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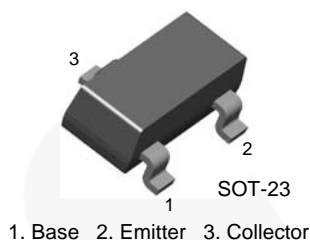
November 2014

KSC1623

NPN Epitaxial Silicon Transistor

Features

- Low Frequency Amplifier and High Frequency OSC.
- Complement to KSA812



Ordering Information

| Part Number | Marking | Package | Packing Method |
|-------------|---------|-----------|----------------|
| KSC1623YMTF | C1Y | SOT-23 3L | Tape and Reel |
| KSC1623GMTF | C1G | SOT-23 3L | Tape and Reel |
| KSC1623LMTF | C1L | SOT-23 3L | Tape and Reel |

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 | 50 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current | 100 | mA |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -55 to +150 | $^\circ\text{C}$ |

Thermal Characteristics⁽¹⁾

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

| Symbol | Parameter | Value | Unit |
|-----------------|---|-------|----------------------|
| P_D | Power Dissipation | 200 | mW |
| | Derate Above 25°C | 1.6 | mW/ $^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 625 | $^\circ\text{C/W}$ |

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 |
|---------------|--------------------------------------|--|------|------|------|---------------|
| I_{CBO} | Collector Cut-Off Current | $V_{CB} = 60\text{ V}, I_E = 0$ | | | 0.1 | μA |
| I_{EBO} | Emitter Cut-Off Current | $V_{EB} = 5\text{ V}, I_C = 0$ | | | 0.1 | μA |
| h_{FE} | DC Current Gain | $V_{CE} = 6\text{ V}, I_C = 1\text{ mA}$ | 90 | 200 | 600 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 100\text{ mA}, I_B = 10\text{ mA}$ | | 0.15 | 0.30 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = 100\text{ mA}, I_B = 10\text{ mA}$ | | 0.86 | 1.00 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $V_{CE} = 6\text{ V}, I_C = 1\text{ mA}$ | 0.55 | 0.62 | 0.65 | V |
| f_T | Current Gain Bandwidth Product | $V_{CE} = 6\text{ V}, I_C = 10\text{ mA}$ | | 250 | | MHz |
| C_{ob} | Output Capacitance | $V_{CB} = 6\text{ V}, I_E = 0, f = 1\text{ MHz}$ | | 3 | | pF |

 h_{FE} Classification

| Classification | O | Y | G | L |
|----------------|----------|-----------|-----------|-----------|
| h_{FE} | 90 ~ 180 | 135 ~ 270 | 200 ~ 400 | 300 ~ 600 |

Typical Performance Characteristics

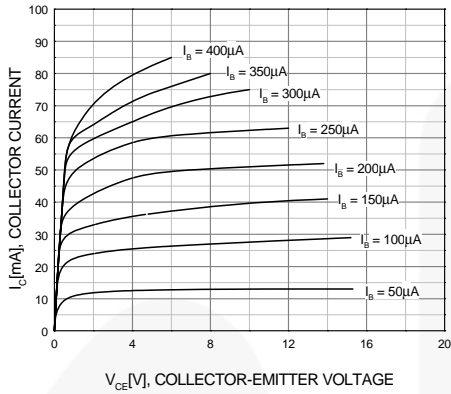


Figure 1. Static Characteristics

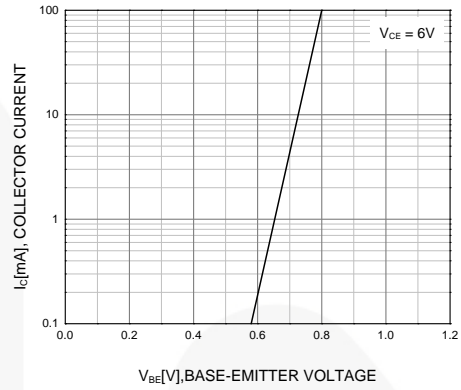


Figure 2. Transfer Characteristic

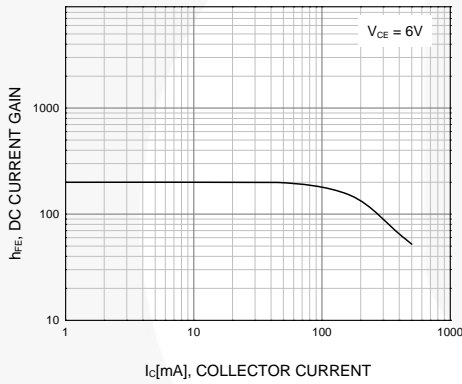


Figure 3. DC Current Gain

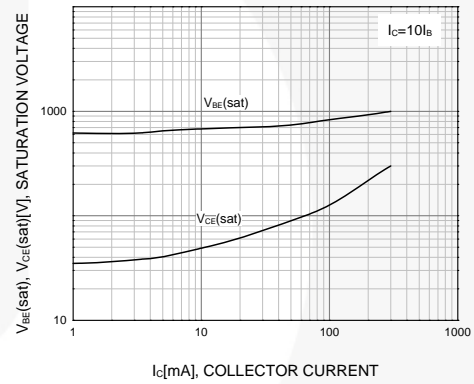


Figure 4. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

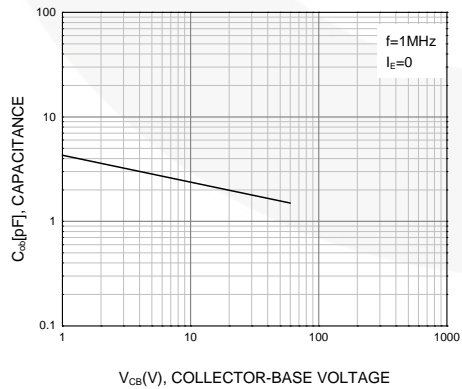


Figure 5. Output Capacitance

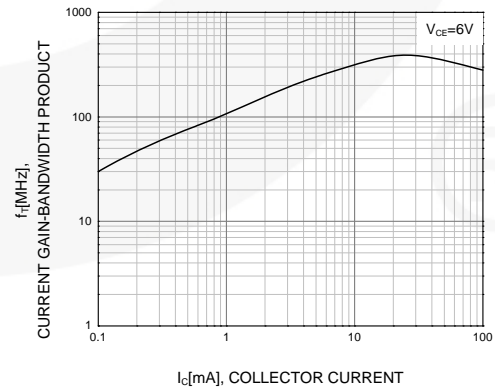
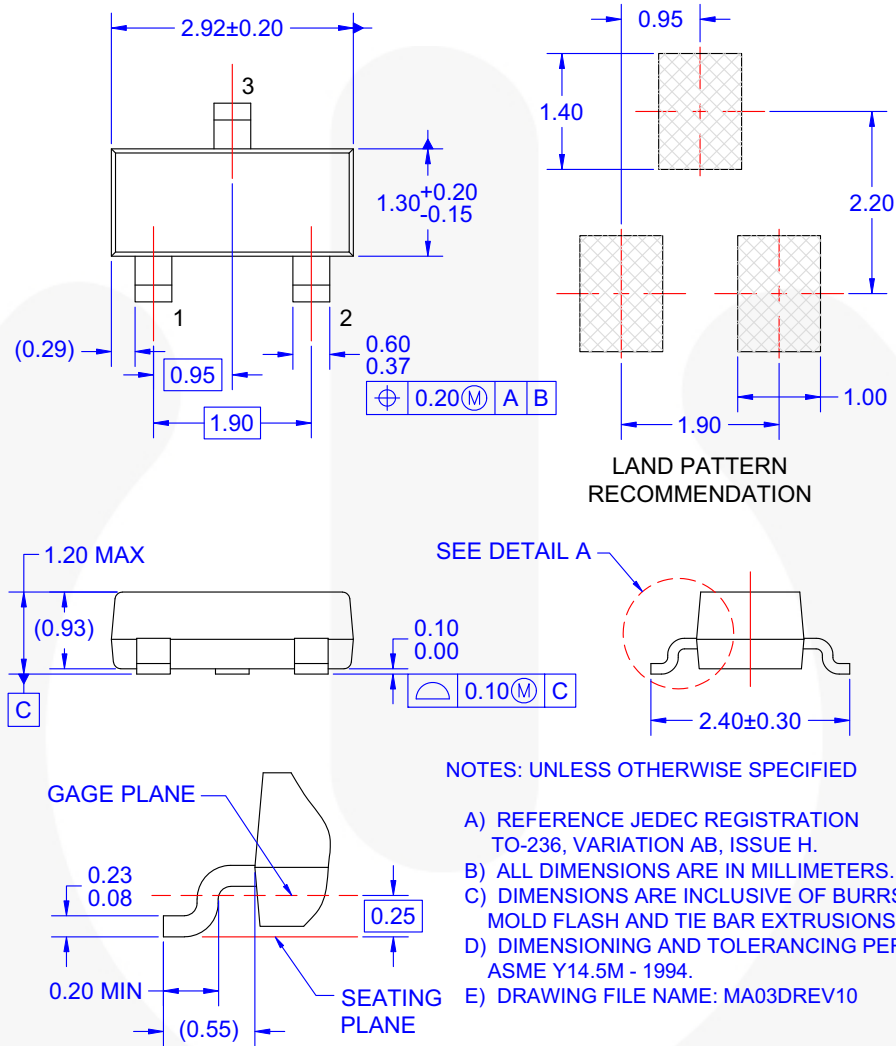


Figure 6. Current Gain Bandwidth Product

Physical Dimensions



DETAIL A
SCALE: 2X

Figure 7. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE



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