



2SA2127

Bipolar Transistor -50V, -2A, Low VCE(sat), PNP Single MP

ON Semiconductor®

<http://onsemi.com>

Applications

- Voltage regulators, relay drivers, lamp drivers, electrical equipment

Features

- Adoption of MBIT process
- High current capacity and wide ASO
- Low saturation voltage

Specifications

Absolute Maximum Ratings at Ta=25°C

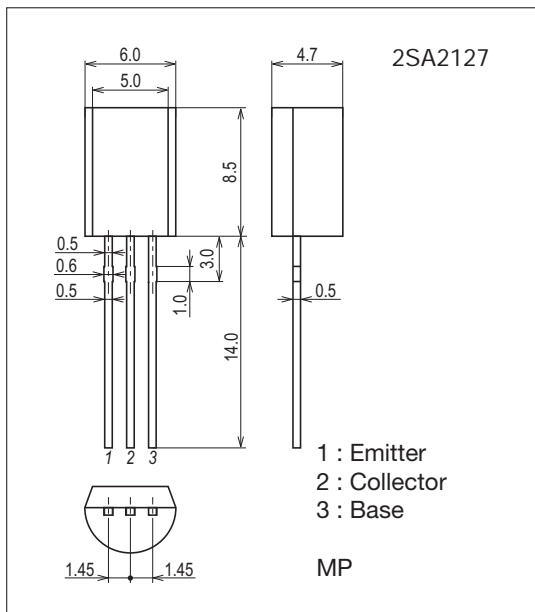
| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|------------|-------------|------|
| Collector-to-Base Voltage | V _{CB0} | | -50 | V |
| Collector-to-Emitter Voltage | V _{CE0} | | -50 | V |
| Emitter-to-Base Voltage | V _{EB0} | | -6 | V |
| Collector Current | I _C | | -2 | A |
| Collector Current (Pulse) | I _{CP} | | -4 | A |
| Base Current | I _B | | -400 | mA |
| Collector Dissipation | P _C | | 1 | W |
| Junction Temperature | T _J | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

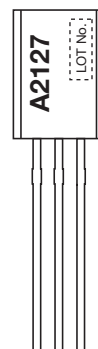
7520-002



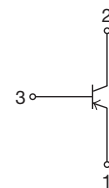
Product & Package Information

- Package : MP
- JEITA, JEDEC : SC-51, TO-92(1-WATT), TO-226AE
- Minimum Packing Quantity : 1,000 pcs./box

Marking



Electrical Connection

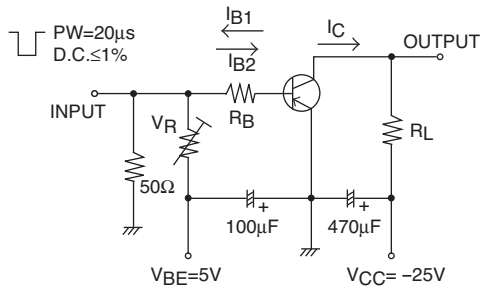


2SA2127

Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-------------------------------|---------|------|------|---------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB} = -40V, I_E = 0A$ | | | -1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = -4V, I_C = 0A$ | | | -1 | μA |
| DC Current Gain | h_{FE1} | $V_{CE} = -2V, I_C = -100mA$ | 200 | | 560 | |
| | h_{FE2} | $V_{CE} = -2V, I_C = -1.5A$ | 40 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE} = -10V, I_C = -300mA$ | | 420 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB} = -10V, f = 1MHz$ | | 16 | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -1A, I_B = -50mA$ | | -0.2 | -0.4 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = -1A, I_B = -50mA$ | | -0.9 | -1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = -10\mu A, I_E = 0A$ | -50 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = -1mA, R_{BE} = \infty$ | -50 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = -10\mu A, I_C = 0A$ | -6 | | | V |
| Turn-On Time | t_{on} | See specified Test Circuit. | | 35 | | ns |
| Storage Time | t_{stg} | | | 250 | | ns |
| Fall Time | t_f | | | 24 | | ns |

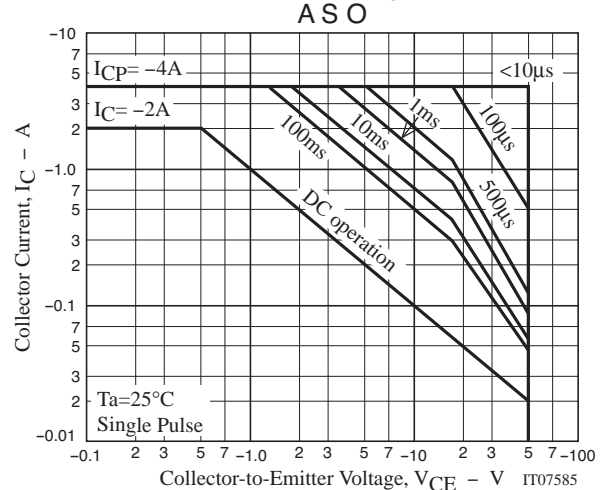
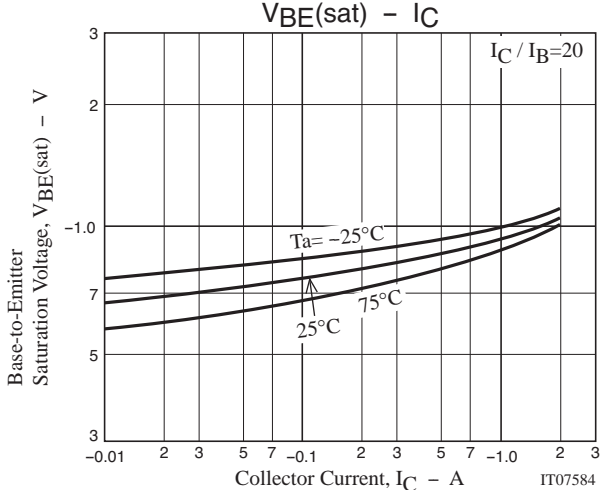
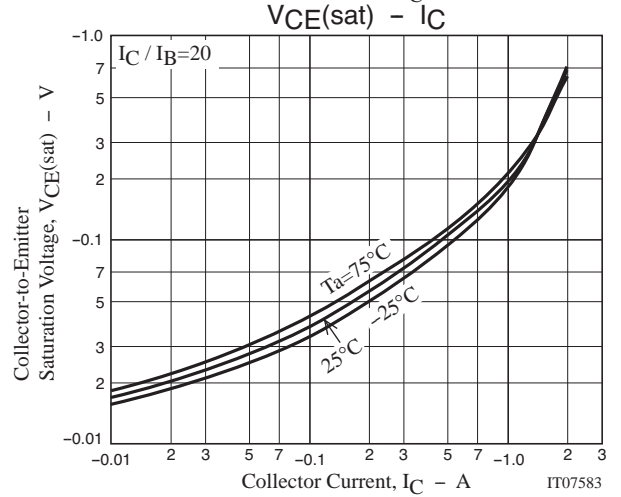
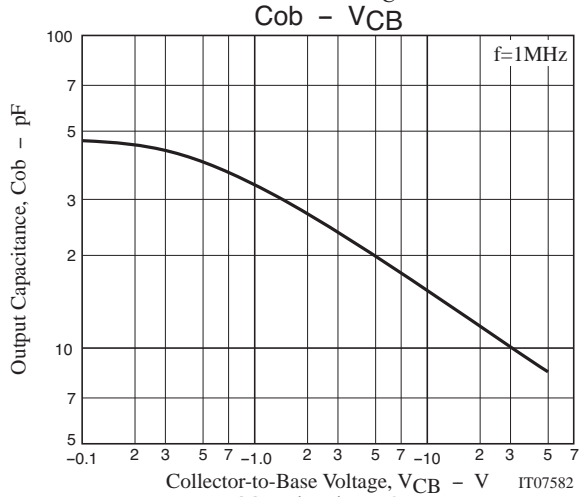
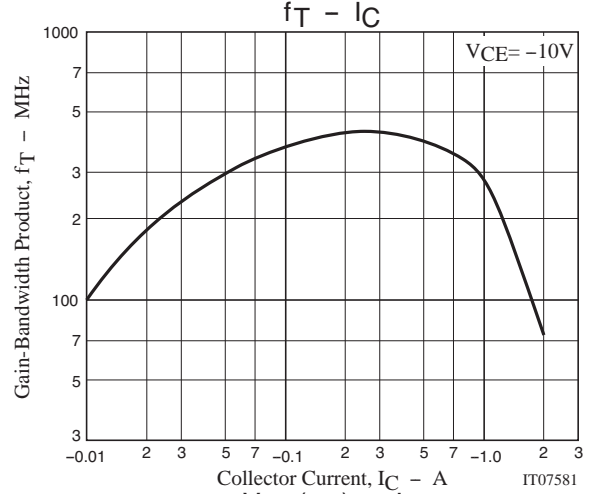
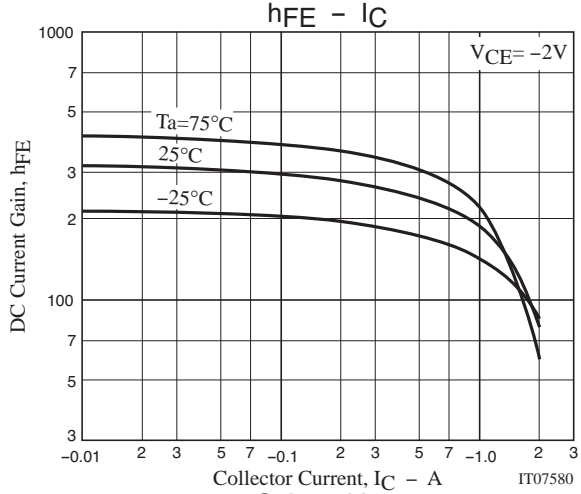
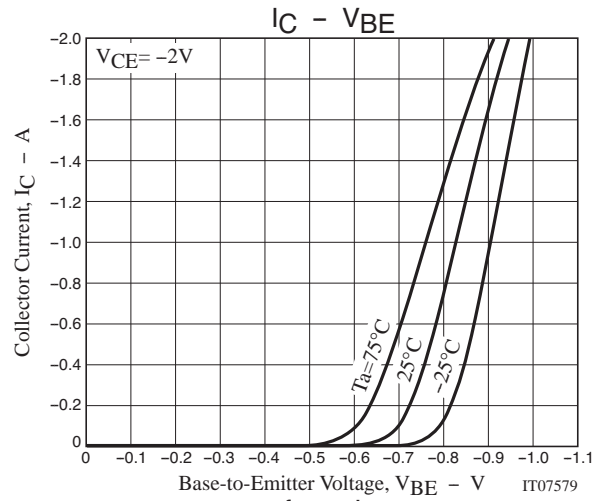
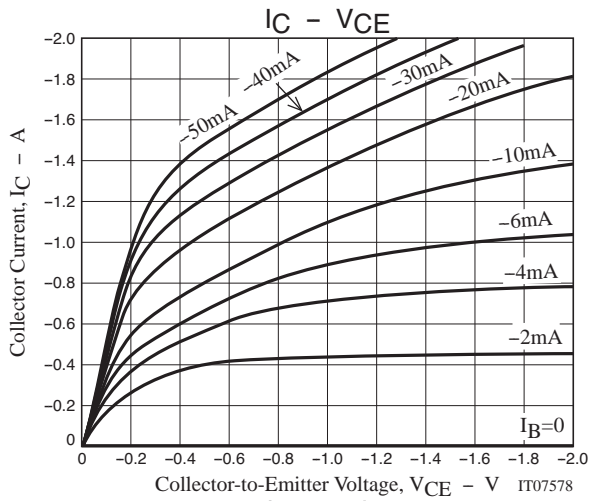
Switching Time Test Circuit

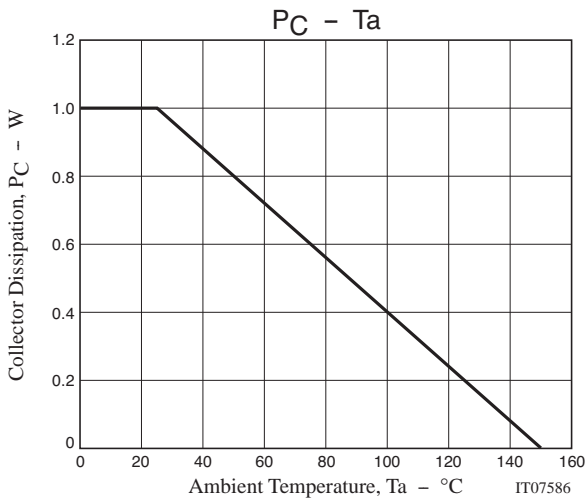


$$I_C = 10I_{B1} = -10I_{B2} = -0.5A$$

Ordering Information

| Device | Package | Shipping | memo |
|------------|---------|---------------|---------|
| 2SA2127 | MP | 500pcs./bag | Pb Free |
| 2SA2127-AE | MP | 1,000pcs./box | |





Taping Specification

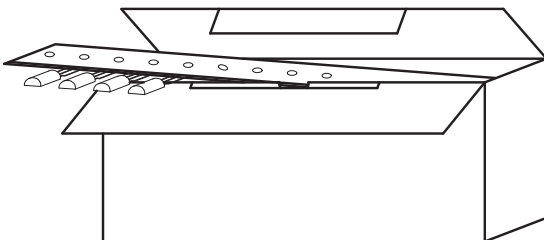
2SA2127-AE

1. Packing Format

| Package Name | Packing Type | Maximum Number of devices contained (pcs) | | Packing format | |
|--------------|--------------|---|---------------------|--|---|
| | | Inner BOX | number of contained | Outer Box (C-14) | Outer Box (C-15) |
| M P | AE/AZ | C-3 Dimensions:mm (external) 330×45×125 | 1,000 | 1 Inner Box contained (16,000pcs) Dimensions:mm (external) 500×345×195 | 8 Inner Box contained (8,000pcs) Dimensions:mm (external) 345×260×195 |
| | A J | C-5 Dimensions:mm (external) 330×45×245 | 2,000 | 8 Inner Box contained (16,000pcs) Dimensions:mm (external) 500×345×195 | 4 Inner Box contained (8,000pcs) Dimensions:mm (external) 345×260×195 |

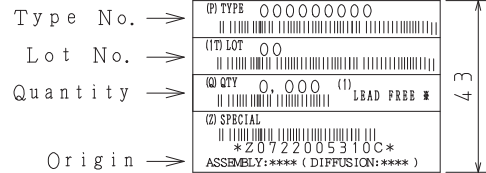
Packing method

Put zigzag folding in an inner box.



Inner box label

(unit:mm)



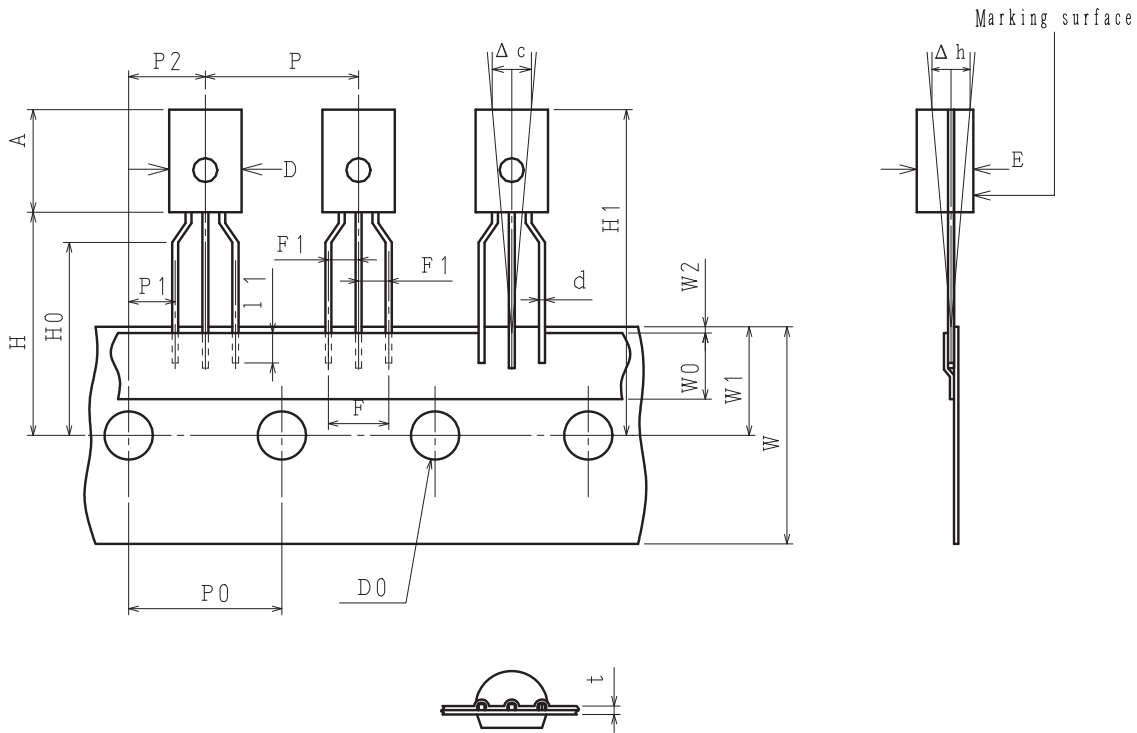
NOTE (1)

The LEAD FREE # description shows that the surface treatment of the terminal is lead free.

| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping specifications

2-1. Carrier tape size



2-2. Taping size standard

unit:mm

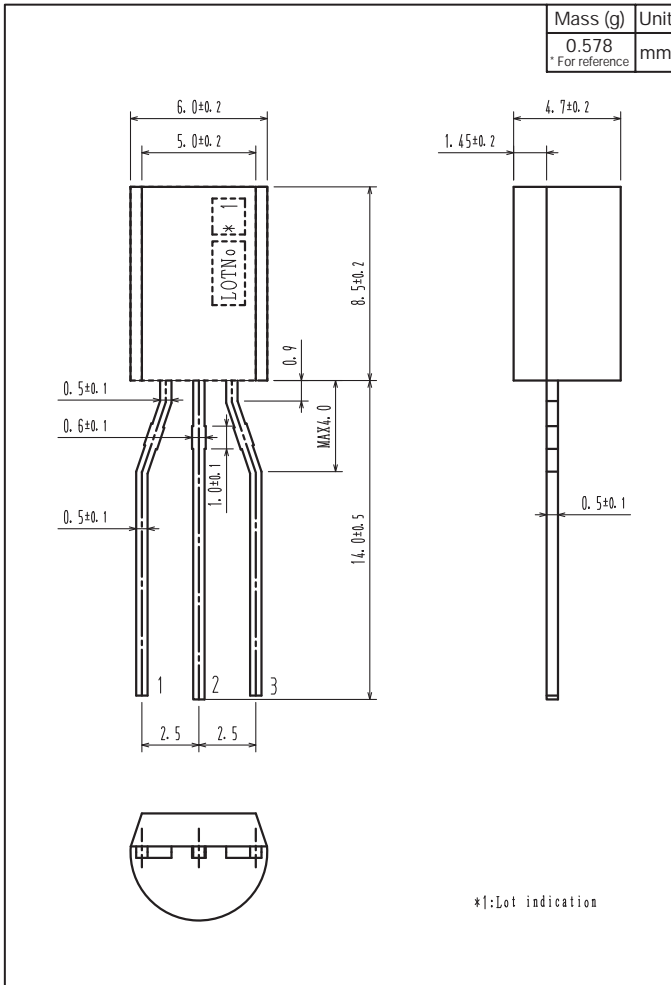
| Item | Symbol | Standard | Tolerance | Item | Symbol | Standard | Tolerance |
|------------------------------|--------|----------|--------------|------------------------------------|--------|----------|--------------|
| Work piece outside diameter | D | 6.0 | ±0.2 | Tape width | W | 18.0 | +1.0 -0.5 |
| | E | 4.7 | ±0.2 | Adhesive tape | W0 | 6.0 | ±1.5 |
| Work piece height | A | 8.5 | ±0.2 | Displacement of perforations | W1 | 9.0 | ±0.5 |
| Lead wire diameter | d | 0.5×0.5t | ±0.1 | Work piece bottom surface position | H | 18.5 | ±1.0 |
| Bonded lead wire | l1 | 2.5MIN | | Insert stopper position | H0 | 16.0 | ±0.5 |
| Pitch between products | P | 12.7 | ±1.0 | Work piece upper limit position | H1 | 27.0 | ±1.5 |
| Pitch between perforations | P0 | 12.7 | ±0.2 | Perforations diameter | D0 | φ4.0 | ±0.2 |
| Accumulation Pitch | P0×20 | 254.0 | ±1.0 | Tape thickness | t | 0.7 | ±0.2 |
| Distance between lead wire | F | 5.0 | +0.8 -0.2 | Product inclination | Δc | 0 | ±1.5 |
| Lead wire pitch distance | F1 | 2.5 | +0.4 -0.1 | | | | |
| Product inclination | Δh | 0 | ±2.0 | | | | |
| Displacement of perforations | P1 | 3.85 | ±0.3 | | | | |
| | P2 | 6.35 | ±0.3 | | | | |
| Displacement of tape | W2 | 0.5MAX | | | | | |

Measurement position is the bottom of the clinch

Not to be displaced to the outside of the board

Outline Drawing

2SA2127-AE



Bag Packing Specification

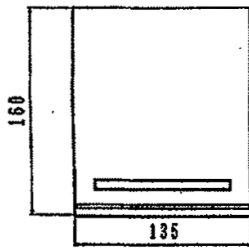
2SA2127

1 . Packing condition

| Storage package outline name | Maximum number of devices contained (pcs.) | | | Packing condition | |
|------------------------------|--|---|-------------------|---|---|
| | Bags | Inner box | Devices contained | Outer box (A-1) | Outer box (A-2) |
| MP | 500 | B-1 Inner box dimensions : mm (external) 445×225×55 | 5,000 | 5 inner boxes contained (25,000) Outer box dimensions : mm (external) 470 × 250 × 300 | 3 inner boxes contained (15,000) Outer box dimensions : mm (external) 470 × 250 × 190 |

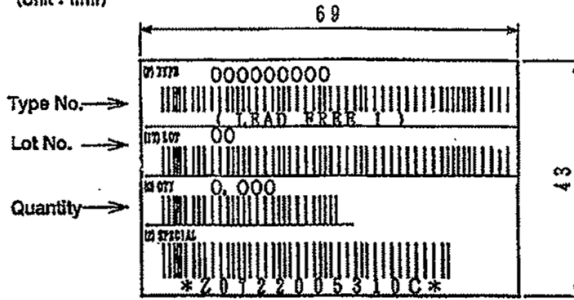
2. Bag dimensions

(Unit : mm)



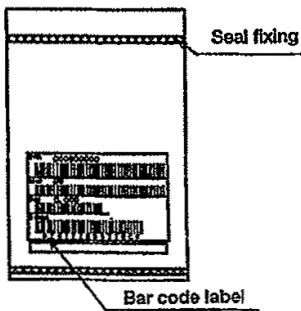
3. Bar code label

(Unit : mm)



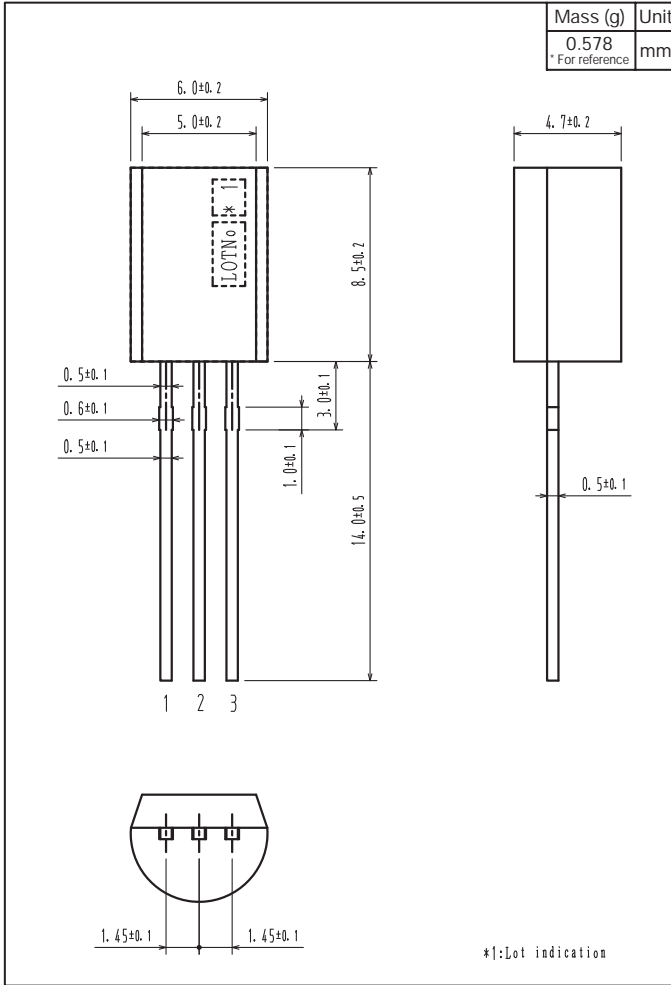
*LEAD FREE 1 :
Lead-free External terminal surface
treatment product.

4. Housing devices in the bag



Outline Drawing

2SA2127



ON Semiconductor and the ON logo are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.