

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 | $^\circ\text{C}$ |

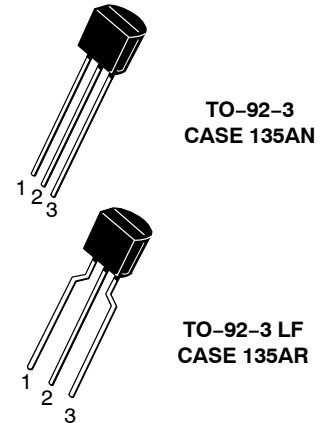
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

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

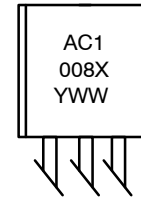
| Symbol | Parameter | Value | Unit |
|-----------------|---|-------|---------------------------|
| P_D | Power Dissipation | 800 | mW |
| | Derate Above 25°C | 6.4 | mW/ $^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 156 | $^\circ\text{C}/\text{W}$ |

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.



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 | μA |
| I_{EBO} | Emitter Cut-Off Current | $V_{EB} = 5 \text{ V}, I_C = 0$ | - | - | 0.1 | μA |
| 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

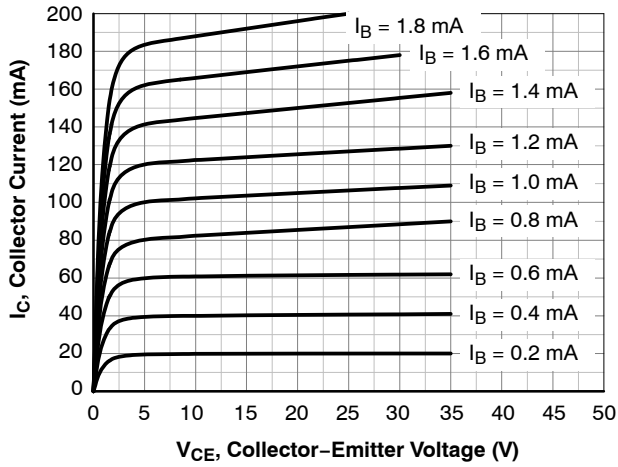


Figure 1. Static Characteristic

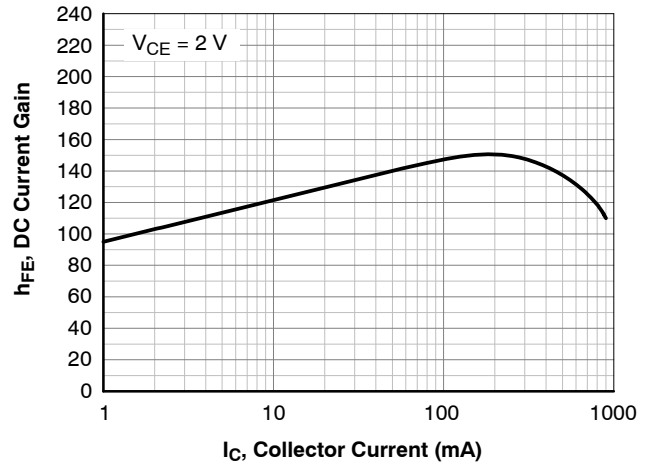


Figure 2. DC Current Gain

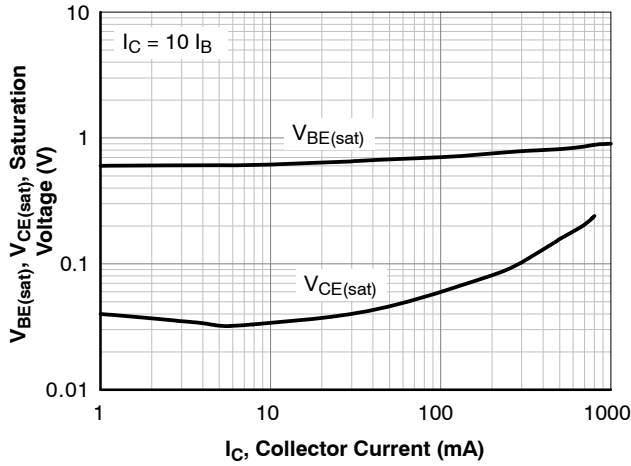


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

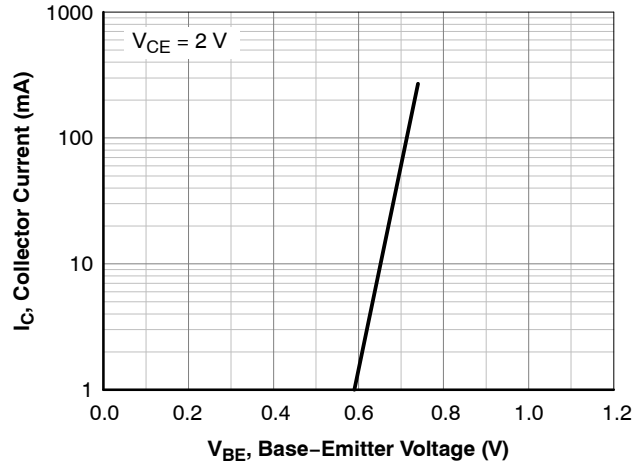


Figure 4. Base-Emitter On Voltage

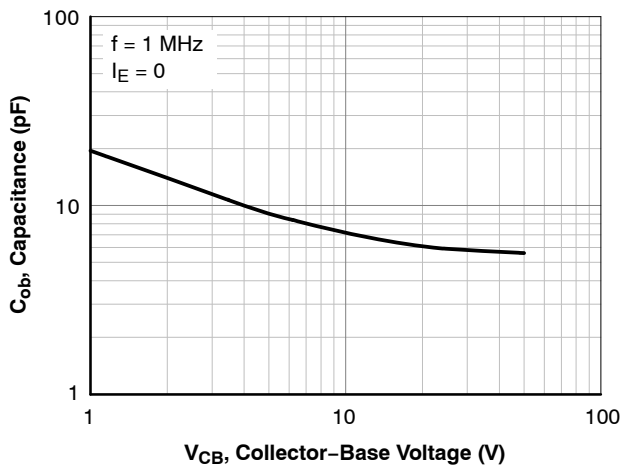
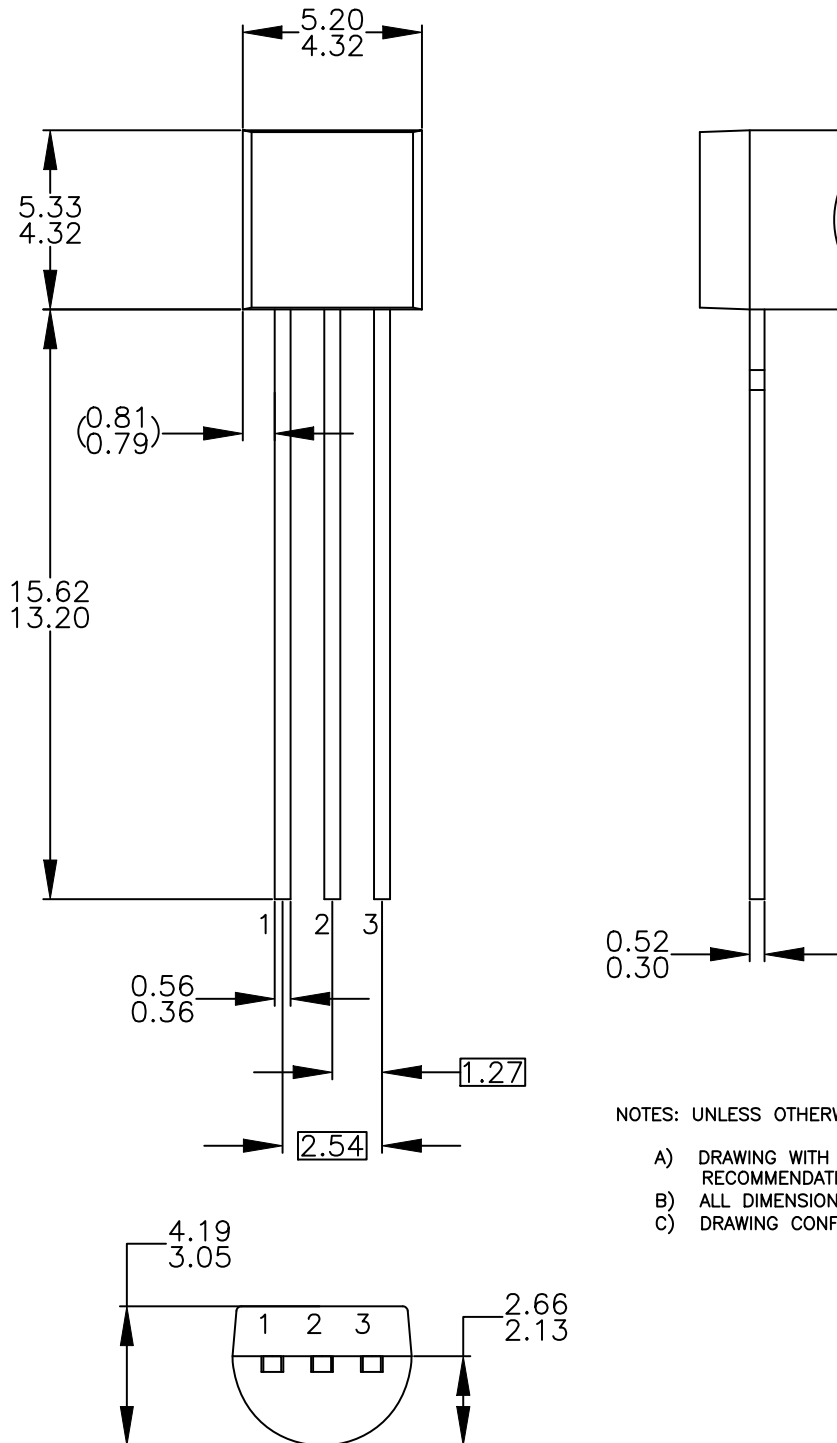


Figure 5. Collector Output Capacitance

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

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

DATE 31 JUL 2016



NOTES: UNLESS OTHERWISE SPECIFIED

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