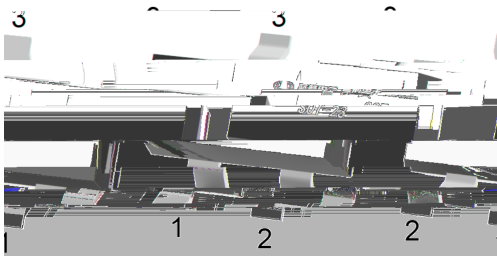
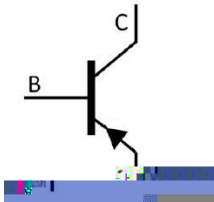


SOT-23          PNP          Silicon PNP transistor in a SOT-23 Plastic Package.

### AEC-Q101

Low  $V_{CE(sat)}$ , high current, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

General purpose switching and muting, LCD back-lighting, supply line switching circuits, Meet the stringent requirements of automotive applications.



PIN 1    Base          PIN 2    Emitter          PIN 3    Collector

|                |      |
|----------------|------|
| $h_{FE}$ Range | >200 |
| Marking        | ZDQ  |

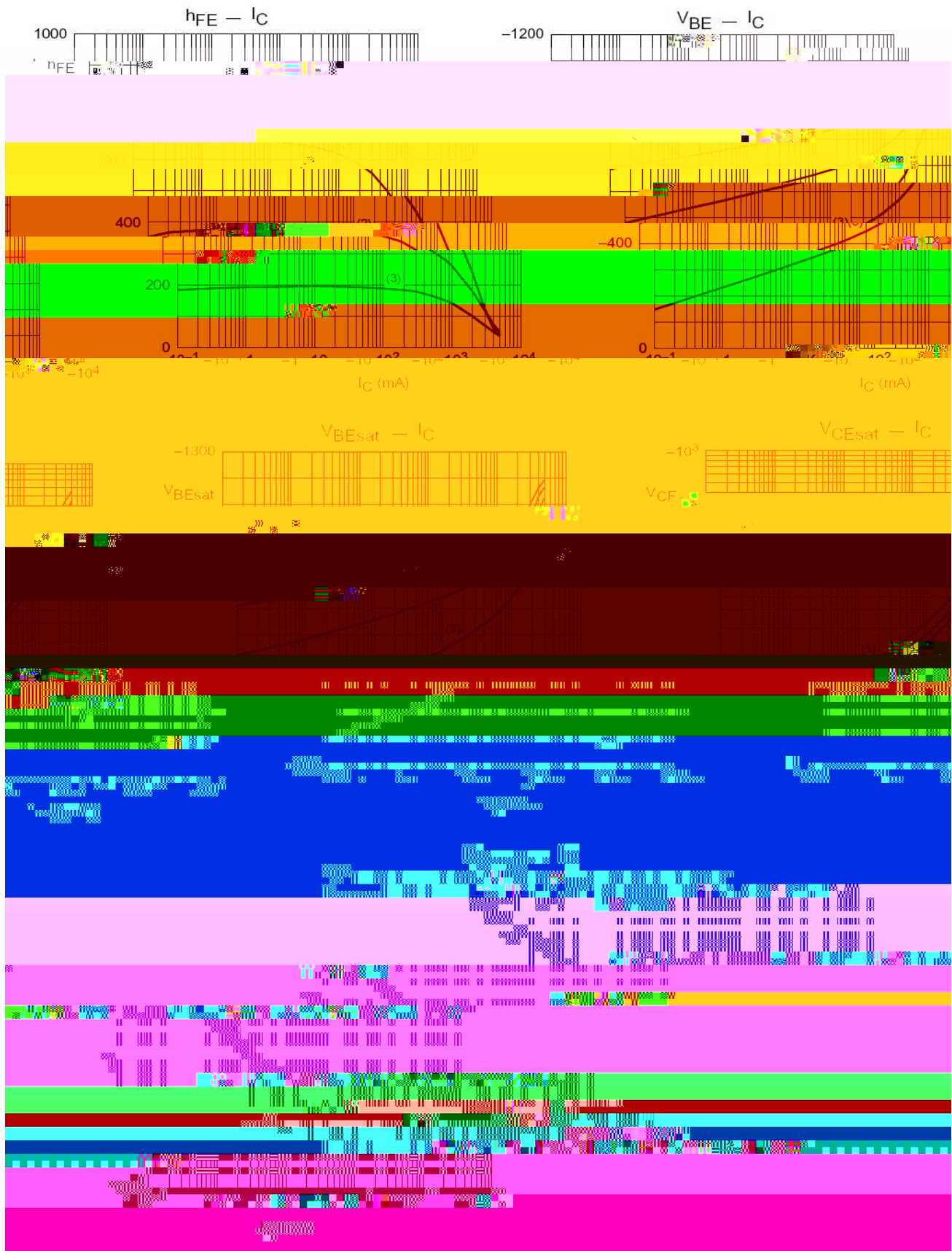
| Parameter                    | Symbol             | Rating  | Unit |
|------------------------------|--------------------|---------|------|
| Collector to Base Voltage    | $V_{CBO}$          | -50     | V    |
| Collector to Emitter Voltage | $V_{CEO}$          | -50     | V    |
| Emitter to Base Voltage      | $V_{EBO}$          | -5      | V    |
| Collector Current            | $I_C$              | -2      | A    |
| Peak Collector Current       | $I_{CM}$           | -5      | A    |
| Base Current                 | $I_B$              | -0.5    | A    |
| Total Power Dissipation      | $P_{tot}^{(1)}$    | 300     | mW   |
| Total Power Dissipation      | $P_{tot}^{(1)(2)}$ | 1.2     | W    |
| Junction Temperature         | $T_j$              | 150     |      |
| Storage Temperature Range    | $T_{stg}$          | -65 150 |      |

1  $t_p \leq 100 \text{ ms}$   $\delta \leq 0.25$

2

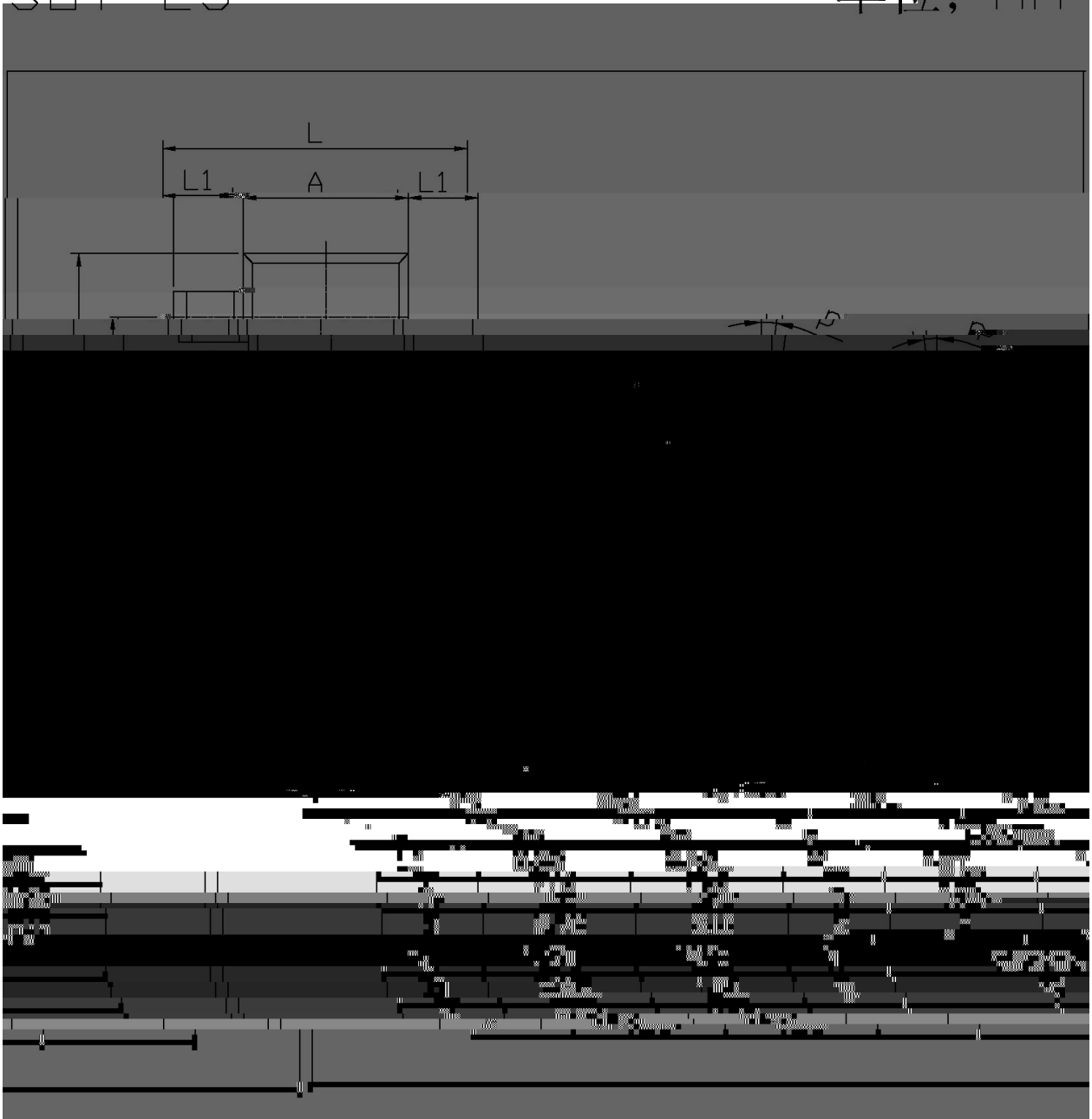
| Parameter                            | Symbol            | Test Conditions                               | Min | Typ | Max  | Unit |
|--------------------------------------|-------------------|-----------------------------------------------|-----|-----|------|------|
| Collector Cut-Off Current            | $I_{CBO}$         | $V_{CB}=-50V \quad I_E=0$                     |     |     | -100 | nA   |
|                                      |                   | $V_{CB}=-50V \quad I_E=0$<br>$T_j=150$        |     |     | -50  | A    |
| emitter Cut-Off Current              | $I_{EBO}$         | $V_{EB}=-5.0V \quad I_C=0$                    |     |     | -100 | nA   |
| DC Current Gain                      | $h_{FE(1)}$       | $V_{CE}=-2.0V \quad I_C=-100mA$               | 200 |     |      |      |
|                                      | $h_{FE(2)}$       | $V_{CE}=-2.0V \quad I_C=-500mA$               | 200 |     |      |      |
|                                      | $h_{FE(3)*}$      | $V_{CE}=-2.0V \quad I_C=-1.0A$                | 200 |     |      |      |
|                                      | $h_{FE(4)*}$      | $V_{CE}=-2.0V \quad I_C=-2.0A$                | 130 |     |      |      |
|                                      | $h_{FE(5)*}$      | $V_{CE}=-2.0V \quad I_C=-3.0A$                | 80  |     |      |      |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)(1)*}$ | $I_C=-500mA \quad I_B=-50mA$                  |     |     | -80  | mV   |
|                                      | $V_{CE(sat)(2)*}$ | $I_C=-2.0A \quad I_B=-100mA$                  |     |     | -320 | mV   |
| Equivalent On-Resistance             | $R_{CE(sat)*}$    | $I_C=-2.0A \quad I_B=-200mA$                  |     | 90  | 135  | m    |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)*}$    | $I_C=-2.0A \quad I_B=-100mA$                  |     |     | -1.1 | V    |
|                                      |                   | $I_C=-3.0A \quad I_B=-300mA$                  |     |     | -1.2 | V    |
| Base-Emitter Voltage                 | $V_{BE(ON)*}$     | $V_{CE}=-2.0V \quad I_C=-1.0A$                |     |     | -1.2 | V    |
| Transition Frequency                 | $f_T$             | $V_{CE}=-5.0V \quad I_C=-100mA$<br>$f=100MHz$ | 100 |     |      | MHz  |
| Collector Capacitance                | $C_C$             | $V_{CB}=-10V \quad I_E=0$<br>$f=1.0MHz$       |     |     | 35   | pF   |

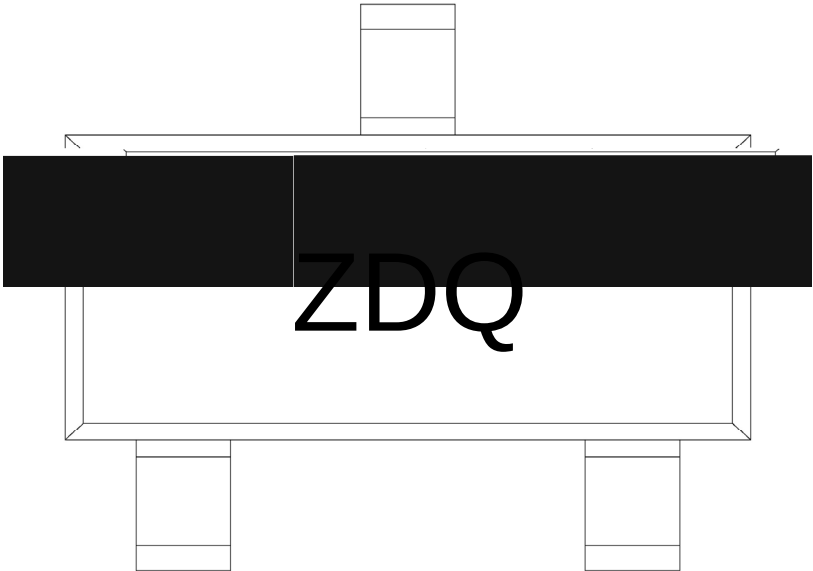
\* :  $t_p \leq 300\mu s$ ;  $\delta \leq 0.02$ .



SOT-23

单位: mm





ZD

Q

Note:

ZD           Product Type

Q:           Automobile halogen-free product 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.