

1. Electrical Characteristics

1.1 Maximum Ratings

| Parameter | Symbol | Rating | Unit |
|-----------------------------|-----------|---------------|------|
| Maximum Input Current | I_{max} | 20 (at 25°C) | mA |
| Maximum Power Dissipation | P_{max} | 150 (at 25°C) | mW |
| Operating Temperature Range | T_{op} | -40 ~ +110 | °C |
| Storage Temperature Range | T_{st} | -40 ~ +125 | °C |

1.2 Electrical Characteristics (Measured at 25°C)

| Parameter | Symbol | Measurement Conditions | Min | Max | Unit |
|-----------------------------------|-----------|-------------------------|-----|------|----------|
| Output Hall Voltage | V_H | $V_{in}=1V, B=500 GS$ | 196 | 370 | mV |
| Input Resistance | R_{in} | $I=0.1mA$ | 240 | 550 | Ω |
| Output Resistance | R_{out} | $I=0.1mA$ | 240 | 550 | Ω |
| Offset Voltage | V_o | $V_{in}=1V, B=0G$ | -7 | +7 | mV |
| Temp. Coeff. of V_H | α | $T_a=0\sim +40^\circ C$ | - | -1.8 | % /°C |
| Temp. Coeff. Of R_{in}, R_{out} | β | $T_a=0\sim +40^\circ C$ | - | -1.8 | % /°C |

1.3 Rank Classification and Mark on Output Hall Voltage

| Output Hall Voltage, V_H (mV) | Rank | Mark | Measurement Conditions |
|---------------------------------|------|------|---------------------------------------------|
| 196 -236 | D | X D | $V_{in}=1V, B=500 GS$ (Constant Voltage) |
| 228-274 | E | X E | |
| 266-320 | F | X F | |
| 320-370 | G | X G | |

2. Method for Mounting

2.1 Lead Frame

1、The material of lead frame is phosphor bronze alloy and the die bonded surface is plated by silver. The minimum thickness of plating is 3.0 μm .

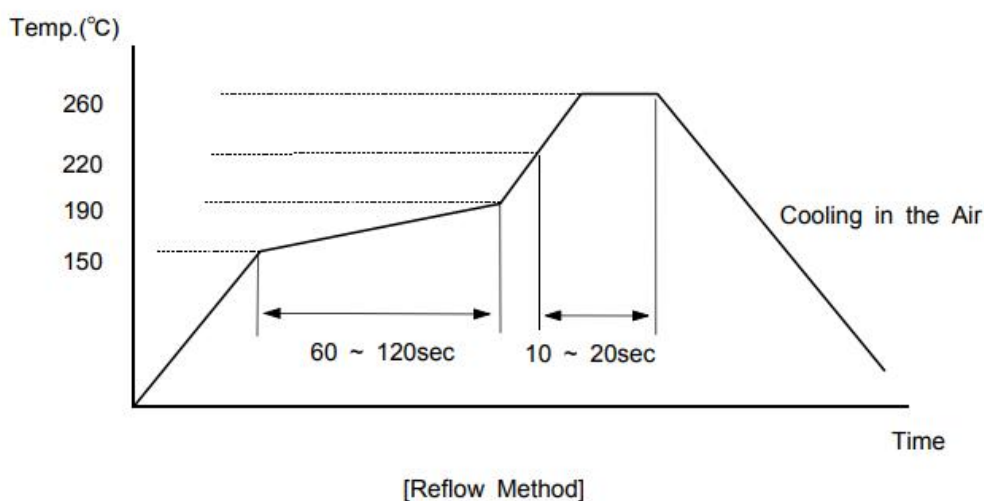
2、Lead Frame is plated by pure Sn and the thickness is controlled by 4-12 μm .

2.2 Soldering Conditions on PCB

- 1、No rapid heating and cooling is desired.
- 2、Preheating is recommended for 1~2minutes at 150~190°C.
- 3、Reflowing is recommended for 10~20seconds at 220~260°C.

2.3 Soldering Method and Temperature

| Items | Methods | Temperature |
|-------------|--------------------------------------|--------------------|
| Reflow | Soldering by passing the heated zone | Max 260°C in 10sec |
| Solder Iron | Soldering by solder-iron | Max 350°C in 3sec |

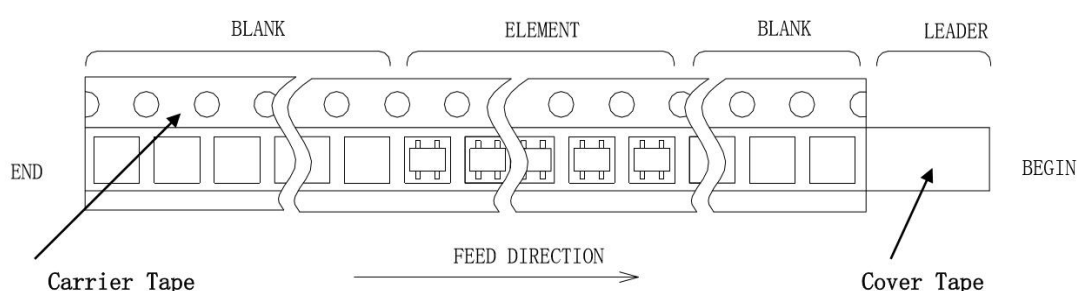


3. Packaging

3.1 Taping

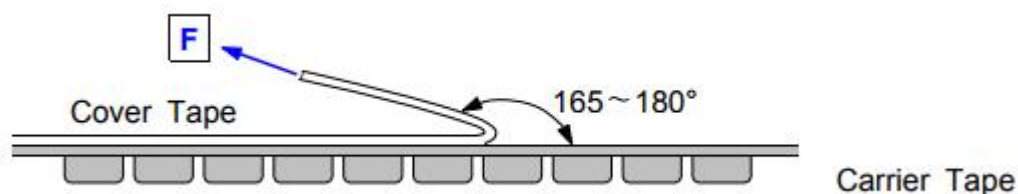
1、 ES101 should be packed marking side to cover tape side and put long side to tape running direction. 180° rotation has no effect on the application.

2、 At least, 40mm vacant parts are made both front and rear side of tape.



3.2 Handling Methods of Tape

1、 Pull Strength(F) = 20~70g



2、 Devices should not run out of a pocket when tape is bent down 15mm curvature.

3、 Devices should not stick to cover tape.

4、 Devices should be kept below 40°C and below RH80% in the shade.

5、 Tape has no joint.

3.3 Packing Unit

1、 3,000pcs of devices are packed in one reel.

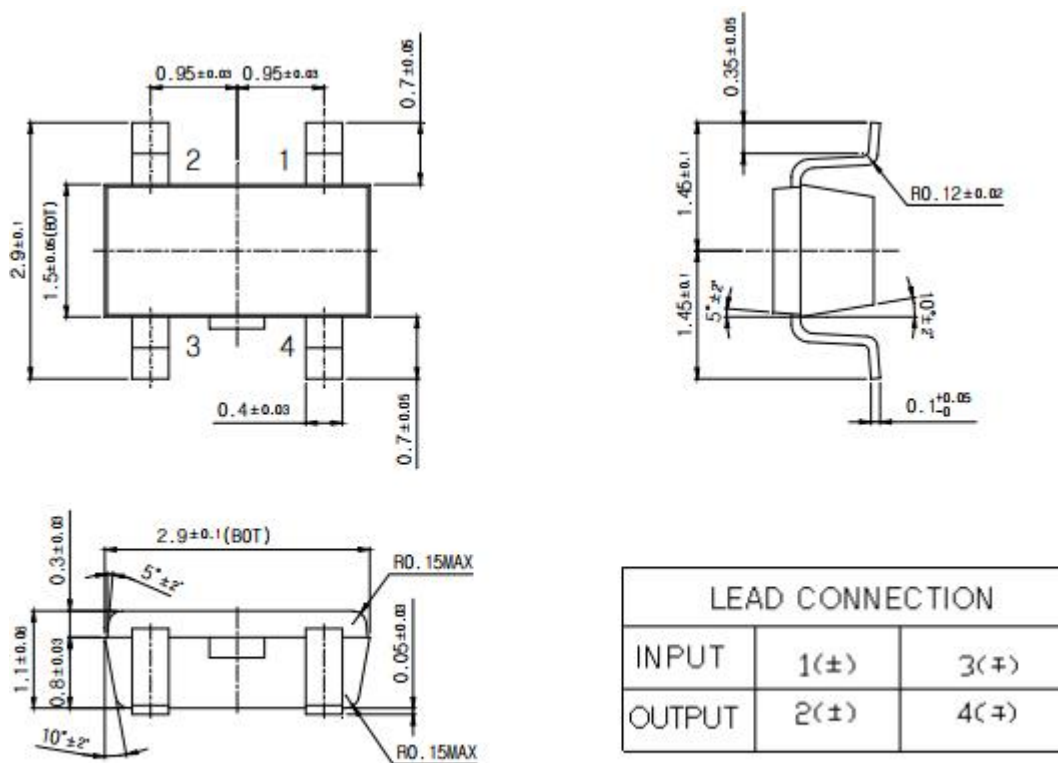
2、 Five reels are packed in one inner box.

3、 Four inner boxes, 60,000pcs of devices, are packed in one outer box.

4. External Dimensions and Appearance

4.1 External Dimensions (Unit:mm)

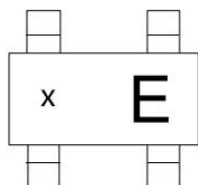
Four leads of input-output terminals are designed in the diagonally symmetric mode and are equal in dimensions. ES101 could be used without considering on the rotation of 180°.



[Package Dimensions]

4.2 Marking Method

Devices should be marked by LASER beam in the form of **【x + “Rank”】**.



X Inside Symbol: A、B、C、...
E Rank Symbol: D、E、F、G

5. Test Item and Condition

| No | TEST Item | TEST Condition |
|----|------------------------------------|-------------------------------------------------------------|
| 1 | HIGH TEMP. STORAGE | Ta=125°C, t=1000HR |
| 2 | HIGH TEMP. OPERATION | Ta=110°C, Iopr=10mA, t=1000HR |
| 3 | LOW TEMP. OPERATION | Ta=-40°C, Iopr=6mA, t=1000HR |
| 4 | HIGH TEMP. HIGH HUMIDITY OPERATION | Ta=85°C, HR=85%, Iopr=9mA, t=1000HR |
| 5 | PCT | Ta=121°C, HR=100%, Pv=2atm, t=24HR |
| 6 | THERMAL SHOCK | T (L)=-55°C, T (H)=125°C, t=(L, H)=30min, M=30CYCLE |
| 7 | HIGH HUMIDITY TEMPERATURE CYCLE | T (L)=-20°C, T (H)=85°C, t (L, H)=30min, HR=95%, M=40 CYCLE |
| 8 | SOLDERING HEAT RESISTANCE | Peak Temp=260°C, t=10sec, REFLOW |
| 9 | ESD (MM) | V=500V, C=200pF, R=0Ω (EIAJ TEST CONDITION) |

6. Ordering Information

| Part No. | Lead Type | Rank | Tape |
|----------|------------------|---------|-------------|
| ES101 | A:Gull wing type | D、E、F、G | U: upward |
| | B: Straight type | | D: downward |