



2SD1620

Bipolar Transistor 10V, 3A, Low $V_{CE(sat)}$, NPN Single PCP

ON Semiconductor®
<http://onsemi.com>

Features

- Less power dissipation because of low $V_{CE(sat)}$, permitting more flashes of light to be emitted
- Large current capacity and highly resistant to breakdown
- Excellent linearity of h_{FE} in the region from low current to high current
- Ultrasmall size supports high-density, ultrasmall-sized hybrid IC designs

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

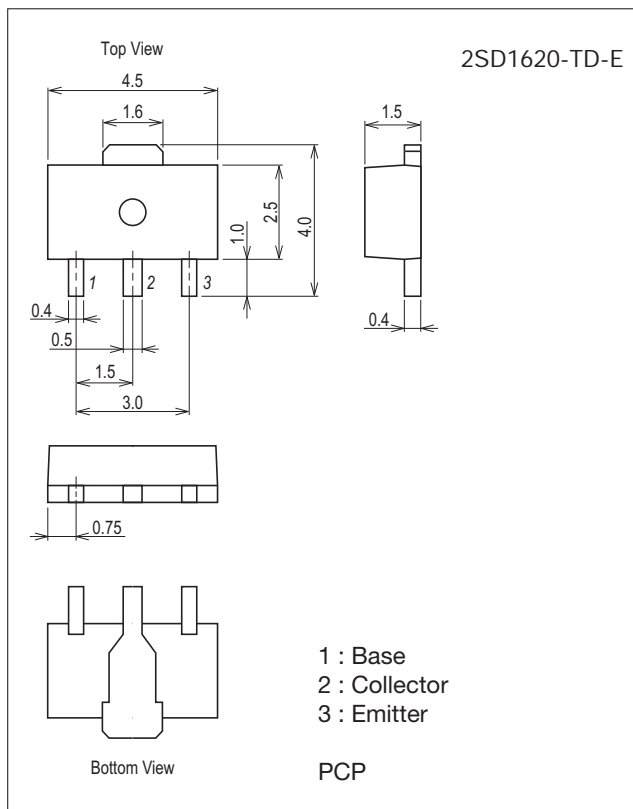
| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------|---------|------|
| Collector-to-Base Voltage | V_{CBO} | | 30 | V |
| Collector-to-Emitter Voltage | V_{CEX} | | 20 | V |
| Collector-to-Emitter Voltage | V_{CEO} | | 10 | V |
| Emitter-to-Base Voltage | V_{EBO} | | 6 | V |
| Collector Current | I_C | | 3 | A |
| Collector Current (Pulse) | I_{CP} | | 5 | A |

Continued on next page.

Package Dimensions

unit : mm (typ)

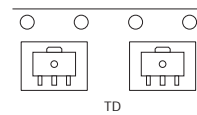
7007B-004



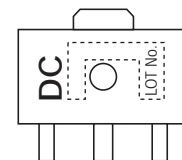
Product & Package Information

- Package : PCP
- JEITA, JEDEC : SC-62, SOT-89, TO-243
- Minimum Packing Quantity : 1,000 pcs./reel

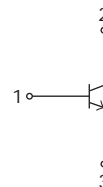
Packing Type: TD



Marking



Electrical Connection



2SD1620

Continued from preceding page.

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------|--------|---|-------------|------|
| Collector Dissipation | Pc | | 500 | mW |
| | | When mounted on ceramic substrate (250mm ² ×0.8mm) | 1.3 | W |
| Junction Temperature | Tj | | 150 | °C |
| Storage Temperature | Tstg | | -55 to +150 | °C |

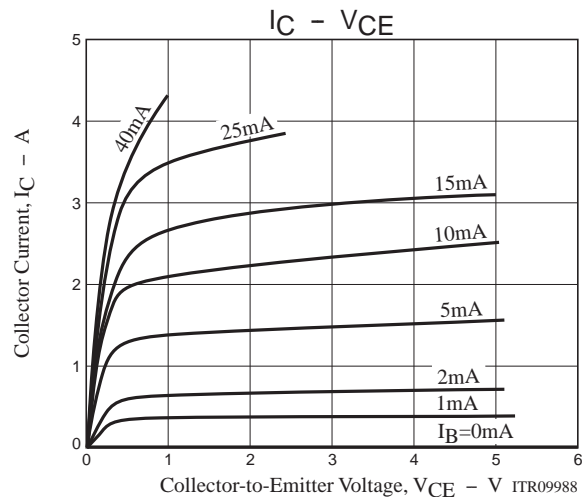
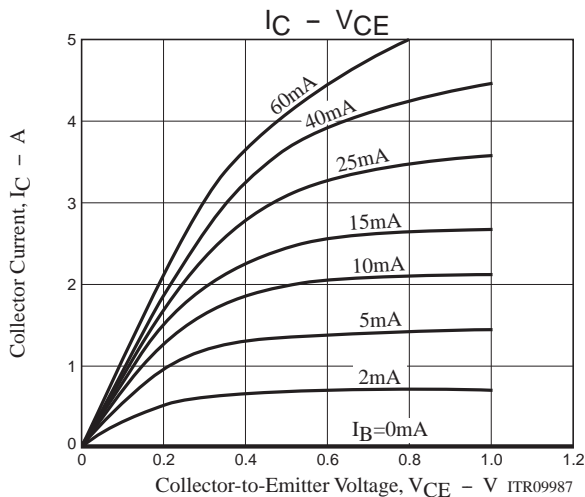
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Electrical Characteristics at Ta=25°C

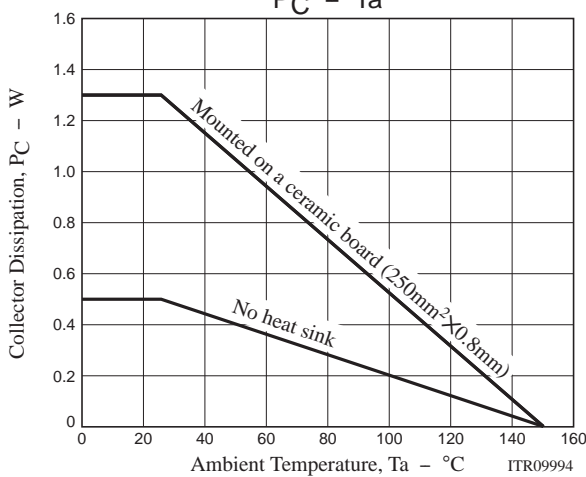
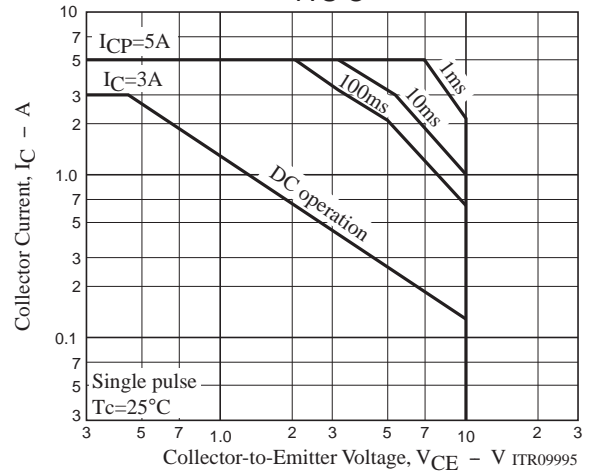
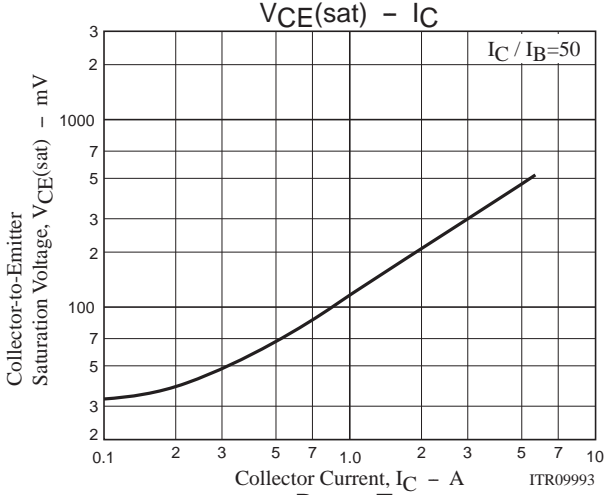
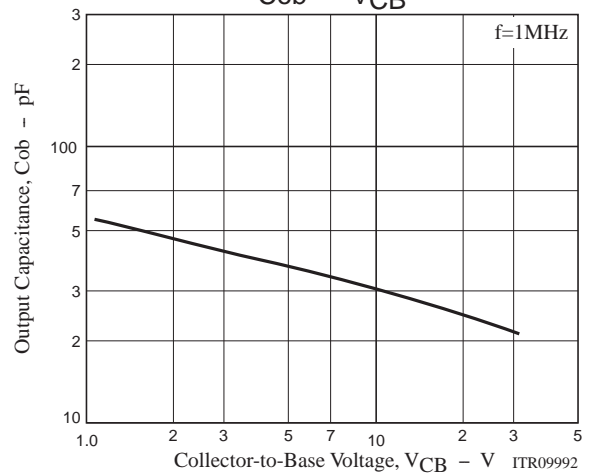
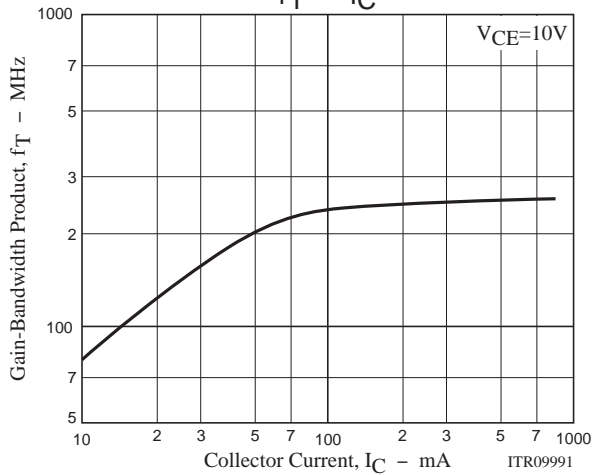
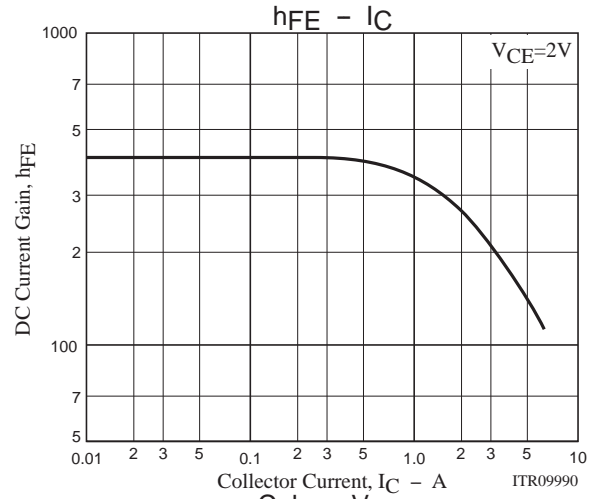
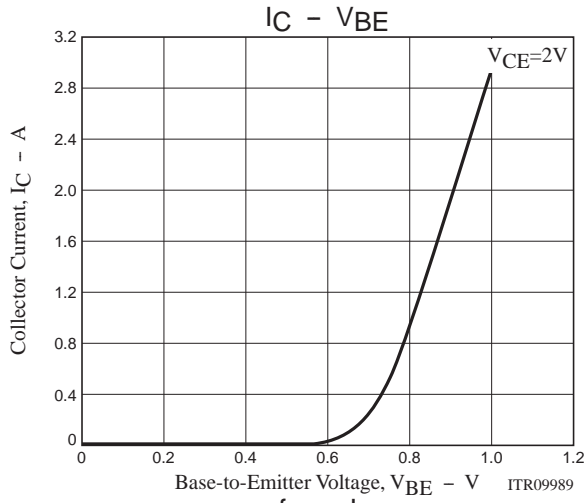
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|----------------------|--|---------|-----|-----|------|
| | | | min | typ | max | |
| Collector Cutoff Current | ICBO | V _{CB} =20V, I _E =0A | | | 100 | nA |
| Emitter Cutoff Current | IEBO | V _{EB} =4V, I _C =0A | | | 100 | nA |
| DC Current Gain | h _{FE} | V _{CE} =2V, I _C =3A | 140 | 210 | | |
| Gain-Bandwidth Product | f _T | V _{CE} =10V, I _C =50mA | | 200 | | MHz |
| Output Capacitance | Cob | V _{CB} =10V, f=1MHz | | 30 | | pF |
| Collector-to-Emitter Saturation Voltage | V _{CE(sat)} | I _C =3A, I _B =60mA | | 0.3 | 0.4 | V |
| Collector-to-Base Breakdown Voltage | V(BR)CBO | I _C =10μA, I _E =0A | 30 | | | V |
| Collector-to-Emitter Breakdown Voltage | V(BR)CEX | I _C =1mA, V _{BE} =3V | 20 | | | V |
| Collector-to-Emitter Breakdown Voltage | V(BR)CEO | I _C =1mA, R _{BE} =∞ | 10 | | | V |
| Emitter-to-Base Breakdown Voltage | V(BR)EBO | I _E =10μA, I _C =0A | 6 | | | V |

Ordering Information

| Device | Package | Shipping | memo |
|--------------|---------|----------------|---------|
| 2SD1620-TD-E | PCP | 1,000pcs./reel | Pb Free |



2SD1620



Bag Packing Specification

2SD1620-TD-E

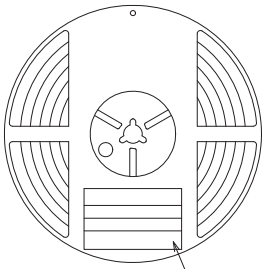
1. Packing Format

| Package Name | Carrier Tape Type | Maximum Number of devices contained (pcs) | | | Packing format | |
|--------------|-------------------|---|-----------|-----------|---|--|
| | | Reel | Inner box | Outer box | Inner BOX (C-1) | Outer BOX (A-7) |
| PCP | PCP | 1,000 | 4,000 | 24,000 | 4 reels contained Dimensions:mm (external) 183×72×185 | 6 inner boxes contained Dimensions:mm (external) 440×195×210 |

Reel label, Inner box label
(unit : mm)

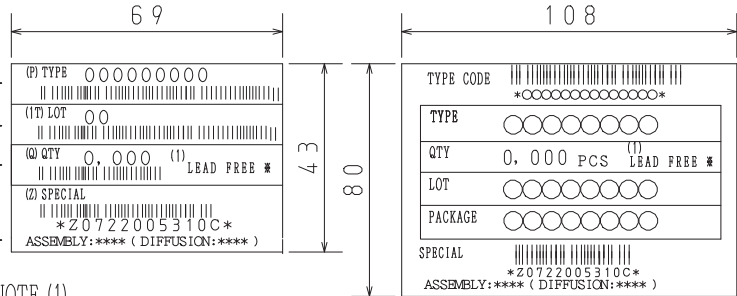
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Type No.
LOT No.
Quantity
Origin

Reel label



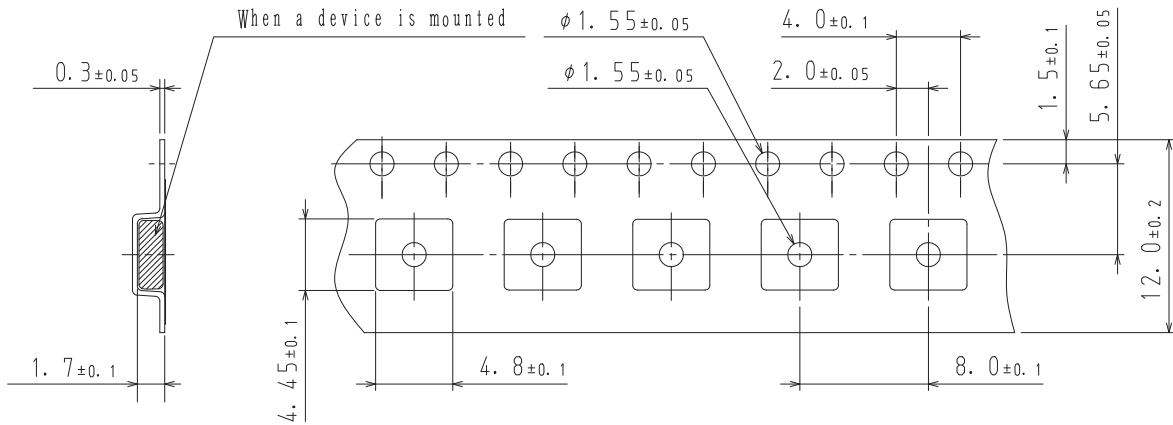
NOTE (1)

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

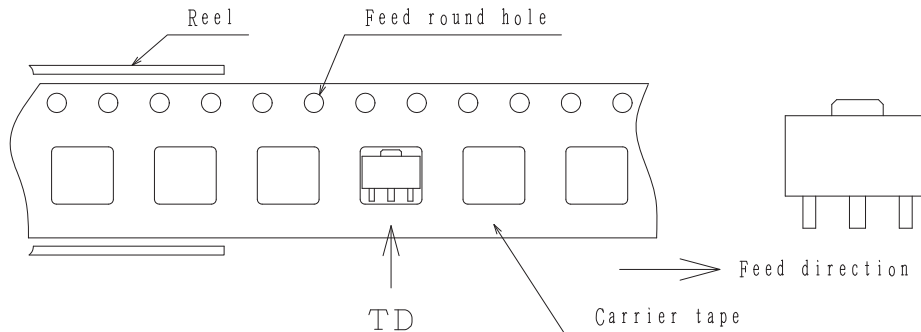
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

2-1. Carrier tape size (unit:mm)



2-2. Device placement direction

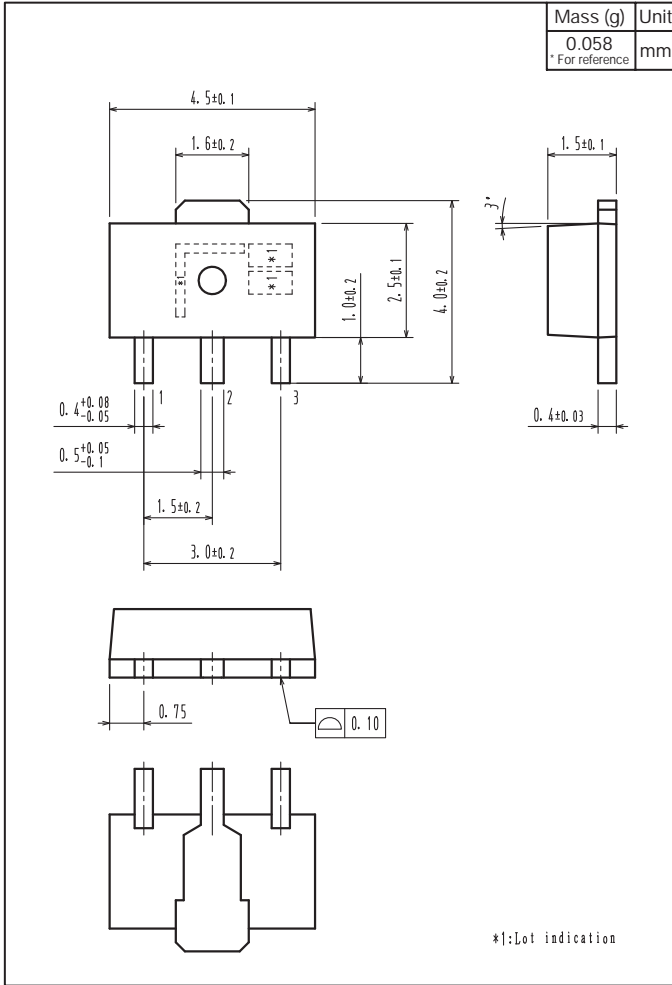


Those with pin 1 index on the feed hole side.....TD

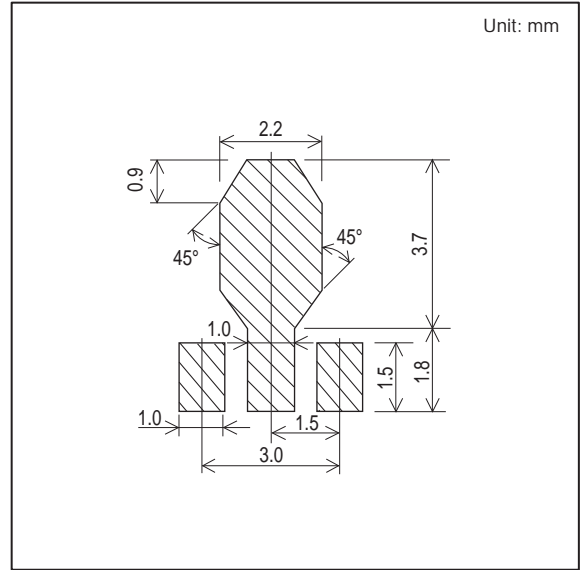
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Outline Drawing

2SD1620-TD-E





Land Pattern Example



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