

**/ Descriptions**

SOT-23

PNP

Silicon PNP Digital transistor in a SOT-23 Plastic Package.

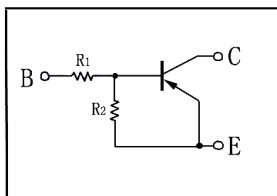
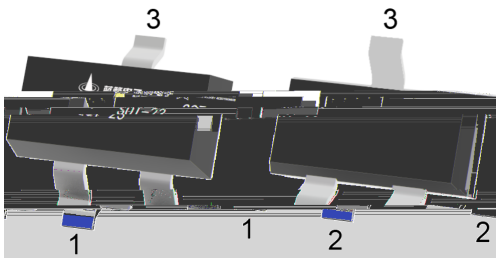
**/ Features**

AEC-Q101

With built-in bias resistors, simplify circuit design, reduce a quantity of parts and manufacturing process, high current, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

**/ Applications**

Switching, inverter circuit, interface circuit and driver circuit applications, Meet the stringent requirements of automotive applications.

**/ Equivalent Circuit****/ Pinning**

PIN 1 Base

PIN 2 Emitter

PIN 3 Collector

**/ h<sub>FE</sub> Classifications & Marking**

|         |     |
|---------|-----|
| Marking | Q13 |
|---------|-----|

**/ Absolute Maximum Ratings(Ta=25 )**

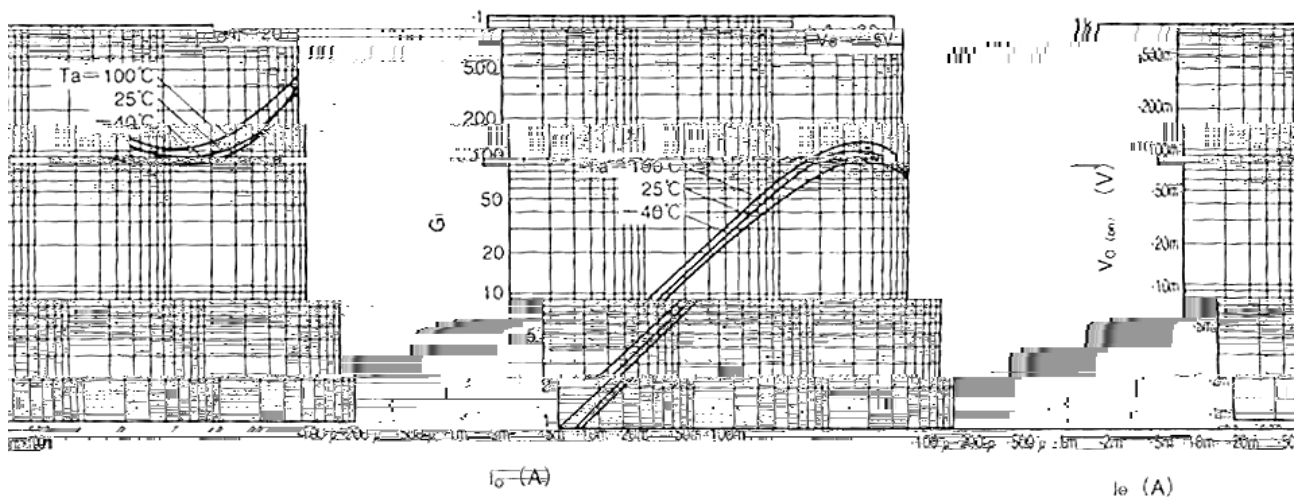
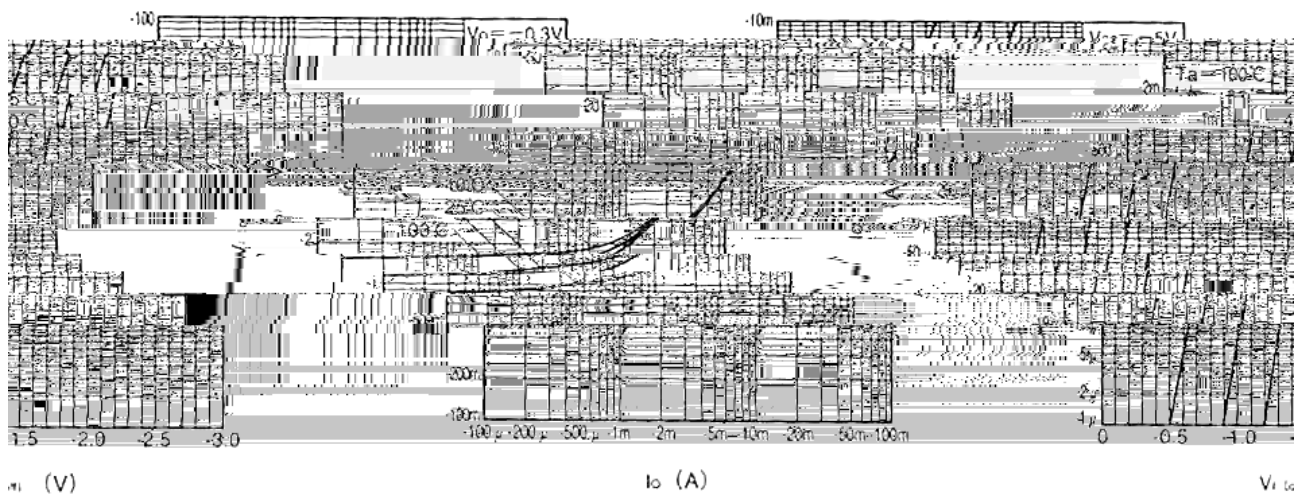
| Parameter                 | Symbol              | Rating  | Unit |
|---------------------------|---------------------|---------|------|
| Output Voltage            | V <sub>CC</sub>     | -50     | V    |
| Input Voltage             | V <sub>IN</sub>     | -30     | V    |
|                           |                     | 10      | V    |
| Output Current            | I <sub>O</sub>      | -100    | mA   |
|                           | I <sub>C(MAX)</sub> | -100    | mA   |
| Power Dissipation         | P <sub>d</sub>      | 200     | mW   |
| Junction Temperature      | T <sub>j</sub>      | 150     |      |
| Storage Temperature Range | T <sub>stg</sub>    | -55 150 |      |

**/ Electrical Characteristics(Ta=25 )**

| Parameter              | Symbol                         | Test Conditions                                         | Min  | Typ  | Max  | Unit |
|------------------------|--------------------------------|---------------------------------------------------------|------|------|------|------|
| Input Voltage          | V <sub>I(off)</sub>            | V <sub>CC</sub> =-5.0V I <sub>O</sub> =-100μA           |      |      | -0.5 | V    |
|                        | V <sub>I(on)</sub>             | V <sub>O</sub> =-0.3V I <sub>O</sub> =-20mA             | -3.0 |      |      | V    |
| Output Voltage         | V <sub>O(on)</sub>             | I <sub>O</sub> =-10mA I <sub>I</sub> =-0.5mA            |      | -0.1 | -0.3 | V    |
| Input Current          | I <sub>I</sub>                 | V <sub>I</sub> =-5.0V                                   |      |      | -1.8 | mA   |
| Output Cut-off Current | I <sub>O(off)</sub>            | V <sub>CC</sub> =-50V V <sub>I</sub> =0V                |      |      | -0.5 | μA   |
| DC Current Gain        | G <sub>I</sub>                 | V <sub>O</sub> =-5.0V I <sub>O</sub> =-10mA             | 20   |      |      |      |
| Transition Frequency   | f <sub>T</sub>                 | V <sub>CE</sub> =-10V I <sub>E</sub> =5.0mA<br>f=100MHz |      | 250  |      | MHz  |
| Resistance1            | R <sub>1</sub>                 |                                                         | 3.29 | 4.7  | 6.11 | KΩ   |
| Resistance Ratio       | R <sub>2</sub> /R <sub>1</sub> |                                                         | 0.8  | 1.0  | 1.2  |      |



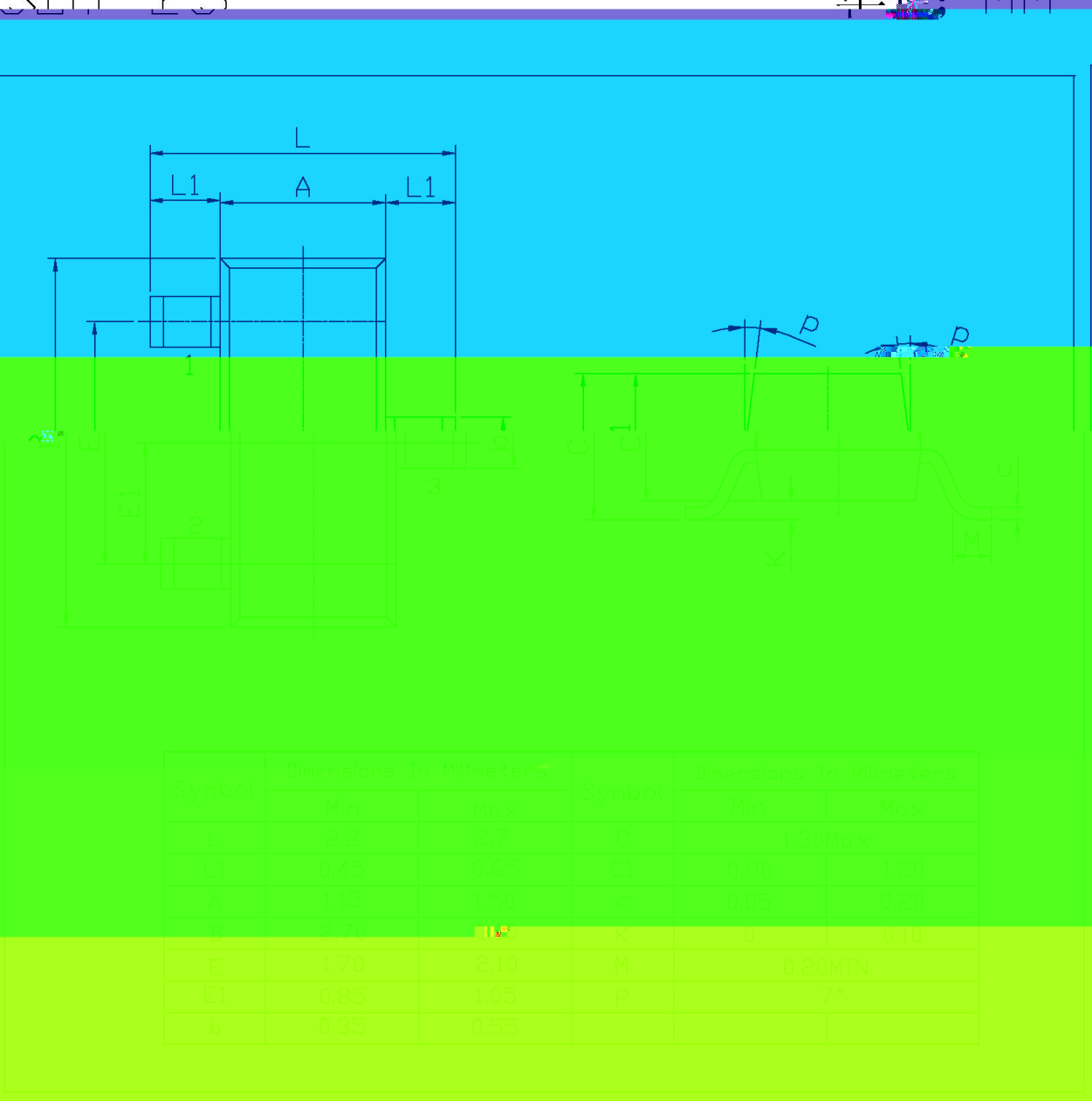
## / Electrical Characteristic Curve



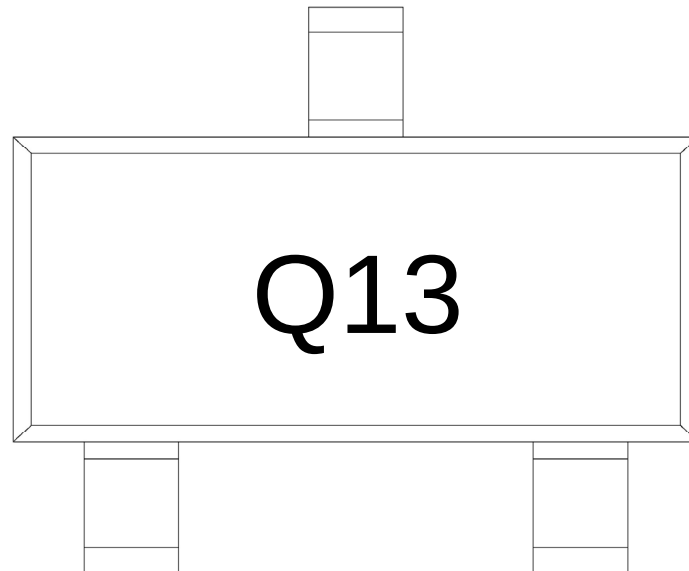
/ Package Dimensions

SOT-23

单位: mm



/ Marking Instructions



Q

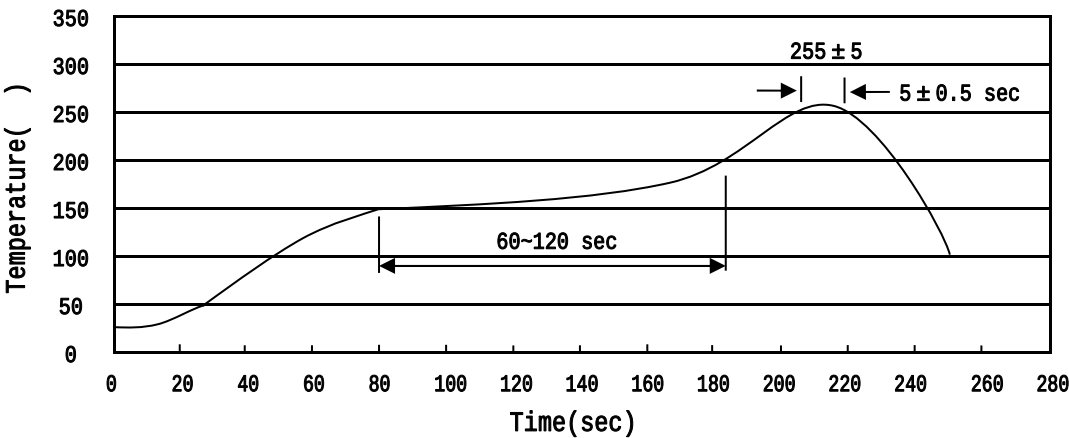
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Note:

Q: Automobile halogen-free product Code

13 Product Type Code

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1

150 200

60 120sec;

1.Preheating:150~200 , Time:60~120sec.
- 2

255±5

5±0.5sec;

2.Peak Temp.:255±5 , Duration:5±0.5sec.
- 3

2 10 /sec.

3.Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5                      10±1 sec.                      Temp.:260±5                      Time:10±1 sec

/ Packaging SPEC.

/ REEL

| Package Type<br>封装形式 | Units 包装数量 |      |        |     |         | Dimension 包装尺寸 (unit: mm³) |             |             |
|----------------------|------------|------|--------|-----|---------|----------------------------|-------------|-------------|
|                      | 只 卷盘       | 卷盘 盒 | 只 盒    | 盒 箱 | 只 箱     |                            | 盒           | 箱           |
| SOT-23               | 3,000      | 10   | 30,000 | 6   | 180,000 | 7 ×8                       | 180×120×180 | 390×385×205 |

/ Notices