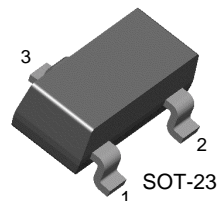


KST5088/5089

Low Noise Transistor



1. Base 2. Emitter 3. Collector

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units | |
|-----------|-----------------------------|-----------|------------------|---|
| V_{CB0} | Collector-Base Voltage | : KST5088 | 35 | V |
| | | : KST5089 | 30 | V |
| V_{CEO} | Collector-Emitter Voltage | : KST5088 | 30 | V |
| | | : KST5089 | 25 | V |
| V_{EBO} | Emitter-Base Voltage | 4.5 | V | |
| I_C | Collector Current | 50 | mA | |
| P_C | Collector Power Dissipation | 350 | mW | |
| T_{STG} | Storage Temperature | 150 | $^\circ\text{C}$ | |

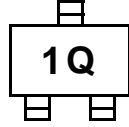
Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Max. | Units | | |
|---------------|--------------------------------------|---------------------------------------------------------------------------------------------------|-----------|------------------------------------|-----------|-------|-----|
| BV_{CB0} | Collector-Base Breakdown Voltage | $I_C=100\mu\text{A}, I_E=0$ | : KST5088 | 35 | V | | |
| | | | : KST5089 | 30 | V | | |
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C=1\text{mA}, I_B=0$ | : KST5088 | 30 | V | | |
| | | | : KST5089 | 25 | V | | |
| I_{CBO} | Collector Cut-off Current | $V_{CB}=20\text{V}, I_E=0$ $V_{CB}=15\text{V}, I_E=0$ | : KST5088 | 50 | nA | | |
| | | | : KST5089 | 50 | nA | | |
| I_{EBO} | Emitter Cut-off Current | $V_{EB}=3\text{V}, I_C=0$ | | 50 | nA | | |
| h_{FE} | DC Current Gain | $V_{CE}=5\text{V}, I_C=100\mu\text{A}$ | : KST5088 | 300 | 900 | | |
| | | | : KST5089 | 400 | | | |
| | | | : KST5088 | $V_{CE}=5\text{V}, I_C=1\text{mA}$ | 350 | 1,200 | |
| | | | | | : KST5089 | | 450 |
| | | | | | : KST5088 | | 300 |
| : KST5089 | 400 | | | | | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=10\text{mA}, I_B=1\text{mA}$ | | 0.5 | V | | |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C=10\text{mA}, I_B=1\text{mA}$ | | 0.8 | V | | |
| f_T | Current Gain-Bandwidth Product | $V_{CE}=5\text{V}, I_C=500\mu\text{A}, f=20\text{MHz}$ | 50 | | MHz | | |
| C_{ob} | Output Capacitance | $V_{CB}=5\text{V}, I_E=0, f=100\text{KHz}$ | | 4 | pF | | |
| NF | Noise Figure | $I_C=100\mu\text{A}, V_{CE}=5\text{V}$ $R_S=10\text{K}\Omega, f=10\text{Hz to }15.7\text{KHz}$ | : KST5088 | 3 | dB | | |
| | | | : KST5089 | 2 | dB | | |

Marking Code

| | | |
|------|---------|---------|
| Type | KST5088 | KST5089 |
| Mark | 1Q | 1R |

Marking



KST5088/5089

Typical Characteristics

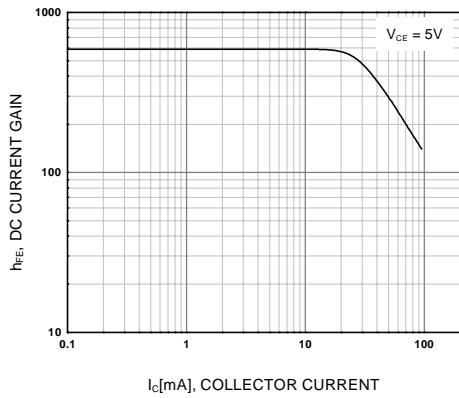


Figure 1. DC current Gain

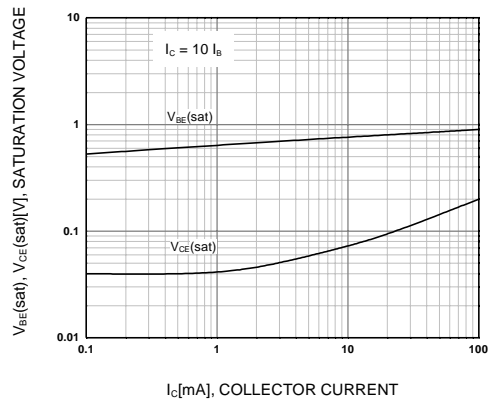


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

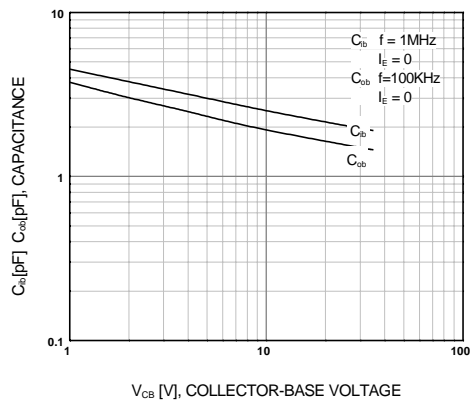


Figure 3. Output Capacitance
Collector-Base Capacitance

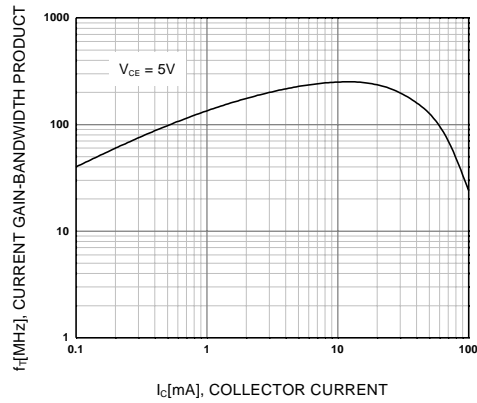
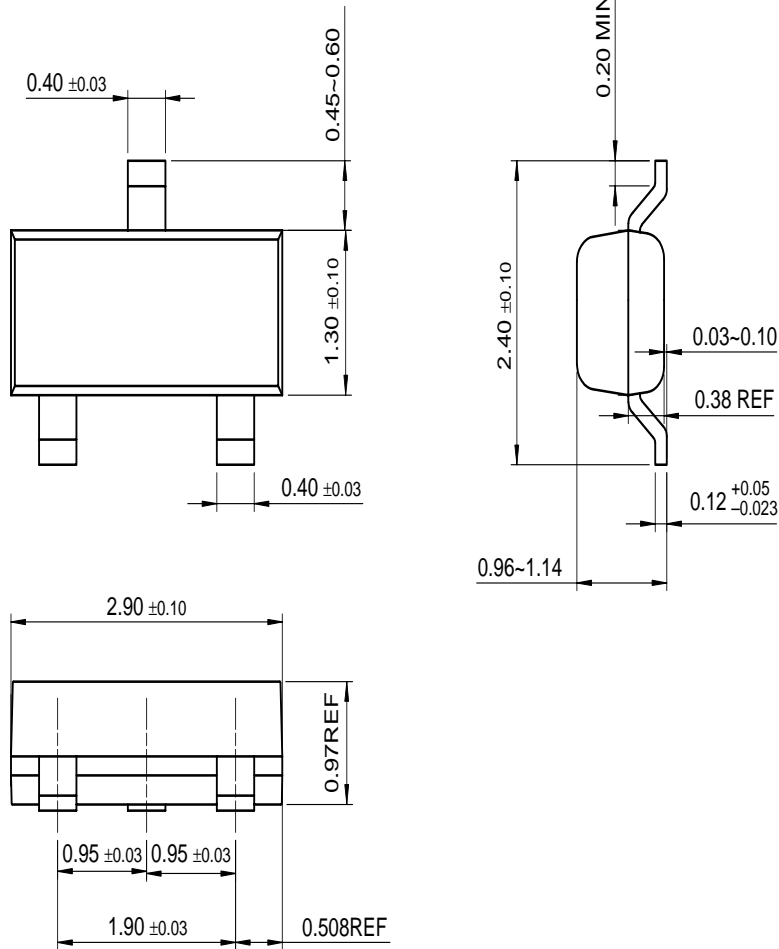


Figure 4. Current Gain Bandwidth Product

Package Dimensions

SOT-23

KST5088/5089



Dimensions in Millimeters

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|--------------------------------------------------|---------------------------------|--------------------------------|---------------------------------|-----------------------------|
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| ActiveArray [™] | FACT Quiet series [™] | ISOPLANAR [™] | POP [™] | Stealth [™] |
| Bottomless [™] | FAST [®] | LittleFET [™] | Power247 [™] | SuperSOT [™] -3 |
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