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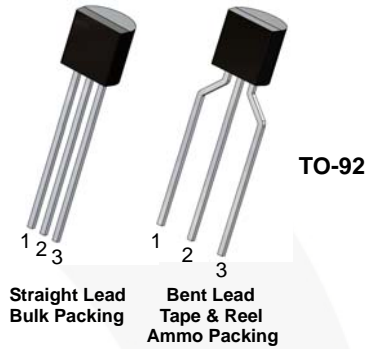


February 2016

KSP2907A PNP General-Purpose Amplifier

Features

- Collector-Emitter Voltage: $V_{CEO} = -60\text{ V}$
- Suffix “-C” means a Center Collector (1. Emitter 2. Collector 3. Base)



KSP2907A: 1. Emitter 2. Base 3. Collector
 KSP2907AC: 1. Emitter 2. Collector 3. Base

Ordering Information⁽¹⁾

| Part Number | Marking | Package | Packing Method |
|-------------|-----------|----------|----------------|
| KSP2907ABU | KSP2907A | TO-92 3L | Bulk |
| KSP2907ATA | KSP2907A | TO-92 3L | Ammo |
| KSP2907ATF | KSP2907A | TO-92 3L | Tape and Reel |
| KSP2907ACTA | KSP2907AC | TO-92 3L | Ammo |

Note:

1. Affix “-C-” means center collector pin. Suffix “-BU” means bulk packing, and straight lead form. Suffix “-TF” means tape & reel packing, and 0.200 in-line spacing lead form. Suffix “-TA” means ammo packing, and 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 | -60 | V |
| V_{CEO} | Collector-Emitter Voltage | -60 | V |
| V_{EBO} | Emitter-Base Voltage | -5 | V |
| I_C | Collector Current | -600 | mA |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -55 to +150 | $^\circ\text{C}$ |

Thermal Characteristics

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

| Symbol | Parameter | Max. | Unit |
|-----------------|--|------|---------------------------|
| P_D | Power Dissipation by $R_{\theta JA}$ | 625 | mW |
| | Derate Above 25°C | 5 | mW/ $^\circ\text{C}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction-to-Case ⁽²⁾ | 83.3 | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient ⁽³⁾ | 200 | $^\circ\text{C}/\text{W}$ |

Notes:

- Infinite heat sink.
- 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⁽⁴⁾

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

| Symbol | Parameter | Conditions | Min. | Max. | Unit |
|---------------|--------------------------------------|---|------|------|------|
| BV_{CBO} | Collector-Base Breakdown Voltage | $I_C = -10 \mu\text{A}$, $I_E = 0$ | -60 | | V |
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C = -10 \text{ mA}$, $I_B = 0$ | -60 | | V |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E = -10 \mu\text{A}$, $I_C = 0$ | -5.0 | | V |
| I_{CBO} | Collector Cut-Off Current | $V_{CB} = -50 \text{ V}$, $I_E = 0$ | | -10 | nA |
| h_{FE} | DC Current Gain | $V_{CE} = -10 \text{ V}$, $I_C = -0.1 \text{ mA}$ | 75 | | |
| | | $V_{CE} = -10 \text{ V}$, $I_C = -1 \text{ mA}$ | 100 | | |
| | | $V_{CE} = -10 \text{ V}$, $I_C = -10 \text{ mA}$ | 100 | | |
| | | $V_{CE} = -10 \text{ V}$, $I_C = -150 \text{ mA}$ | 100 | 300 | |
| | | $V_{CE} = -10 \text{ V}$, $I_C = -500 \text{ mA}$ | 50 | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = -150 \text{ mA}$, $I_B = -15 \text{ mA}$ | | -0.4 | V |
| | | $I_C = -500 \text{ mA}$, $I_B = -50 \text{ mA}$ | | -1.6 | |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = -150 \text{ mA}$, $I_B = -15 \text{ mA}$ | | -1.3 | V |
| | | $I_C = -500 \text{ mA}$, $I_B = -50 \text{ mA}$ | | -2.6 | |
| C_{obo} | Output Capacitance | $V_{CB} = -10 \text{ V}$, $I_E = 0$, $f = 1.0 \text{ MHz}$ | | 8 | pF |
| f_T | Current Gain Bandwidth Product | $I_C = -50 \text{ mA}$, $V_{CE} = -20 \text{ V}$, $f = 100 \text{ MHz}$ | 200 | | MHz |
| t_{ON} | Turn-On Time | $V_{CC} = -30 \text{ V}$, $I_C = -150 \text{ mA}$, $I_{B1} = -15 \text{ mA}$ | | 45 | ns |
| t_{OFF} | Turn-Off Time | $V_{CC} = -6 \text{ V}$, $I_C = -150 \text{ mA}$, $I_{B1} = I_{B2} = -15 \text{ mA}$ | | 100 | ns |

Note:

- DC items are tested by pulse test: pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$

Typical Performance Characteristics

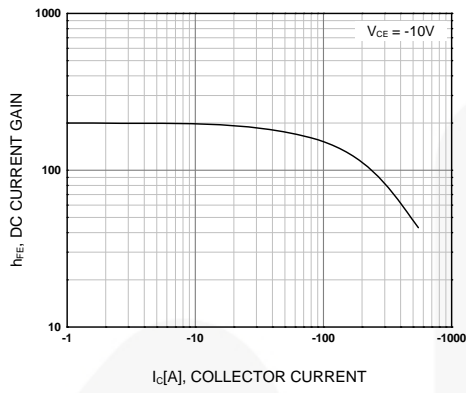


Figure 1. DC Current Gain

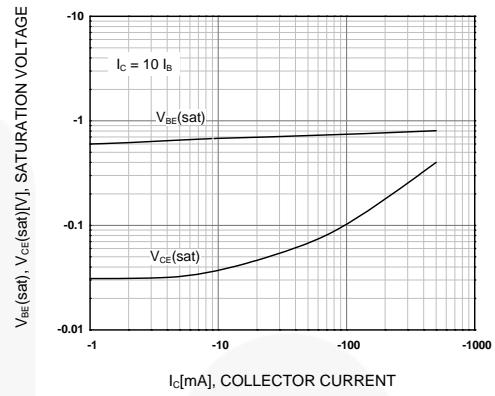


Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

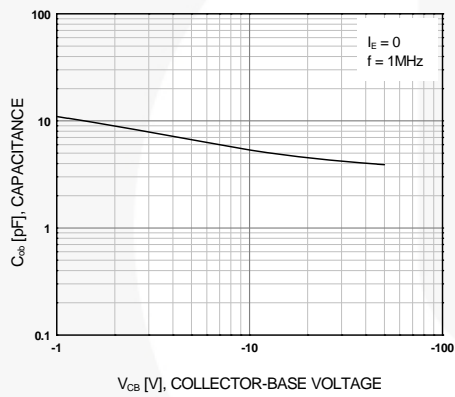


Figure 3. Output Capacitance

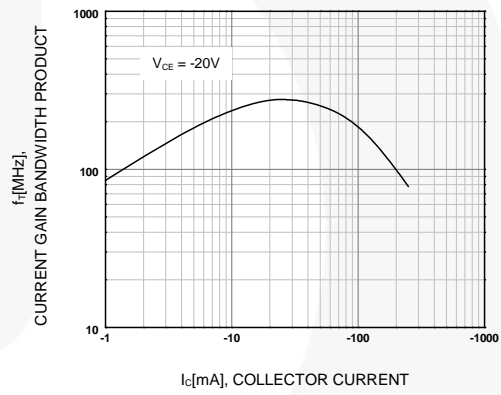
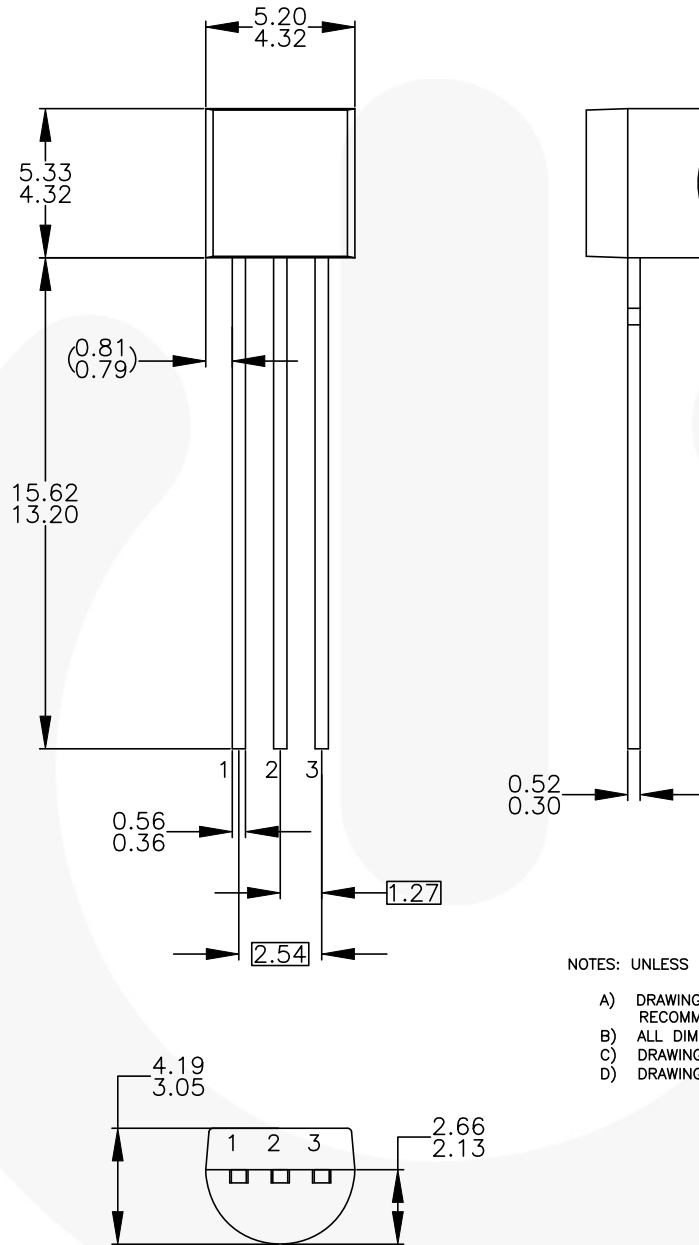


Figure 4. Current Gain Bandwidth Product

Physical Dimensions



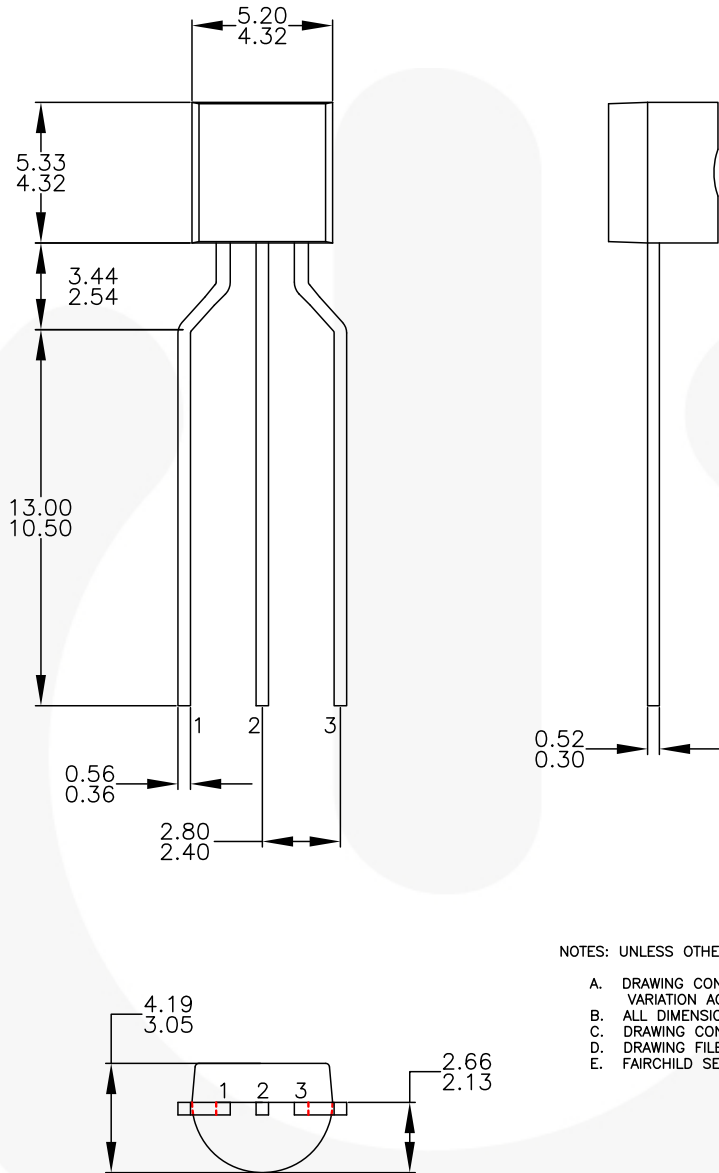
NOTES: UNLESS OTHERWISE SPECIFIED

- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DRAWING CONFORMS TO ASME Y14.5M-2009.
- D) DRAWING FILENAME: MKT-ZA03DREV4.



Figure 5. 3-Lead, TO-92, JEDEC TO-92 Compliant Straight Lead Configuration, Bulk Type

Physical Dimensions (Continued)



NOTES: UNLESS OTHERWISE SPECIFIED






- A. DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC.
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Figure 6. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo, Tape and Reel Type



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