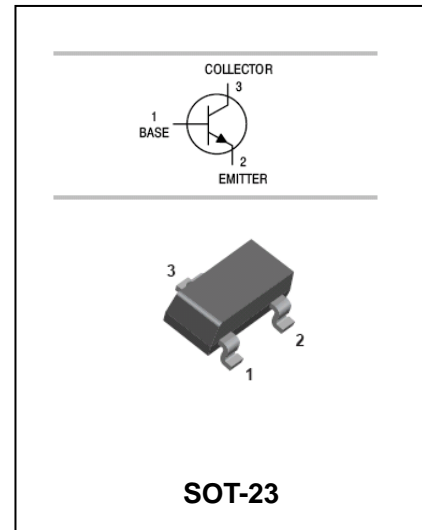


NPN Silicon Epitaxial Planar Transistor

S9013

FEATURES

- High Collector Current.($I_C=500\text{mA}$).
- Complementary To S9012.
- Excellent H_{FE} Linearity.
- Power dissipation.($P_C=300\text{mW}$).



APPLICATIONS

- High Collector Current.

ORDERING INFORMATION

| Type No. | Marking | Package Code |
|----------|---------|--------------|
| S9013 | J3 | SOT-23 |

MAXIMUM RATING @ $T_a=25^\circ\text{C}$ unless otherwise specified

| Symbol | Parameter | Value | Units |
|----------------|----------------------------------|-------------|------------------|
| V_{CBO} | Collector-Base Voltage | 40 | V |
| V_{CEO} | Collector-Emitter Voltage | 25 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current -Continuous | 500 | mA |
| P_C | Collector Dissipation | 300 | mW |
| T_j, T_{stg} | Junction and Storage Temperature | -55 to +150 | $^\circ\text{C}$ |



NPN Silicon Epitaxial Planar Transistor

S9013

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|------------------------------------|-----|-----|-----|---------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=100\mu A, I_E=0$ | 40 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=0.1mA, I_B=0$ | 25 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=100\mu A, I_C=0$ | 5 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=40V, I_E=0$ | | | 0.1 | μA |
| Collector cut-off current | I_{CEO} | $V_{CE}=20V, I_B=0$ | | | 0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=5V, I_C=0$ | | | 0.1 | μA |
| DC current gain | h_{FE} | $V_{CE}=1V, I_C=50mA$ | 120 | | 400 | |
| | | $V_{CE}=1V, I_C=500mA$ | 40 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=500mA, I_B=50mA$ | | | 0.6 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=500mA, I_B=50mA$ | | | 1.2 | V |
| Transition frequency | f_T | $V_{CE}=6V, I_C=20mA$ $f=30MHz$ | 150 | | | MHz |

CLASSIFICATION OF $h_{FE(1)}$

| Rank | L | H | J |
|-------|---------|---------|---------|
| Range | 120-200 | 200-350 | 300-400 |

NPN Silicon Epitaxial Planar Transistor

S9013

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

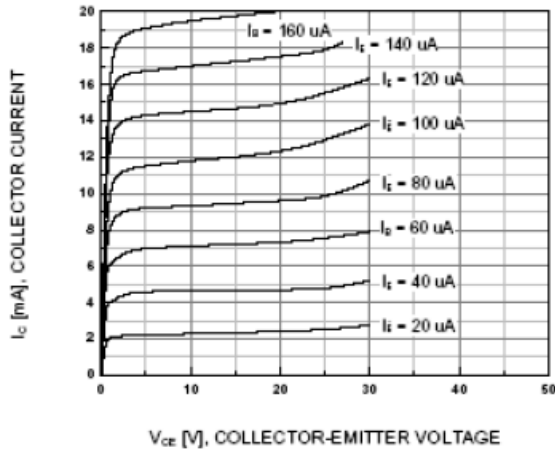


Figure 1. Static Characteristic

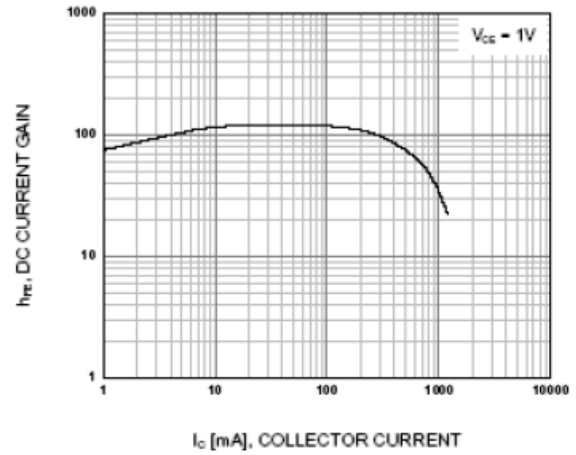


Figure 2. DC current Gain

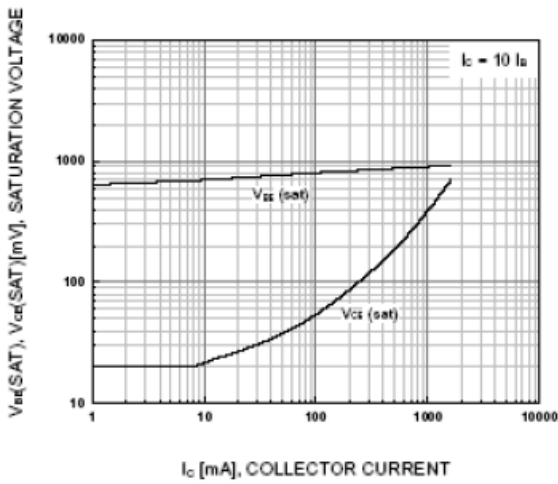


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

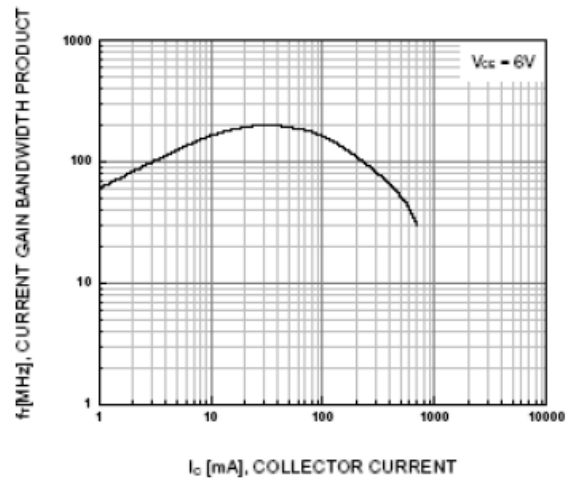


Figure 4. Current Gain Bandwidth Product



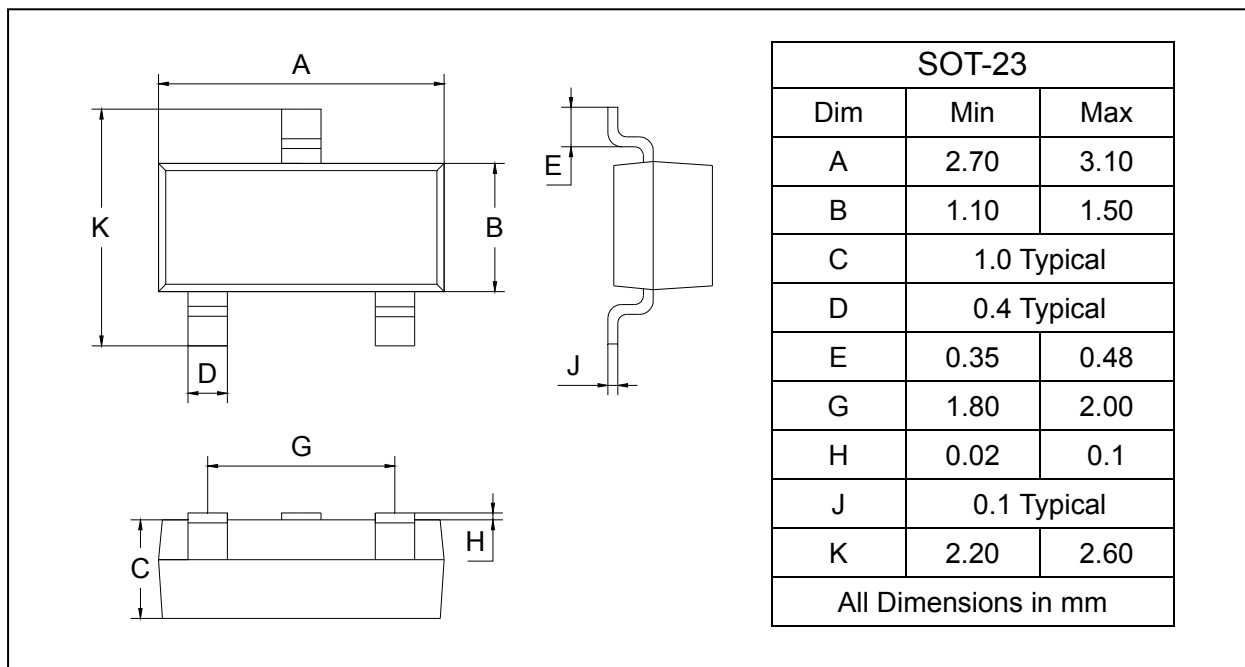
NPN Silicon Epitaxial Planar Transistor

S9013

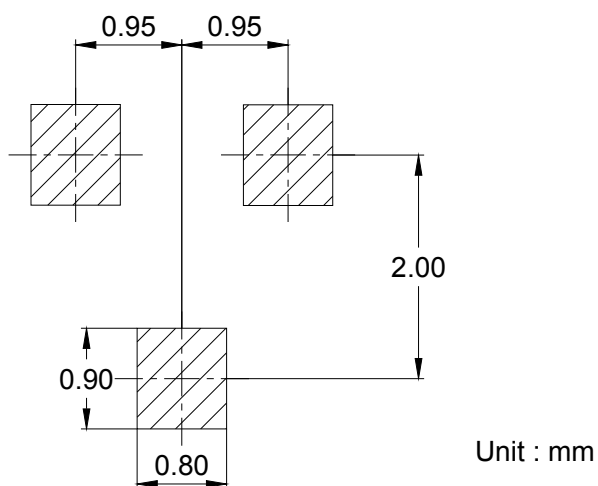
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

| Device | Package | Shipping |
|--------|---------|----------------|
| S9013 | SOT-23 | 3000/Tape&Reel |