

# General Purpose Transistors NPN Silicon

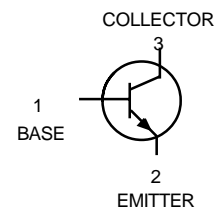
## Dimensions SOT-23

### FEATURE

- High current capacity in compact package.  
 $I_C = 1.5\text{ A}$ .
- Epitaxial planar type.
- NPN complement: L8050H
- Pb-Free Package is available.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.



## Pin Configuration



### DEVICE MARKING AND ORDERING INFORMATION

| Device                      | Marking | Shipping        |
|-----------------------------|---------|-----------------|
| SS8050HPLT1G S-SS8050HPLT1G | 1HA     | 3000/Tape&Reel  |
| SS8050HPLT3G S-SS8050HPLT3G | 1HA     | 10000/Tape&Reel |
| SS8050HQLT1G S-SS8050HQLT1G | 1HC     | 3000/Tape&Reel  |
| SS8050HQLT3G S-SS8050HQLT3G | 1HC     | 10000/Tape&Reel |
| SS8050HRLT1G S-SS8050HRLT1G | 1HE     | 3000/Tape&Reel  |
| SS8050HRLT3G S-SS8050HRLT3G | 1HE     | 10000/Tape&Reel |
| SS8050HSLT1G S-SS8050HSLT1G | 1HG     | 3000/Tape&Reel  |
| SS8050HSLT3G S-SS8050HSLT3G | 1HG     | 10000/Tape&Reel |

### MAXIMUM RATINGS

| Rating                    | Symbol    | Max  | Unit |
|---------------------------|-----------|------|------|
| Collector-Emitter Voltage | $V_{CEO}$ | 25   | V    |
| Collector-Base Voltage    | $V_{CBO}$ | 40   | V    |
| Emitter-Base Voltage      | $V_{EBO}$ | 5    | V    |
| Collector Current         | $I_C$     | 1500 | mAdc |

### THERMAL CHARACTERISTICS

| Characteristic  | Symbol          | Max         | Unit                       |
|---|-----------------|-------------|----------------------------|
| Total Device Dissipation FR-5 Board,(1)<br>$T_A=25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$        | $P_D$           | 225<br>1.8  | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance,Junction to Ambient  | $R_{\theta JA}$ | 556         | $^\circ\text{C/W}$         |
| Total Device Dissipation<br>Alumina Substrate,(2) $T_A=25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 300<br>2.4  | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance,Junction to Ambient  | $R_{\theta JA}$ | 417         | $^\circ\text{C/W}$         |
| Junction and Storage Temperature  | $T_j, T_{stg}$  | -55 to +150 | $^\circ\text{C}$           |

1. FR-5 = 1.0 x 0.75 x 0.062 in.

2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)**

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

**OFF CHARACTERISTICS**

|  |                      |    |   |     |    |
|--|----------------------|----|---|-----|----|
| Collector-Emitter Breakdown Voltage<br>(I <sub>C</sub> =1.0mA) | V <sub>(BR)CEO</sub> | 25 | - | -   | V  |
| Emitter-Base Breakdown Voltage<br>(I <sub>E</sub> =100μA)      | V <sub>(BR)EBO</sub> | 5  | - | -   | V  |
| Collector-Base Breakdown Voltage<br>(I <sub>C</sub> =100μA)    | V <sub>(BR)CBO</sub> | 40 | - | -   | V  |
| Collector Cutoff Current (V <sub>CB</sub> =35V)                | I <sub>CBO</sub>     | -  | - | 150 | nA |
| Emitter Cutoff Current (V <sub>EB</sub> =4V)                   | I <sub>EBO</sub>     | -  | - | 150 | nA |

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)**

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

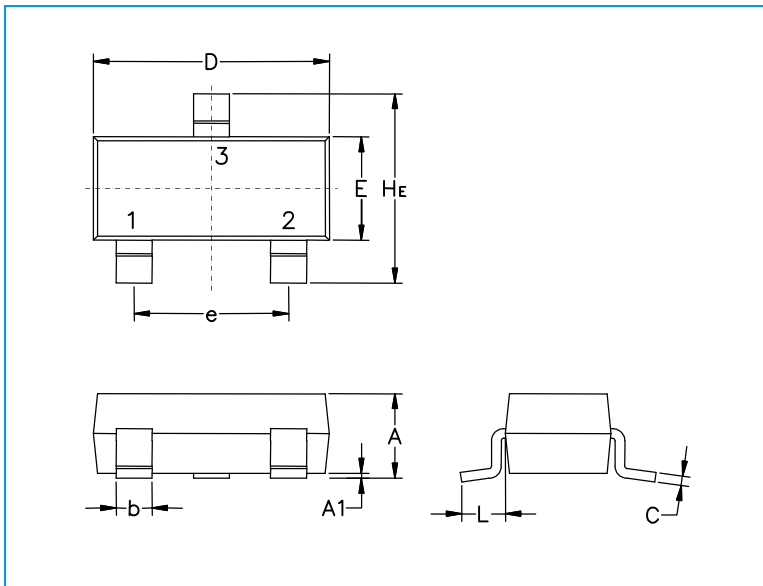
**ON CHARACTERISTICS**

|  |                    |     |   |     |   |
|--|--------------------|-----|---|-----|---|
| DC Current Gain<br>I <sub>C</sub> =100mA, V <sub>CE</sub> =1V                        | h <sub>FE</sub>    | 100 | - | 600 |   |
| Collector-Emitter Saturation Voltage<br>(I <sub>C</sub> =800mA I <sub>B</sub> =80mA) | V <sub>CE(S)</sub> | -   | - | 0.5 | V |

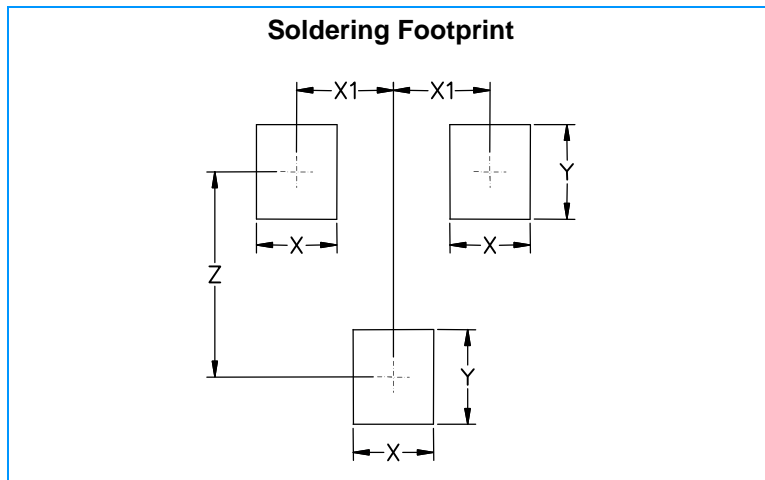
NOTE :

| *               | P       | Q       | R       | S       |
|-----------------|---------|---------|---------|---------|
| h <sub>FE</sub> | 100~200 | 150~300 | 200~400 | 300~600 |

## SOT-23 Package Outline & Dimensions



| Symbol    | Millimeters |      |      | Inches |       |       |
|-----------|-------------|------|------|--------|-------|-------|
|           | Min.        | Nom. | Max. | Min.   | Nom.  | Max.  |
| <b>A</b>  | 0.89        | 1.00 | 1.11 | 0.035  | 0.040 | 0.044 |
| <b>A1</b> | 0.01        | 0.06 | 0.10 | 0.001  | 0.002 | 0.004 |
| <b>b</b>  | 0.37        | 0.44 | 0.50 | 0.15   | 0.18  | 0.020 |
| <b>c</b>  | 0.09        | 0.13 | 0.18 | 0.003  | 0.005 | 0.007 |
| <b>D</b>  | 2.80        | 2.90 | 3.04 | 0.110  | 0.114 | 0.120 |
| <b>E</b>  | 1.20        | 1.30 | 1.40 | 0.047  | 0.051 | 0.055 |
| <b>e</b>  | 1.78        | 1.90 | 2.04 | 0.070  | 0.075 | 0.081 |
| <b>L</b>  | 0.35        | 0.54 | 0.69 | 0.014  | 0.021 | 0.029 |
| <b>He</b> | 2.10        | 2.40 | 2.64 | 0.083  | 0.094 | 0.104 |



| Symbol    | Millimeters | Inches |
|-----------|-------------|--------|
| <b>X</b>  | 0.80        | 0.031  |
| <b>X1</b> | 0.95        | 0.037  |
| <b>Y</b>  | 0.90        | 0.035  |
| <b>Z</b>  | 2.00        | 0.079  |