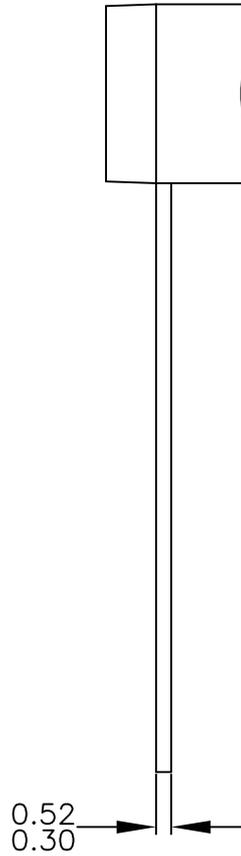
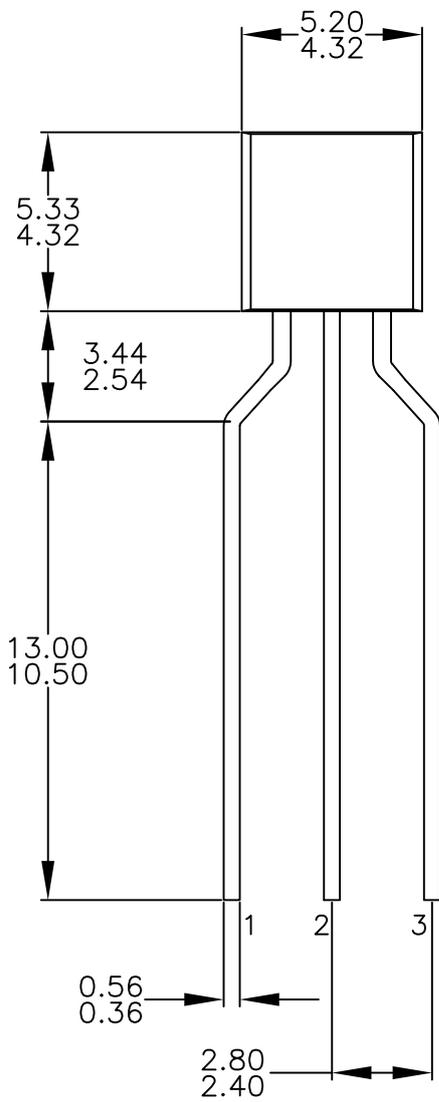
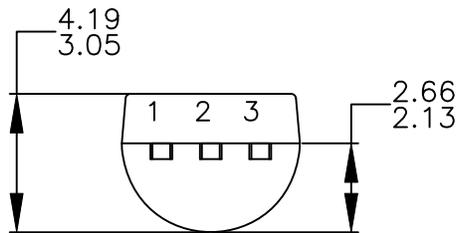
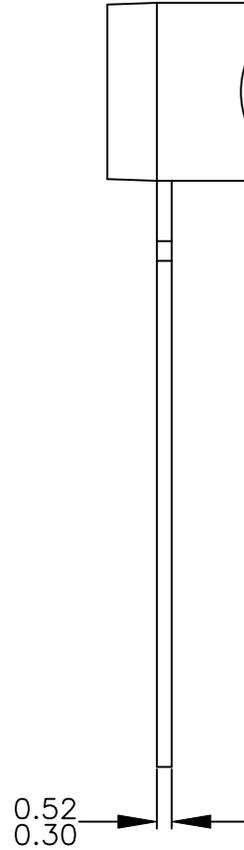
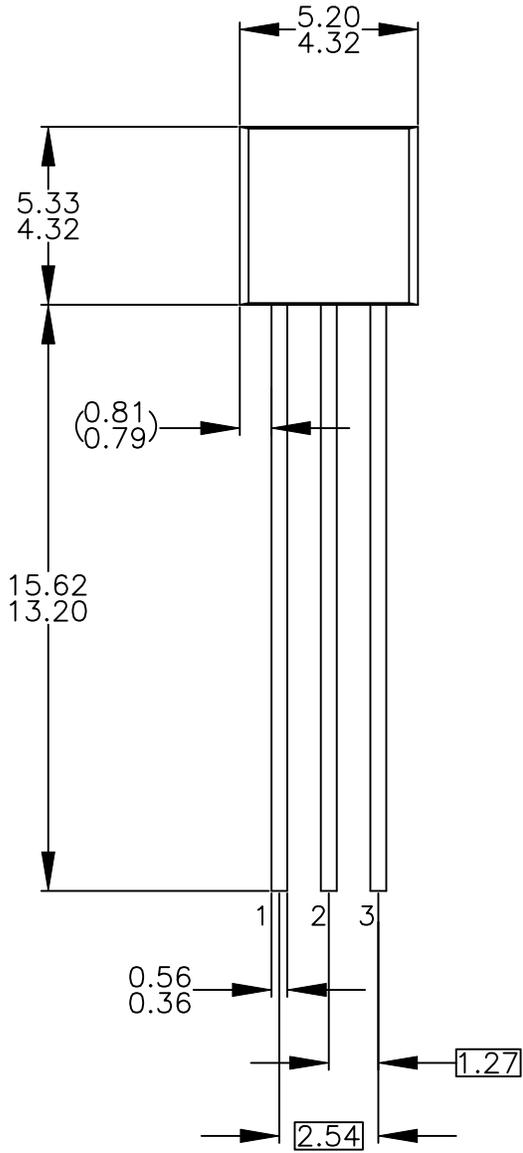


Figure 5. Collector Output Capacitance



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