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September 2015

KSP05 / KSP06 NPN Epitaxial Silicon Transistor

Features

- Collector-Emitter Voltage: V_{CEO} = KSP05: 60 V
KSP06: 80 V
- Collector Dissipation: P_C (max.) = 625 mW
- Complement to KSP55/56



Ordering Information

| Part Number | Top Mark | Package | Packing Method |
|-------------|----------|----------|----------------|
| KSP05TA | KSP05 | TO-92 3L | Ammo |
| KSP06BU | KSP06 | TO-92 3L | Bulk |
| KSP06TA | KSP06 | 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 | KSP05 | 60 |
| | | KSP06 | 80 |
| V_{CEO} | Collector-Emitter Voltage | KSP05 | 60 |
| | | KSP06 | 80 |
| V_{EBO} | Emitter-Base Voltage | 4 | V |
| I_C | Collector Current | 500 | mA |
| P_C | Collector Power Dissipation | 625 | mW |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -55 to 150 | $^\circ\text{C}$ |

KSP05 / KSP06 — NPN Epitaxial Silicon Transistor

Electrical Characteristics

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

| Symbol | Parameter | Conditions | Min. | Max. | Unit | |
|---------------|--|---|---------------------------------|---------------------------------|---------------|---------------|
| BV_{CEO} | Collector-Emitter Breakdown Voltage ⁽¹⁾ | KSP05 | $I_C = 1\text{ mA}, I_B = 0$ | 60 | | V |
| | | KSP06 | | 80 | | |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E = 100\ \mu\text{A}, I_C = 0$ | 4 | | V | |
| I_{CBO} | Collector Cut-Off Current | KSP05 | $V_{CB} = 60\text{ V}, I_E = 0$ | | 0.1 | μA |
| | | KSP06 | | $V_{CB} = 80\text{ V}, I_E = 0$ | | |
| I_{CEO} | Collector Cut-Off Current | $V_{CE} = 60\text{ V}, I_B = 0$ | | 0.1 | μA | |
| h_{FE} | DC Current Gain | $V_{CE} = 1\text{ V}, I_C = 10\text{ mA}$ | 50 | | | |
| | | $V_{CE} = 1\text{ V}, I_C = 100\text{ mA}$ | 50 | | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 100\text{ mA}, I_B = 10\text{ mA}$ | | 0.25 | V | |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $V_{CE} = 1\text{ V}, I_C = 100\text{ mA}$ | | 1.2 | V | |
| f_T | Current Gain Bandwidth Product | $V_{CE} = 2\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$ | 100 | | MHz | |

Note:

1. Pulse test: pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

Typical Performance Characteristics

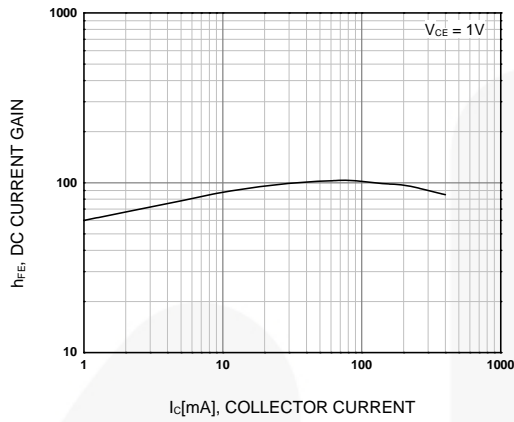


Figure 1. DC Current Gain

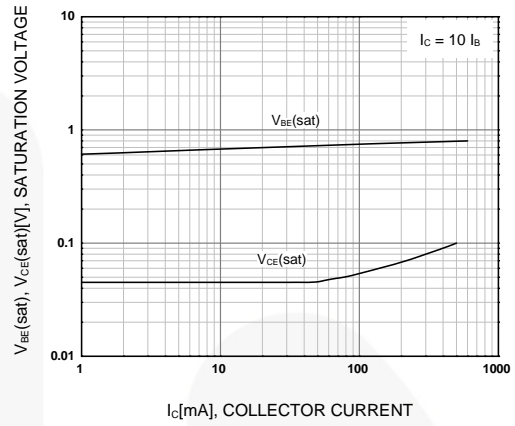


Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

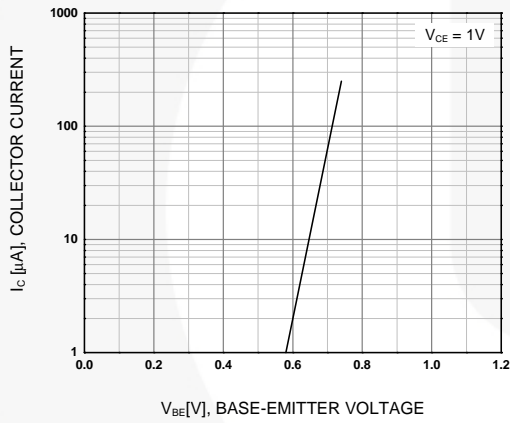


Figure 3. Base-Emitter On Voltage

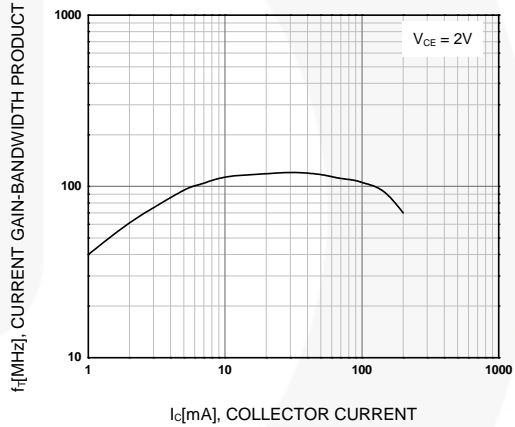
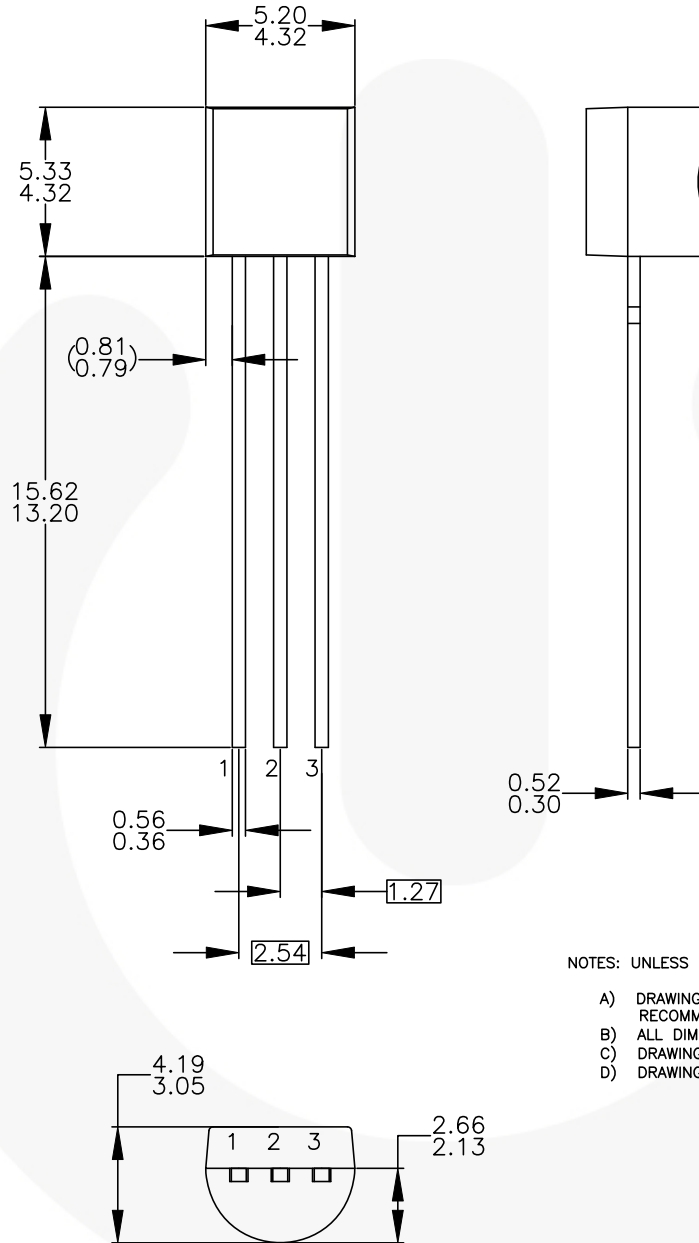


Figure 4. Current Gain Bandwidth Product

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

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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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