



SSCN8050MGS6

High Frequency High Gain NPN Power BJT

➤ Features

| VCB | VCE | VBE | VCESAT | IC |
|-----|-----|-----|--------|-------|
| 40V | 25V | 6V | 500mV | 800mA |

➤ Description

This device is produced with advanced high carrier density technology, which is especially used to minimize saturation voltage drop. This device particularly suits low voltage applications such as portable equipment, power management and other battery powered circuits, and low in-line power dissipation are needed in a very small outline surface mount package. Excellent thermal and electrical capabilities.

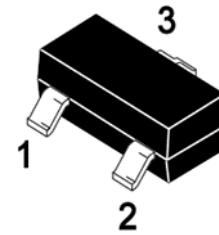
➤ Applications

- Supply line switching circuits
- Battery management application
- DC/DC converter applications

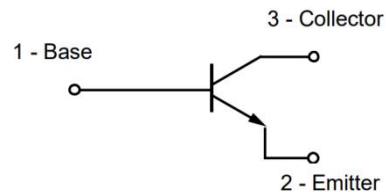
➤ Ordering Information

| Device | Package | Shipping |
|--------------|---------|-----------|
| SSCN8050MGS6 | SOT-23 | 3000/Reel |

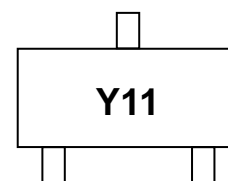
➤ Pin configuration



SOT-23



Circuit Diagram



Marking(Top View)



SSCN8050MGS6

➤ Absolute Maximum Ratings($T_A=25^\circ\text{C}$ unless otherwise noted)

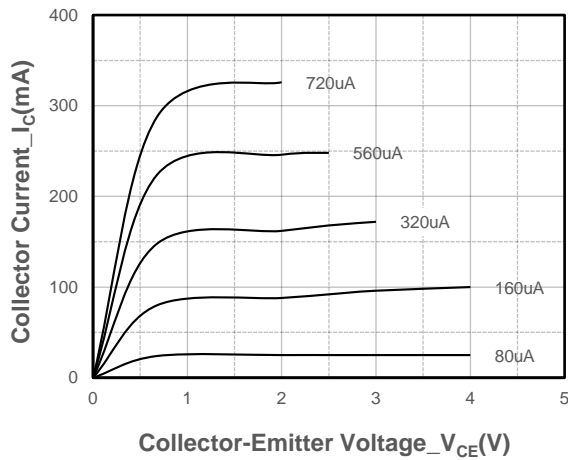
| Parameter | Symbol | Value | Unit |
|------------------------------|-----------|------------|------------------|
| Collector-Base Voltage | V_{CB0} | 40 | V |
| Collector- Emitter Voltage | V_{CEO} | 25 | V |
| Emitter-Base Voltage | V_{EBO} | 6 | V |
| Collector Current-Continuous | I_C | 800 | mA |
| Collector Power Dissipation | P_C | 200 | mW |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -55 to 150 | $^\circ\text{C}$ |

➤ Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

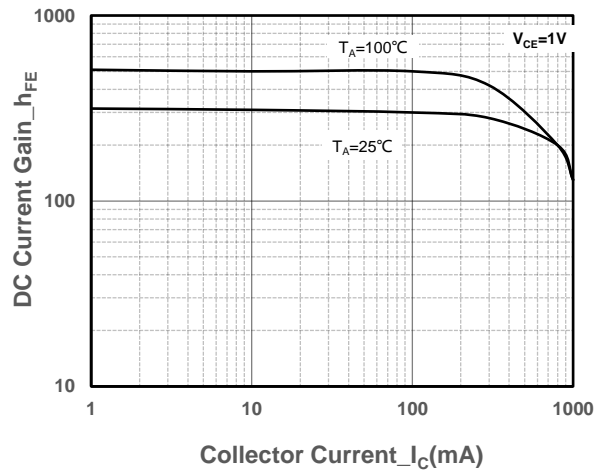
| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|--------------------------------------|---------------|---|------|------|------|---------------|
| Collector-Base Breakdown Voltage | BV_{CB0} | $I_C=0.1\text{mA}, I_E=0$ | 40 | | | V |
| Collector-emitter Breakdown Voltage | BV_{CEO} | $I_C=1\text{mA}, I_B=0$ | 25 | | | V |
| Emitter -Base Breakdown Voltage | BV_{EBO} | $I_E=0.1\text{mA}, I_C=0$ | 6 | | | V |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=35\text{V}, I_E=0$ | | | 0.1 | μA |
| Collector Cutoff Current | I_{CEO} | $V_{CE}=20\text{V}, I_B=0$ | | | 0.1 | μA |
| DC Current Gain | h_{FE1} | $V_{CE}=1\text{V}, I_C=5\text{mA}$ | 45 | | | |
| | h_{FE2} | $V_{CE}=1\text{V}, I_C=100\text{mA}$ | 80 | | 400 | |
| | h_{FE3} | $V_{CE}=1\text{V}, I_C=800\text{mA}$ | 40 | | | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=500\text{mA}, I_B=80\text{mA}$ | | | 0.5 | V |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=500\text{mA}, I_B=80\text{mA}$ | | | 1.2 | V |
| Transition frequency | f_T | $V_{CE}=6\text{V}, I_C=20\text{mA}$ $f=30\text{MHz}$ | 150 | | | MHz |



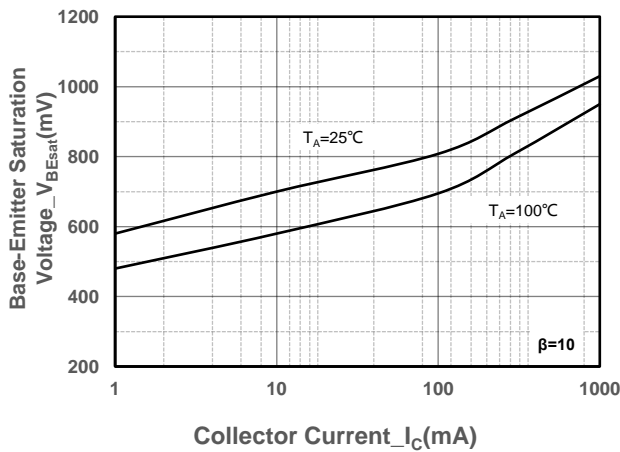
➤ **Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)**



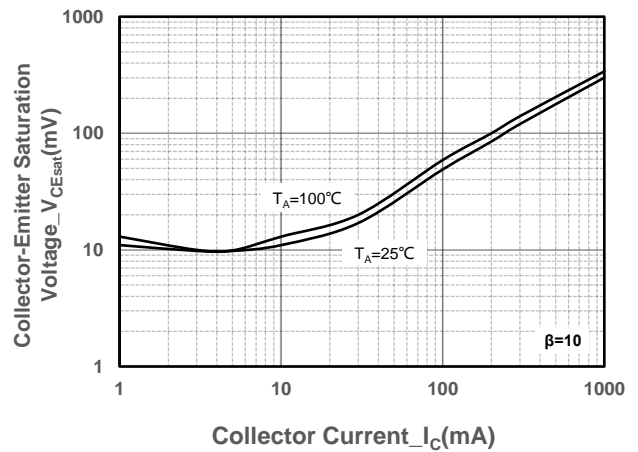
Collector Current vs. Collector-Emitter Voltage



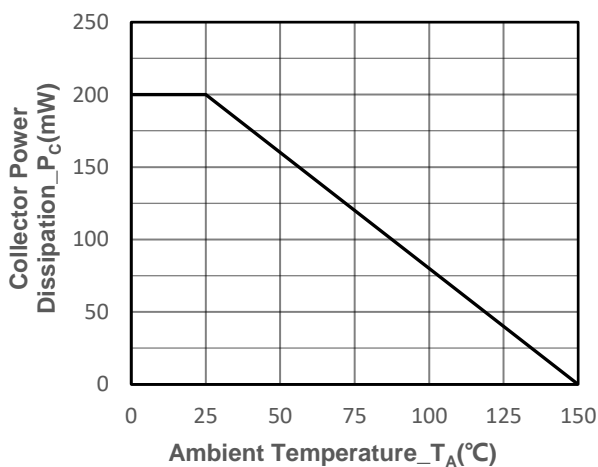
DC Current Gain vs. Collector Current



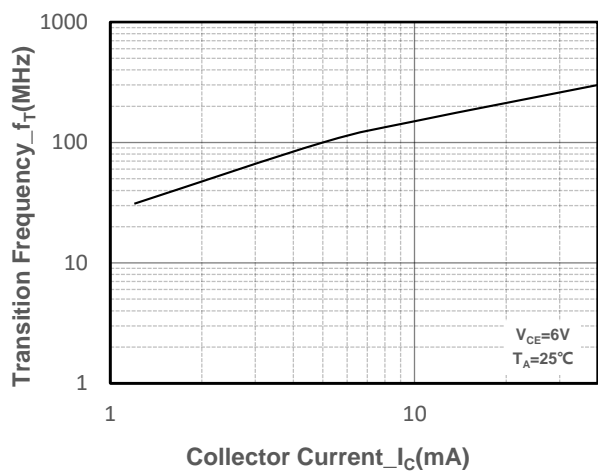
$V_{BE(sat)}$ vs. Collector Current



$V_{CE(sat)}$ vs. Collector Current



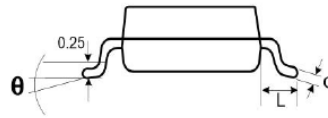
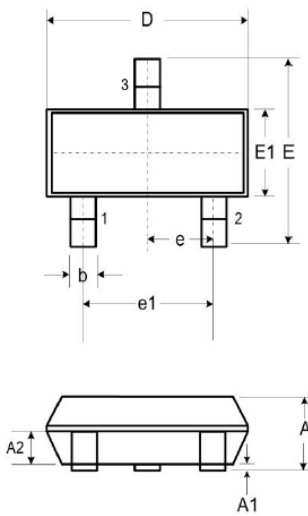
Power derating vs. Ambient temperature



Transition Frequency vs. Collector Current

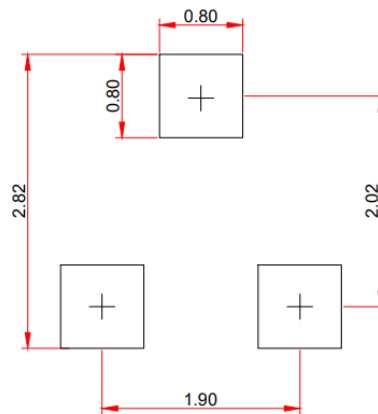


➤ Package Information



| DIM | Millimeters | | |
|-----|-------------|------|------|
| | Min. | Typ. | Max. |
| A | 0.89 | - | 1.12 |
| A1 | 0.01 | - | 0.10 |
| A2 | 0.88 | 0.95 | 1.02 |
| b | 0.30 | - | 0.51 |
| c | 0.08 | - | 0.18 |
| D | 2.80 | 2.90 | 3.04 |
| E | 2.10 | 2.37 | 2.64 |
| E1 | 1.20 | 1.30 | 1.40 |
| e | 0.95 | | |
| e1 | 1.90 | | |
| L | 0.40 | 0.50 | 0.60 |
| L1 | 0.55 | | |
| N | 3 | | |
| θ | 0° | - | 8° |

Recommended Pad outline(Unit: mm)





DISCLAIMER

AFSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. AFSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICIENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G., OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.