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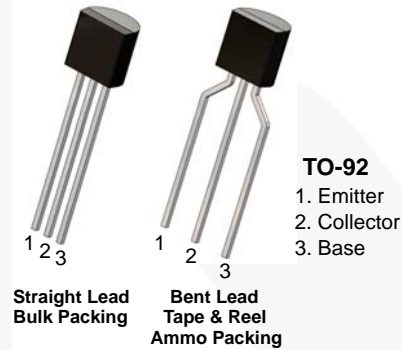
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KSA1015

PNP Epitaxial Silicon Transistor

Features

- Low-Frequency Amplifier
- Collector-Base Voltage: $V_{CBO} = -50\text{ V}$
- Complement to KSC1815



Ordering Information

| Part Number | Marking | Package | Packing Method |
|-------------|---------|----------|----------------|
| KSA1015GRTA | A1015 | TO-92 3L | Ammo |
| KSA1015YTA | A1015 | TO-92 3L | Ammo |

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 | -50 | V |
| V_{CEO} | Collector-Emitter Voltage | -50 | V |
| V_{EBO} | Emitter-Base Voltage | -5 | V |
| I_C | Collector Current | -150 | mA |
| I_B | Base Current | -50 | mA |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature Range | -55 to 150 | $^\circ\text{C}$ |

Thermal Characteristics⁽¹⁾

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

| Symbol | Parameter | Max. | Unit |
|-----------------|---|------|---------------------------|
| P_D | Total Device Dissipation | 400 | mW |
| | Derate Above 25°C | 3.2 | mW/ $^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 312 | $^\circ\text{C}/\text{W}$ |

Note:

1. 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 | $I_C = -100 \mu\text{A}$, $I_E = 0$ | -50 | | | V |
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C = -10 \text{ mA}$, $I_B = 0$ | -50 | | | V |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E = -10 \mu\text{A}$, $I_C = 0$ | -5 | | | V |
| I_{CBO} | Collector Cut-Off Current | $V_{CB} = -50 \text{ V}$, $I_E = 0$ | | | -0.1 | μA |
| I_{EBO} | Emitter Cut-Off Current | $V_{EB} = -5 \text{ V}$, $I_C = 0$ | | | -0.1 | μA |
| h_{FE1} | DC Current Gain | $V_{CE} = -6 \text{ V}$, $I_C = -2 \text{ mA}$ | 70 | | 400 | |
| h_{FE2} | DC Current Gain | $V_{CE} = -6 \text{ V}$, $I_C = -150 \text{ mA}$ | 25 | | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = -100 \text{ mA}$, $I_B = -10 \text{ mA}$ | | -0.1 | -0.3 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = -100 \text{ mA}$, $I_B = -10 \text{ mA}$ | | | -1.1 | V |
| f_T | Current Gain Bandwidth Product | $V_{CE} = -10 \text{ V}$, $I_C = -1 \text{ mA}$ | 80 | | | MHz |
| C_{ob} | Output Capacitance | $V_{CB} = -10 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$ | | 4 | 7 | pF |
| NF | Noise Figure | $V_{CE} = -6 \text{ V}$, $I_C = -0.1 \text{ mA}$, $f = 100 \text{ Hz}$, $R_G = 10 \text{ k}\Omega$ | | 0.5 | 6 | dB |

 h_{FE} Classification

| Classification | O | Y | GR |
|----------------|----------|-----------|-----------|
| h_{FE1} | 70 ~ 140 | 120 ~ 240 | 200 ~ 400 |

Typical Performance Characteristics

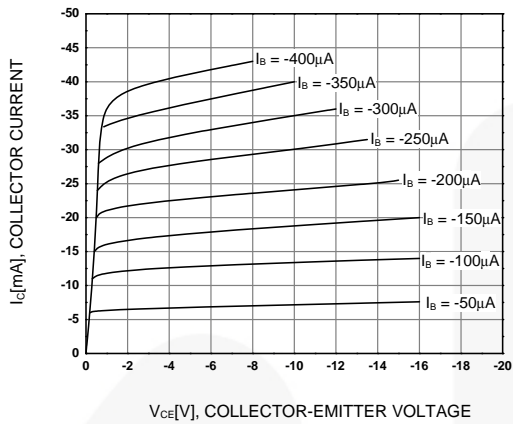


Figure 1. Static Characteristic

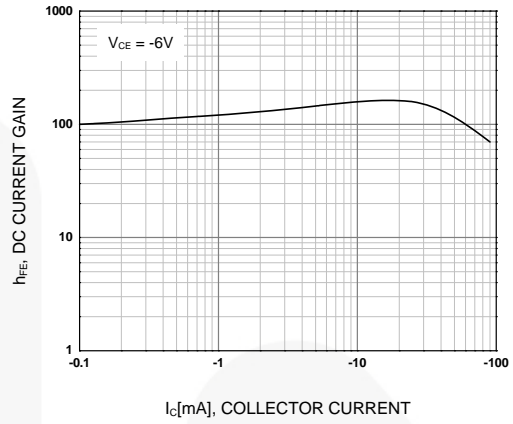


Figure 2. DC Current Gain

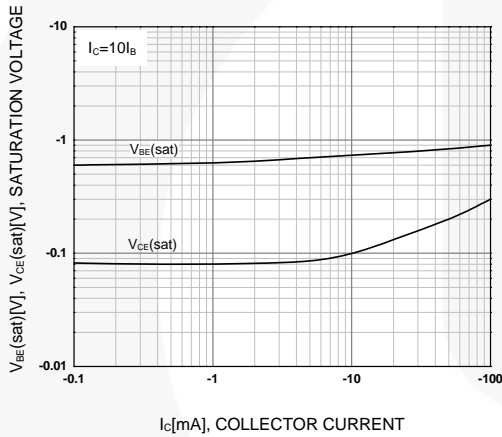


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

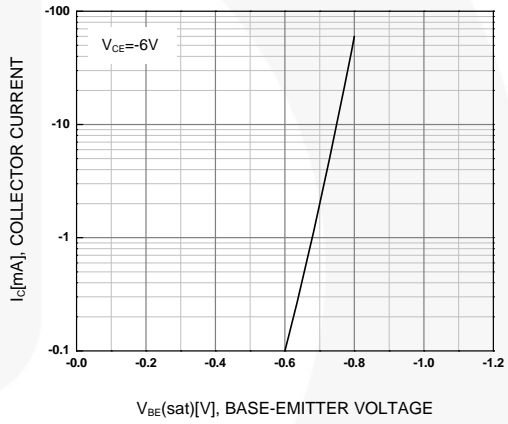


Figure 4. Base-Emitter On Voltage

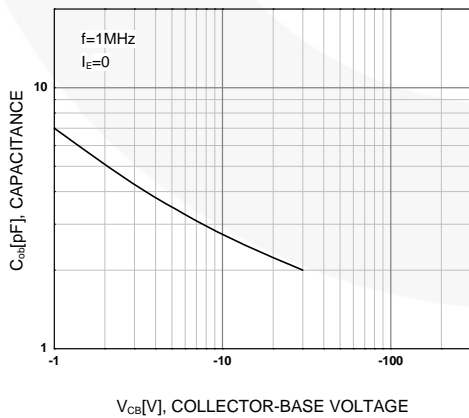


Figure 5. Collector Output Capacitance

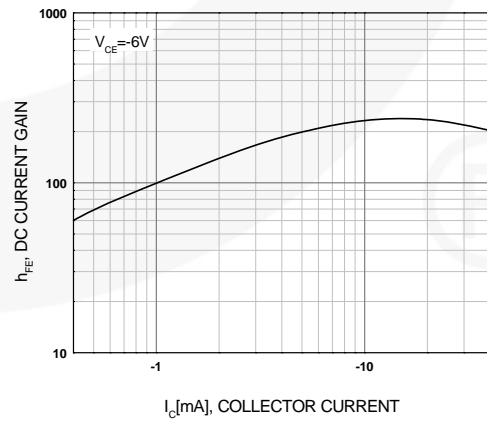
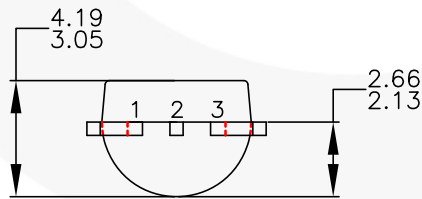
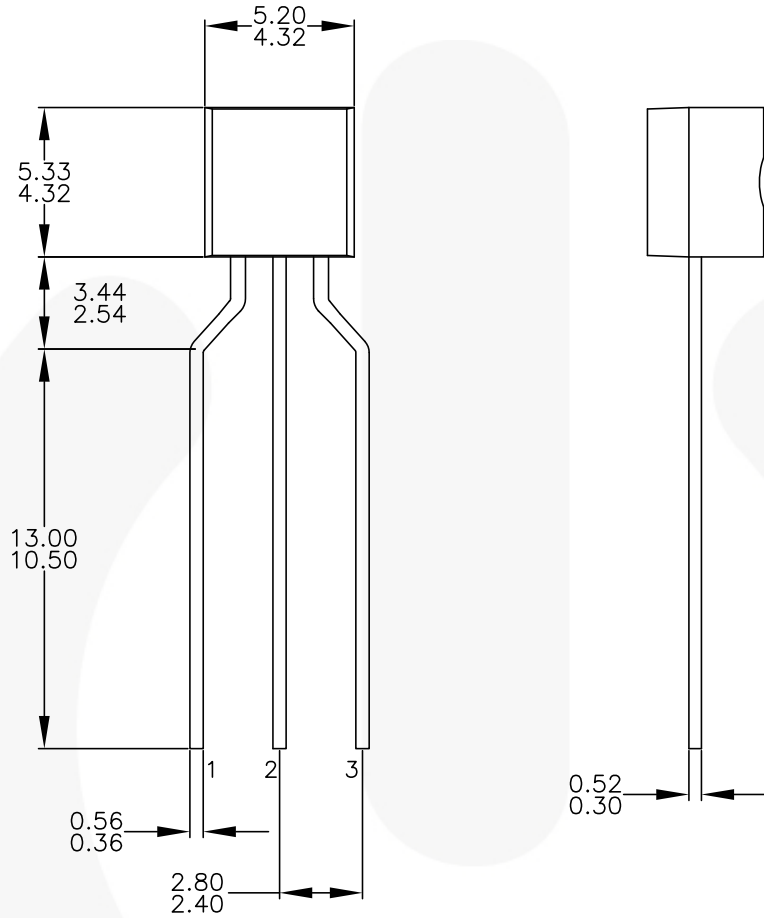


Figure 6. Current Gain Bandwidth Product

Physical Dimensions



NOTES: UNLESS OTHERWISE SPECIFIED

- A. DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC.
- B. ALL DIMENSIONS ARE IN MILLIMETERS.
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Figure 7. 3-LEAD, TO-92, MOLDED 0.200 IN LINE SPACING LD FORM



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