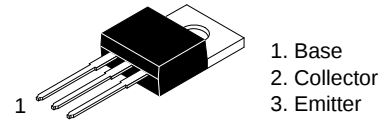


# PNP Epitaxial Silicon Transistor

## KSB596



TO-220-3LD  
CASE 340AT

### Features

- Complement to KSD526
- This is a Pb-Free Device

### Applications

- Power Amplifier Applications

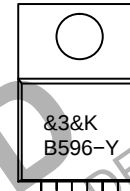
### ABSOLUTE MAXIMUM RATINGS\* ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Symbol    | Parameter                                          | Ratings   | Units            |
|-----------|----------------------------------------------------|-----------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                             | -80       | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                          | -80       | V                |
| $V_{EBO}$ | Emitter-Base Voltage                               | -5        | V                |
| $I_C$     | Collector Current (DC)                             | -4        | A                |
| $I_B$     | Base Current                                       | -0.4      | A                |
| $P_C$     | Collector Dissipation ( $T_C = 25^\circ\text{C}$ ) | 30        | W                |
| $T_J$     | Junction Temperature                               | 150       | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature                                | -55 ~ 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.

\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### MARKING DIAGRAM



&3 = Date Code  
&K = Lot Traceability Code  
B596-Y = Specific Device Code

### ORDERING INFORMATION

| Device    | Package                 | Shipping             |
|-----------|-------------------------|----------------------|
| KSB596YTU | TO-220-3LD<br>(Pb-Free) | 1000 Units /<br>Tube |

# KSB596

## ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted)

| Symbol                               | Characteristic                       | Test Condition                                                                                   | Min      | Typ | Max  | Unit |
|--------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------|----------|-----|------|------|
| BV <sub>CEO</sub>                    | Collector-Emitter Breakdown Voltage  | I <sub>C</sub> = -50 mA, I <sub>B</sub> = 0                                                      | -80      |     |      | V    |
| BV <sub>EBO</sub>                    | Emitter-Base Breakdown Voltage       | I <sub>E</sub> = -10 mA, I <sub>C</sub> = 0                                                      | -5       |     |      | V    |
| I <sub>CBO</sub>                     | Collector Cut-off Current            | V <sub>CB</sub> = -80 V, I <sub>E</sub> = 0                                                      |          |     | -70  | μA   |
| I <sub>EBO</sub>                     | Emitter Cut-off Current              | V <sub>EB</sub> = -5 V, I <sub>C</sub> = 0                                                       |          |     | -100 | μA   |
| h <sub>FE1</sub><br>h <sub>FE2</sub> | DC Current Gain                      | V <sub>CE</sub> = -5 V, I <sub>C</sub> = -0.5 A<br>V <sub>CE</sub> = -5 V, I <sub>C</sub> = -3 A | 40<br>15 |     | 240  |      |
| V <sub>CE(sat)</sub>                 | Collector-Emitter Saturation Voltage | I <sub>C</sub> = -3 A, I <sub>B</sub> = -0.3 A                                                   |          | -1  | -1.7 | V    |
| V <sub>BE(on)</sub>                  | Base-Emitter On Voltage              | V <sub>CE</sub> = -5 V, I <sub>C</sub> = -3 A                                                    |          | -1  | -1.5 | V    |
| f <sub>T</sub>                       | Current Gain Bandwidth Product       | V <sub>CE</sub> = -5 V, I <sub>C</sub> = -0.5 A                                                  | 3        |     |      | MHz  |
| C <sub>cb</sub>                      | Collector Output Capacitance         | V <sub>CB</sub> = -10 V, I <sub>E</sub> = 0, f = 1 MHz                                           |          | 130 |      | 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<sub>FE</sub> CLASSIFICATION

| Classification  | R       | O        | Y         |
|-----------------|---------|----------|-----------|
| h <sub>FE</sub> | 40 ~ 80 | 70 ~ 140 | 120 ~ 240 |

## TYPICAL CHARACTERISTICS

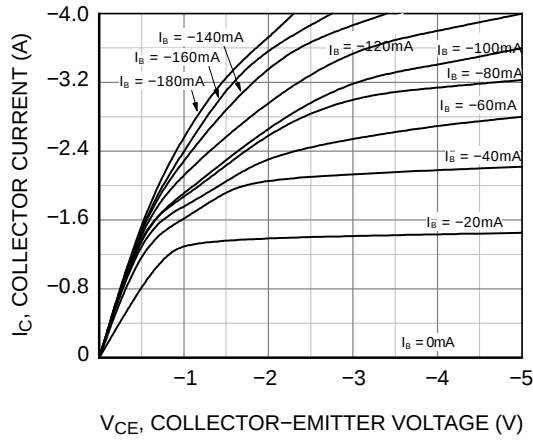


Figure 1. Static Characteristic

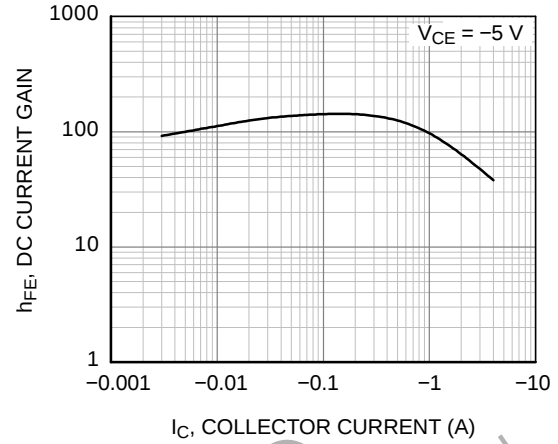


Figure 2. DC Current Gain

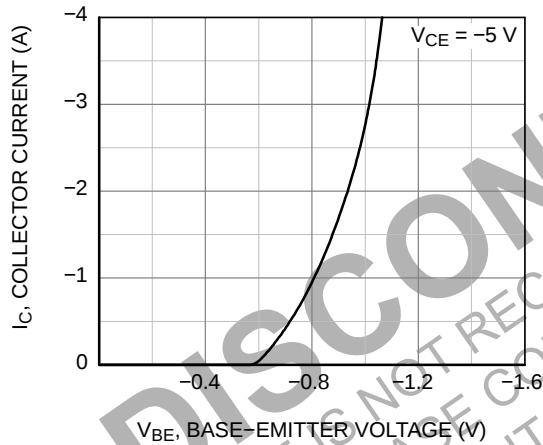


Figure 3. Base-Emitter Saturation Voltage

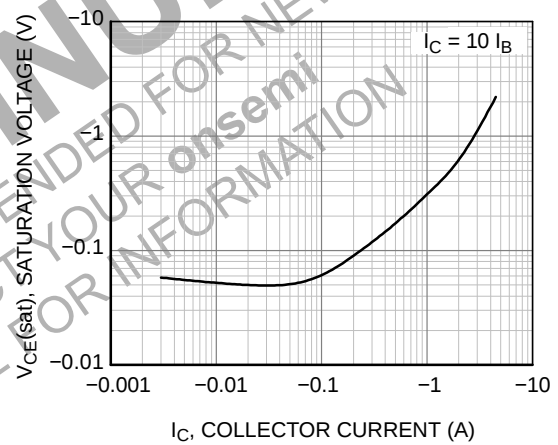


Figure 4. Collector-Emitter Saturation Voltage

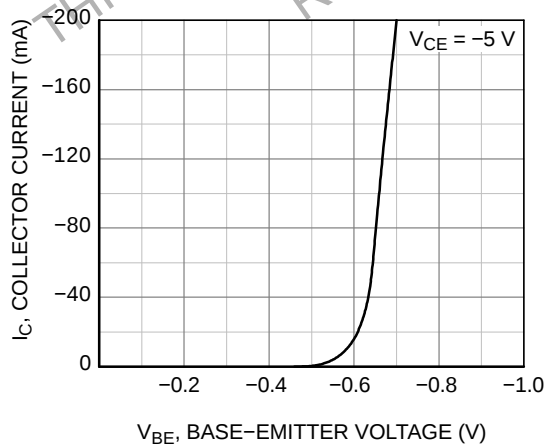


Figure 5. Base-Emitter On Voltage

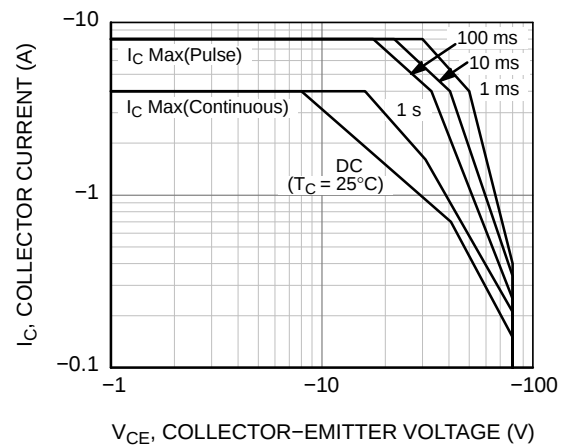


Figure 6. Safe Operating Area

## TYPICAL CHARACTERISTICS (Continued)

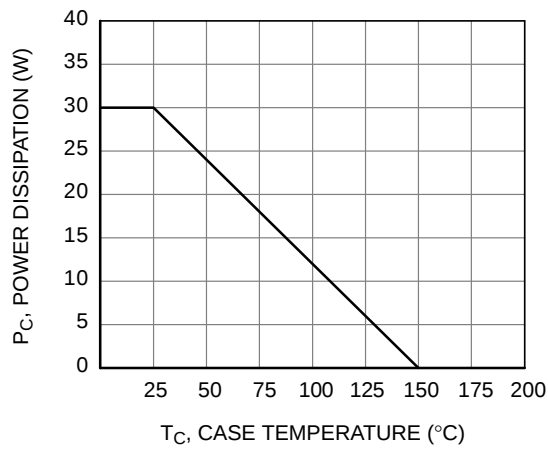
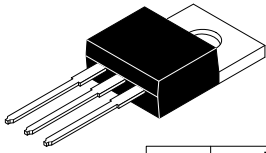


Figure 7. Power Derating

**DISCONTINUED**  
THIS DEVICE IS NOT RECOMMENDED FOR NEW DESIGN  
PLEASE CONTACT YOUR onsemi  
REPRESENTATIVE FOR INFORMATION



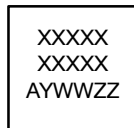
TO-220-3LD  
CASE 340AT  
ISSUE B

DATE 08 AUG 2022

| DIM | MILLIMETERS  |      |       |
|-----|--------------|------|-------|
|     | MIN.         | NOM. | MAX.  |
| A   | 4.00         | --   | 4.70  |
| A1  | SEE NOTE "F" |      |       |
| A2  | 2.10         | --   | 2.85  |
| b   | 0.55         | --   | 1.00  |
| b2  | 1.10         | --   | 1.62  |
| b4  | 1.42         | --   | 1.62  |
| c   | 0.36         | --   | 0.60  |
| D   | 13.90        | --   | 16.30 |
| D1  | 8.13         | --   | 9.40  |
| D2  | 11.50        | --   | 14.30 |
| D3  | 15.42        | --   | 16.51 |
| E   | 9.65         | --   | 10.67 |
| E1  | 7.59         | --   | 8.65  |
| e   | 2.40         | --   | 2.67  |
| H1  | 6.06         | --   | 6.69  |
| L   | 12.70        | --   | 14.04 |
| L1  | 2.70         | --   | 4.10  |
| P   | 3.50         | --   | 4.00  |
| Q   | 2.50         | --   | 3.40  |
| z   | 2.13 REF     |      |       |
| z1  | 2.06 REF     |      |       |
| θ   | 3°           | --   | 5°    |

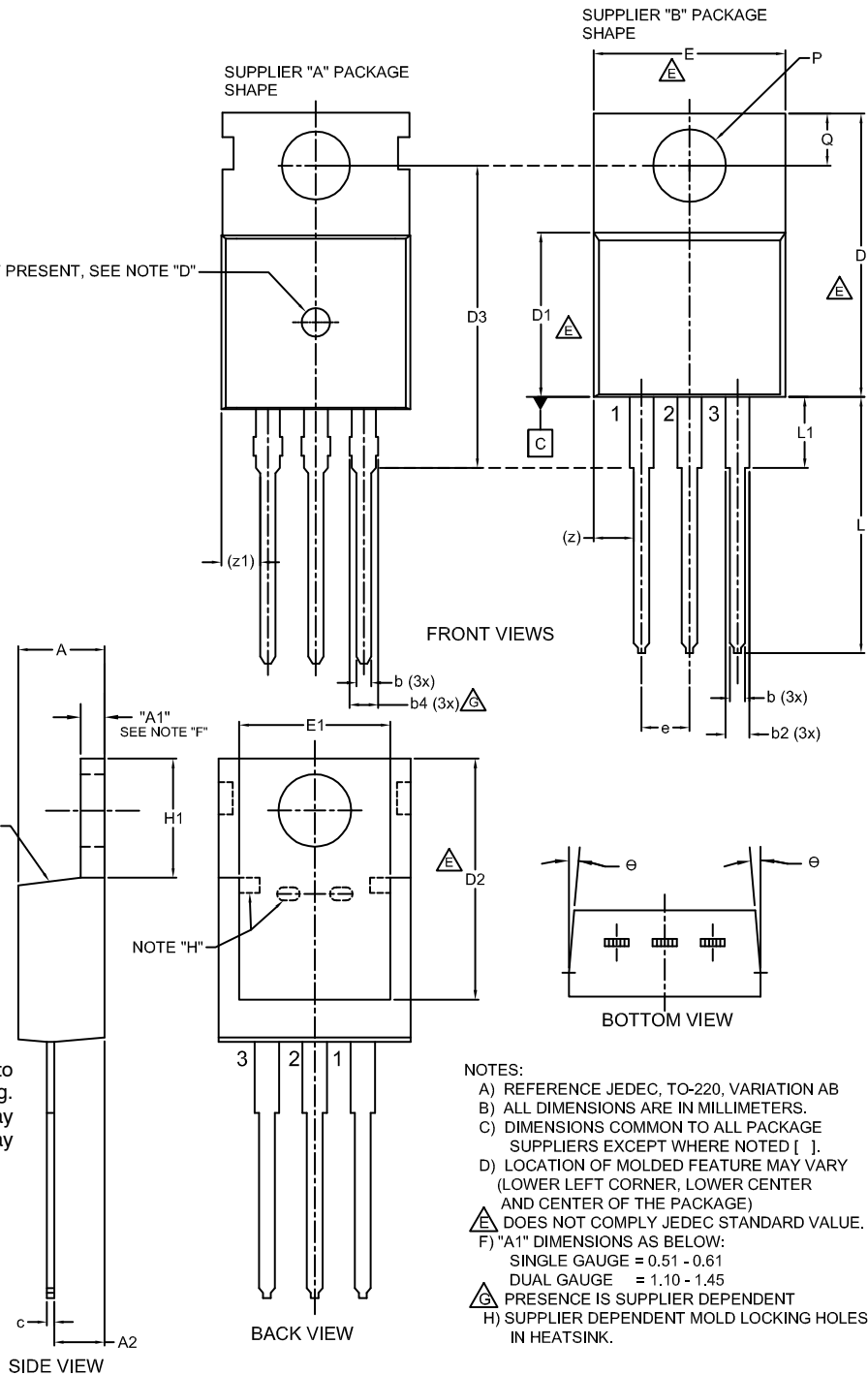
IF PRESENT, SEE NOTE "D"

GENERIC  
MARKING DIAGRAM\*



XXXX = Specific Device Code  
A = Assembly Location  
Y = Year  
WW = Work Week  
ZZ = Assembly Lot Code

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.



NOTES:

- A) REFERENCE JEDEC, TO-220, VARIATION AB
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DIMENSIONS COMMON TO ALL PACKAGE SUPPLIERS EXCEPT WHERE NOTED [ ].
- D) LOCATION OF MOLDED FEATURE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)
- E) DOES NOT COMPLY JEDEC STANDARD VALUE.
- F) "A1" DIMENSIONS AS BELOW:  
SINGLE GAUGE = 0.51 - 0.61  
DUAL GAUGE = 1.10 - 1.45
- PRESENCE IS SUPPLIER DEPENDENT
- H) SUPPLIER DEPENDENT MOLD LOCKING HOLES IN HEATSINK.

|                  |             |                                                                                                                                                                                     |
|------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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