

# NPN Epitaxial Silicon Transistor

## KSD471A

### Features

- Audio Frequency Power Amplifier
- Complementary to KSB1151
- Collector Current:  $I_C = 1\text{ A}$
- Collector Power Dissipation:  $P_C = 800\text{ mW}$
- Suffix “-C” means Center Collector (1. Emitter 2. Collector 3. Base)

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

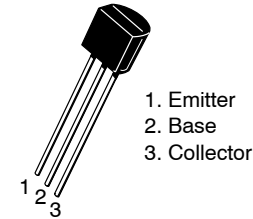
| Symbol    | Parameter                   | Value       | Unit             |
|-----------|-----------------------------|-------------|------------------|
| $V_{CBO}$ | Collector–Base Voltage      | 40          | V                |
| $V_{CEO}$ | Collector–Emitter Voltage   | 30          | V                |
| $V_{EBO}$ | Emitter–Base Voltage        | 5           | V                |
| $I_C$     | Collector Current           | 1           | A                |
| $P_C$     | Collector Power Dissipation | 800         | mW               |
| $T_J$     | 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.

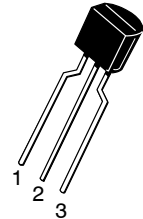
### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Symbol        | Parameter                            | Test Condition                                         | Min | Typ | Max | Unit          |
|---------------|--------------------------------------|--------------------------------------------------------|-----|-----|-----|---------------|
| $BV_{CBO}$    | Collector–Base Breakdown Voltage     | $I_C = 100\text{ }\mu\text{A}$ , $I_E = 0$             | 40  | –   | –   | V             |
| $BV_{CEO}$    | Collector–Emitter Breakdown Voltage  | $I_C = 10\text{ mA}$ , $I_B = 0$                       | 30  | –   | –   | V             |
| $BV_{EBO}$    | Emitter–Base Breakdown Voltage       | $I_E = 100\text{ }\mu\text{A}$ , $I_C = 0$             | 5   | –   | –   | V             |
| $I_{CBO}$     | Collector Cut-off Current            | $V_{CB} = 30\text{ V}$ , $I_E = 0$                     | –   | –   | 0.1 | $\mu\text{A}$ |
| $h_{FE}$      | DC Current Gain                      | $V_{CE} = 1\text{ V}$ , $I_C = 100\text{ mA}$          | 120 | –   | 240 | –             |
| $V_{CE(sat)}$ | Collector–Emitter Saturation Voltage | $I_C = 1\text{ A}$ , $I_B = 0.1\text{ A}$              | –   | –   | 0.5 | V             |
| $V_{BE(sat)}$ | Base–Emitter Saturation Voltage      | $I_C = 1\text{ A}$ , $I_B = 0.1\text{ A}$              | –   | –   | 1.2 | V             |
| $f_T$         | Current Gain BandWidth Product       | $V_{CE} = 6\text{ V}$ , $I_C = 10\text{ mA}$           | –   | 130 | –   | MHz           |
| $C_{ob}$      | Output Capacitance                   | $V_{CB} = 6\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$ | –   | 16  | –   | 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.

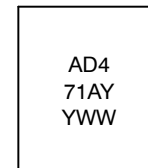


TO-92 3  
CASE 135AN



TO-92 3 LF  
CASE 135AR

### MARKING DIAGRAM



A = Assembly Code  
D471AY = Device Code  
YWW = Data Code

### ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 3.

## TYPICAL CHARACTERISTICS

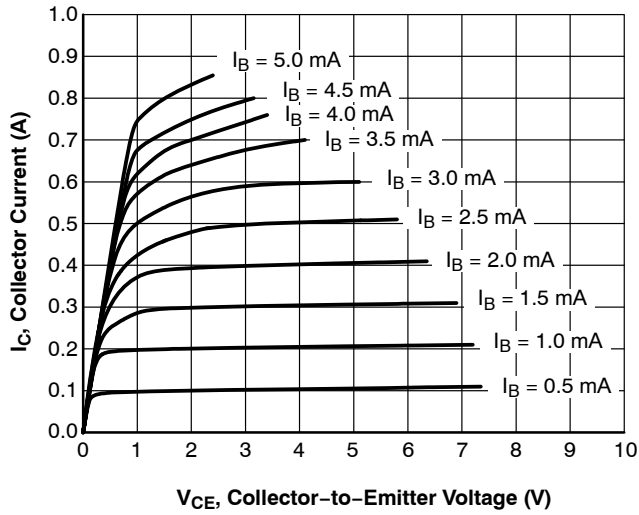


Figure 1. Static Characteristic

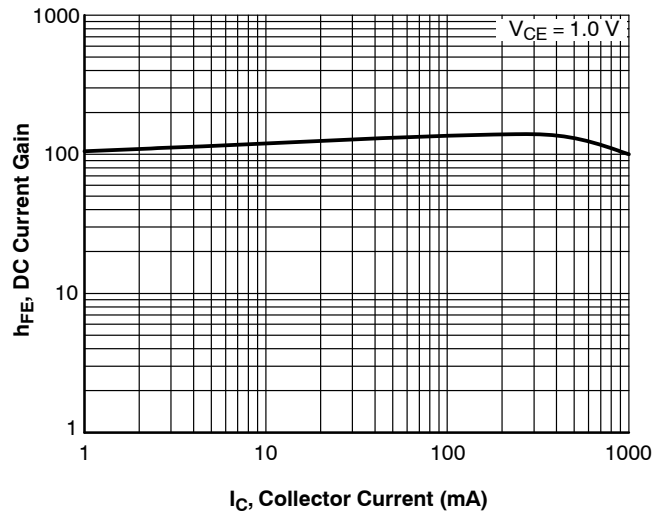


Figure 2. DC Current Gain

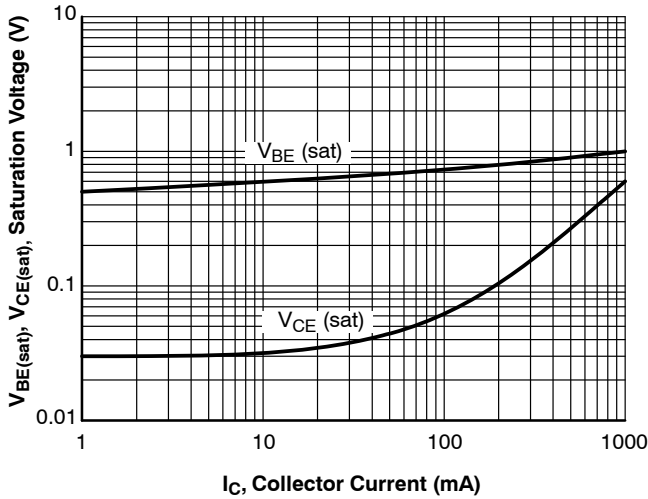
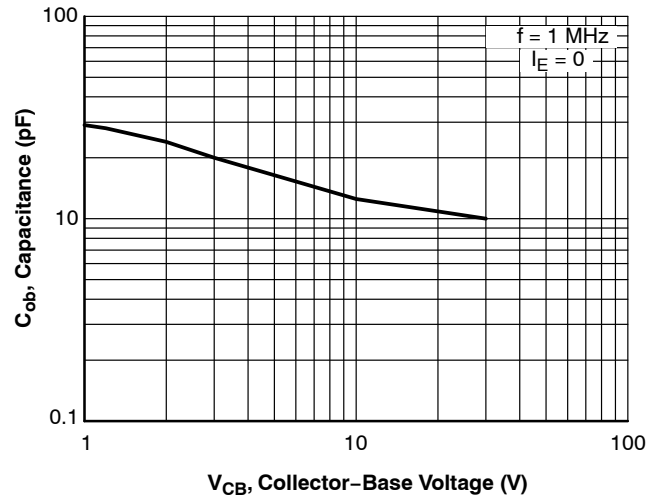
Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

Figure 4. Collector Output Capacitance

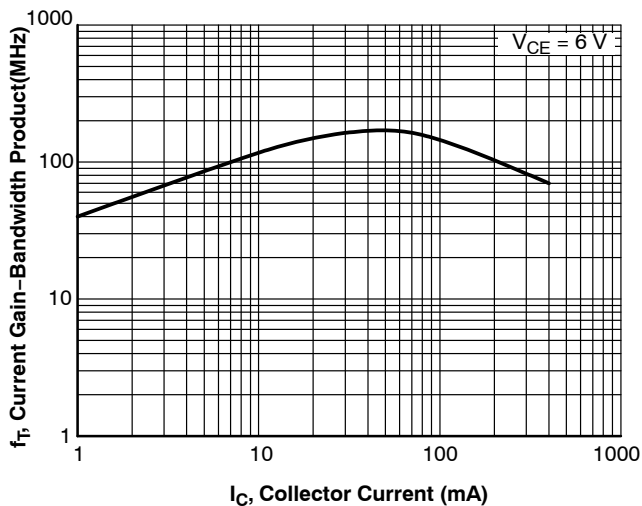


Figure 5. Current Gain Bandwidth Product

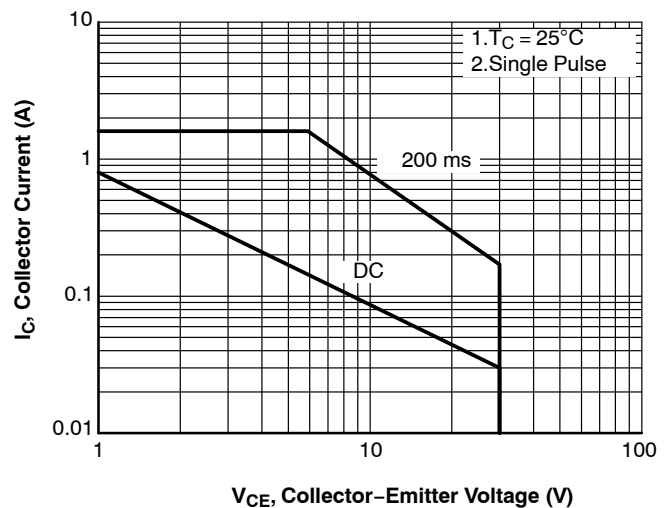


Figure 6. Safe Operating Area

## KSD471A

### ORDERING INFORMATION

| Device      | Package                | Shipping    |
|-------------|------------------------|-------------|
| KSD471ACYTA | TO-92-3<br>(Pb-Free)   | 10000 BLKBG |
| KSD471AYTA  | TO-92-3LF<br>(Pb-Free) | 2000 FNFLD  |

### DISCONTINUED (Note 1)

|             |                        |            |
|-------------|------------------------|------------|
| KSD471ACYBU | TO-92-3LF<br>(Pb-Free) | 2000 FNFLD |
|-------------|------------------------|------------|

1. **DISCONTINUED:** This device is not recommended for new design. Please contact your **onsemi** representative for information. The most current information on this device may be available on [www.onsemi.com](http://www.onsemi.com).

# MECHANICAL CASE OUTLINE

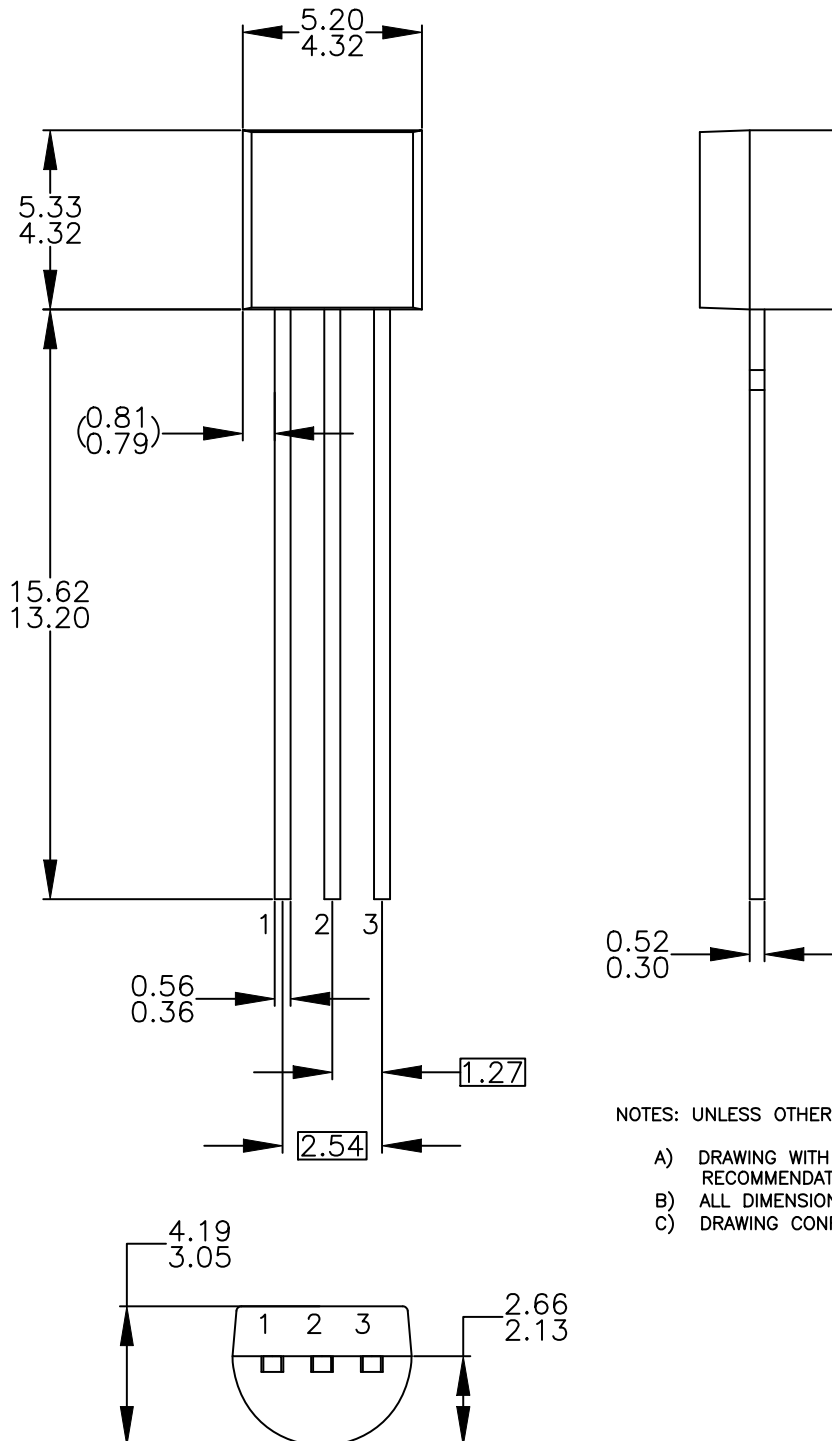
## PACKAGE DIMENSIONS

ON Semiconductor®

ON

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

DATE 31 JUL 2016



NOTES: UNLESS OTHERWISE SPECIFIED

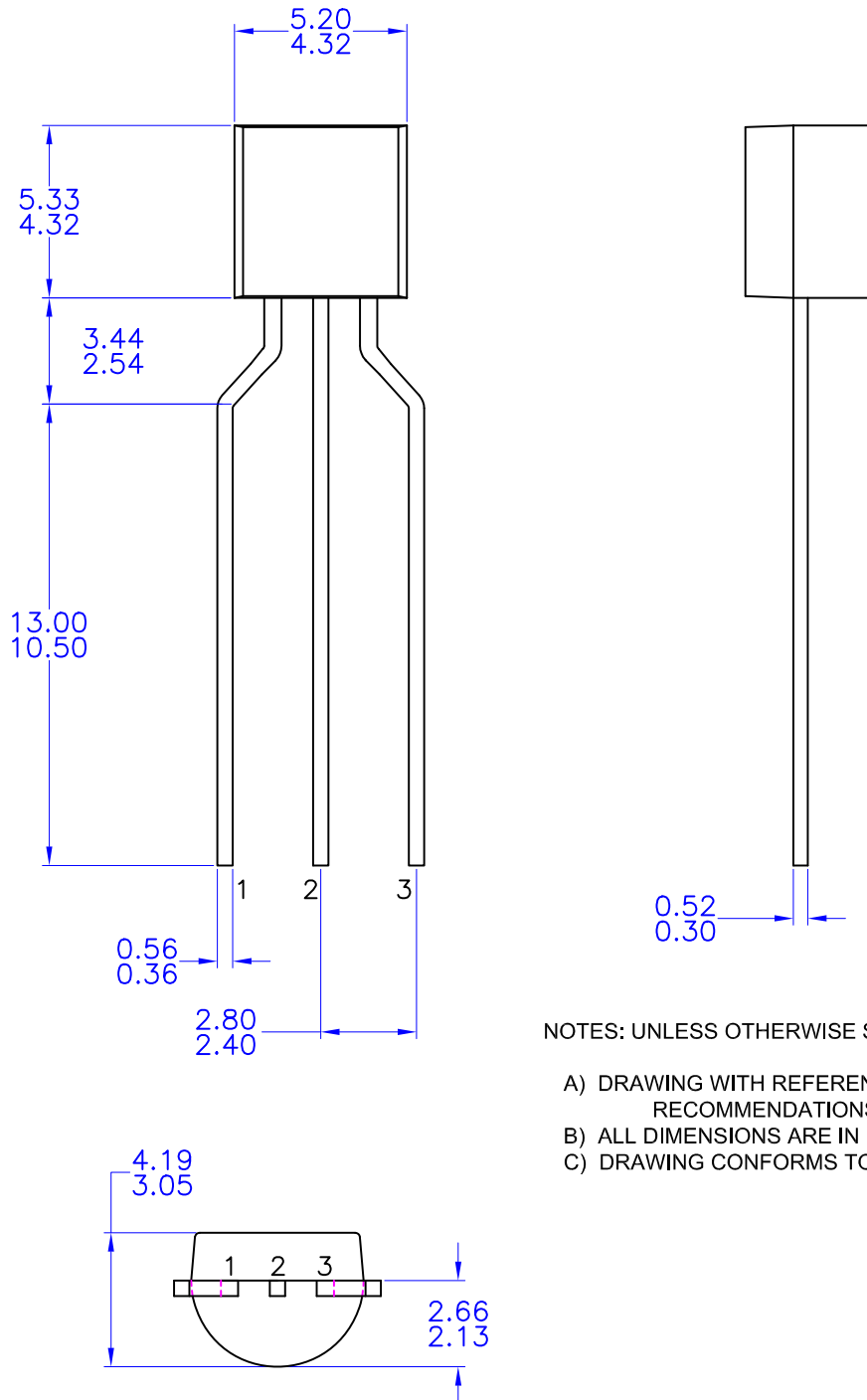
- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DRAWING CONFORMS TO ASME Y14.5M-2009.

|                  |                    |                                                                                                                                                                                     |
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**TO-92 3 4.83x4.76 LEADFORMED**  
**CASE 135AR**  
**ISSUE O**

DATE 30 SEP 2016



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|                         |                                     |                                                                                                                                                                                     |
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