



2SA2124

Bipolar Transistor -30V, -2A, Low VCE(sat), PNP Single PCP

ON Semiconductor®

<http://onsemi.com>

Applications

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

Features

- Adoption of MBIT processes
- Large current capacity
- Low collector-to-emitter saturation voltage
- High-speed switching

Specifications

Absolute Maximum Ratings at Ta=25°C

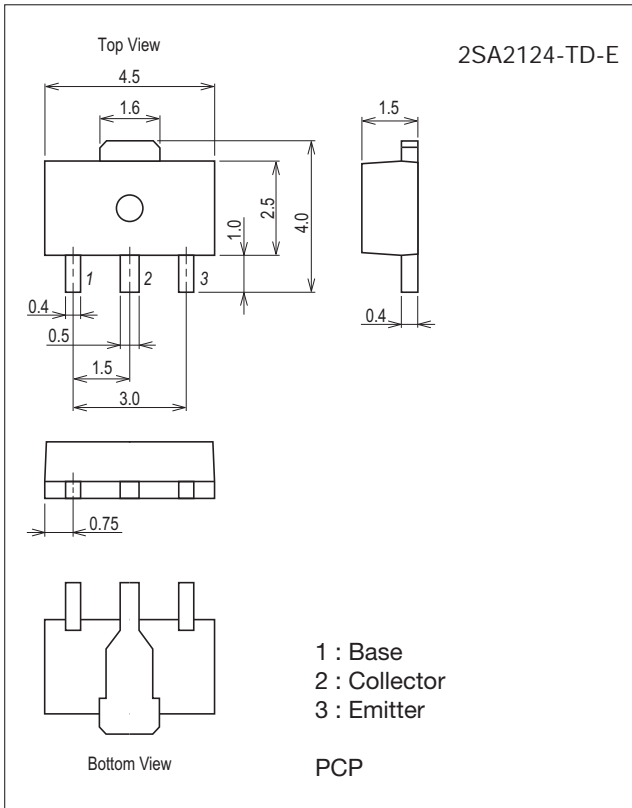
| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|------------|---------|------|
| Collector-to-Base Voltage | V _{CBO} | | -30 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | -30 | V |
| Emitter-to-Base Voltage | V _{EBO} | | -6 | V |
| Collector Current | I _C | | -2 | A |
| Collector Current (Pulse) | I _{CP} | | -5 | A |

Continued on next page.

Package Dimensions

unit : mm (typ)

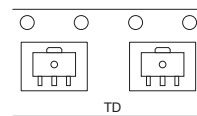
7007B-004



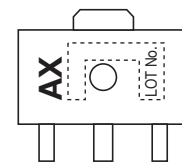
Product & Package Information

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

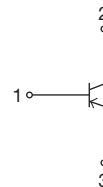
Packing Type: TD



Marking



Electrical Connection



2SA2124

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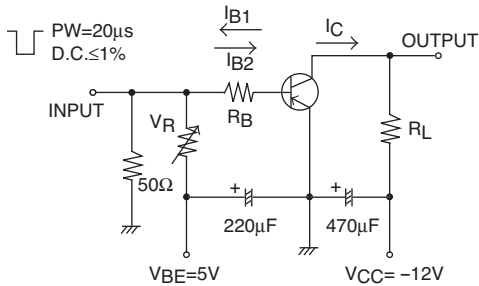
| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------|-----------|---|-------------|------------------|
| Base Current | I_B | | -400 | mA |
| Collector Dissipation | P_C | When mounted on ceramic substrate (450mm ² ×0.8mm) | 1.3 | W |
| | | $T_C=25^\circ\text{C}$ | 3.5 | W |
| Junction Temperature | T_J | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ\text{C}$ |

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 $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|---|---------|-------|------|---------------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=-30\text{V}, I_E=0\text{A}$ | | | -0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=-4\text{V}, I_C=0\text{A}$ | | | -0.1 | μA |
| DC Current Gain | h_{FE1} | $V_{CE}=-2\text{V}, I_C=-100\text{mA}$ | 200 | | 560 | |
| | h_{FE2} | $V_{CE}=-2\text{V}, I_C=-1.5\text{A}$ | 65 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=-10\text{V}, I_C=-300\text{mA}$ | | 440 | | MHz |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=-1.5\text{A}, I_B=-75\text{mA}$ | | -0.2 | -0.4 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=-1.5\text{A}, I_B=-75\text{mA}$ | | -0.95 | -1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=-10\mu\text{A}, I_E=0\text{A}$ | -30 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=-1\text{mA}, R_{BE}=\infty$ | -30 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=-10\mu\text{A}, I_C=0\text{A}$ | -6 | | | V |
| Output Capacitance | C_{ob} | $V_{CB}=-10\text{V}, f=1\text{MHz}$ | | 17 | | pF |
| Turn-ON Time | t_{on} | See specified Test Circuit. | | 45 | | ns |
| Storage Time | t_{stg} | | | 200 | | ns |
| Fall Time | t_f | | | 23 | | ns |

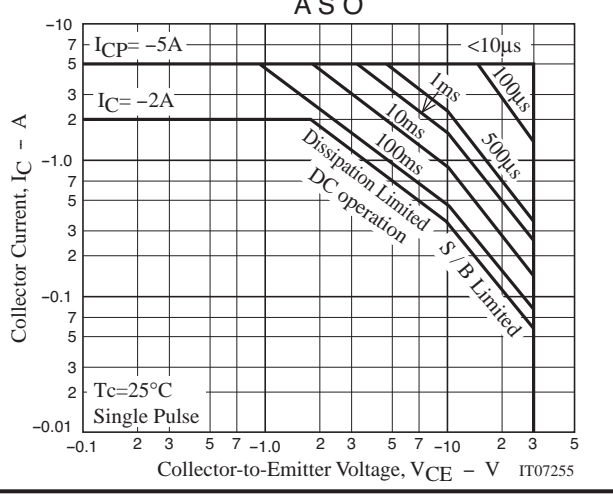
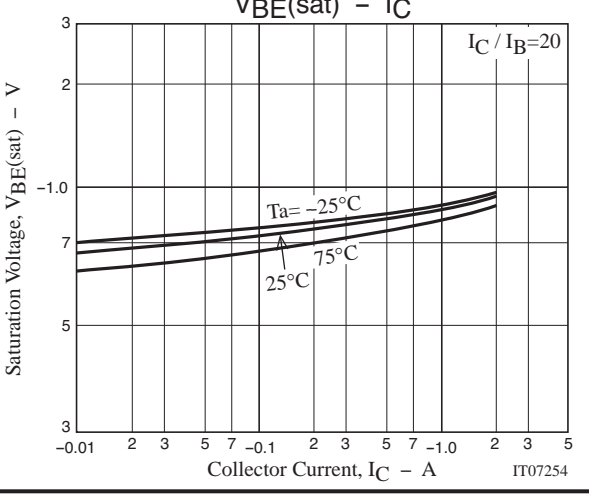
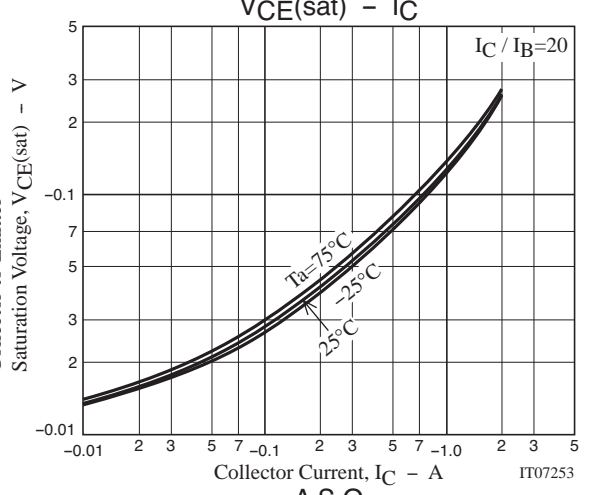
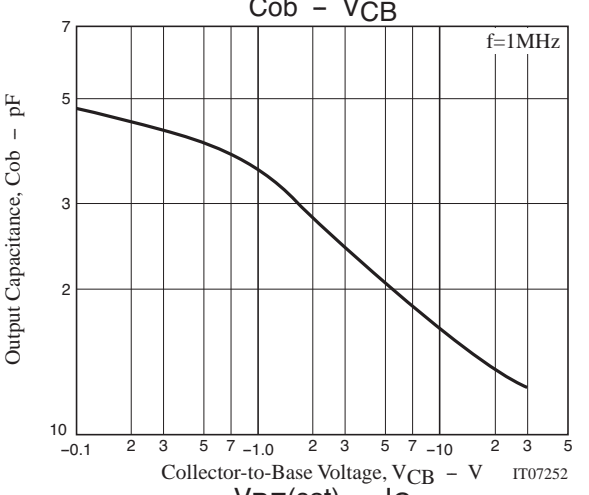
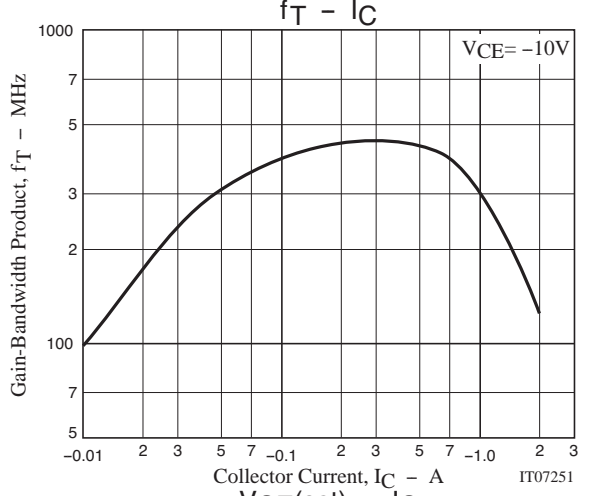
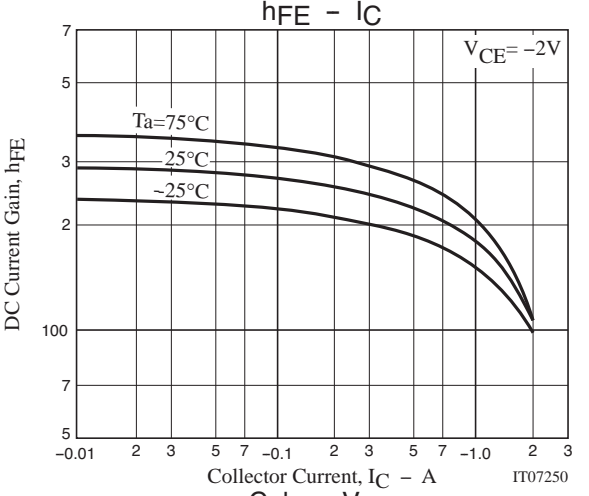
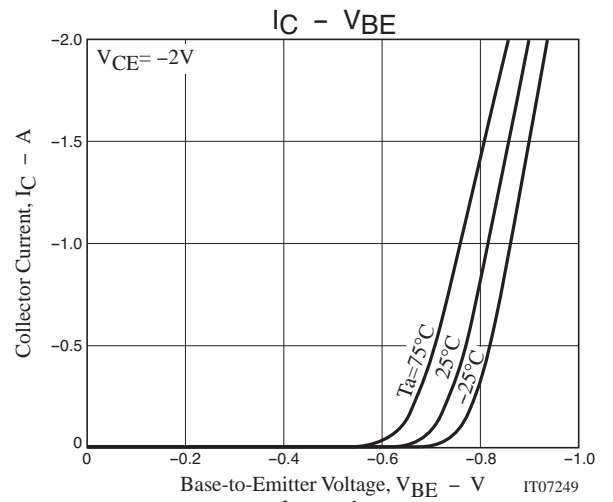
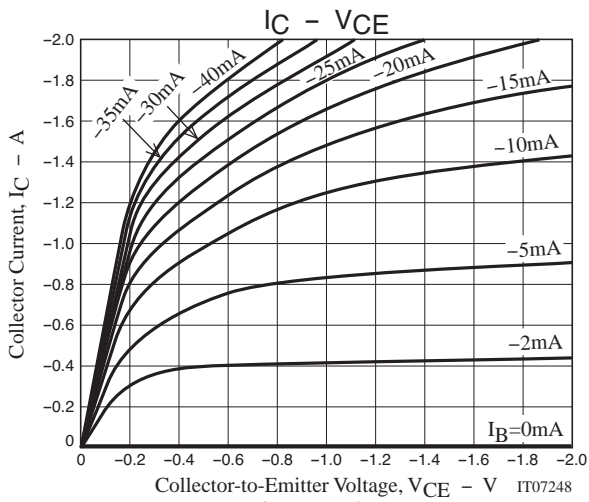
Switching Time Test Circuit



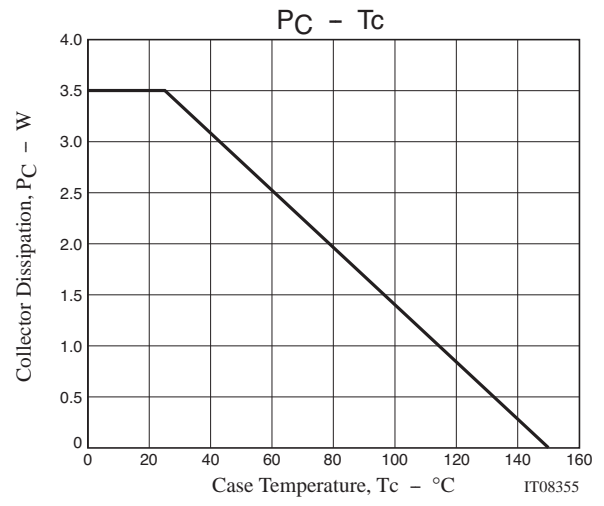
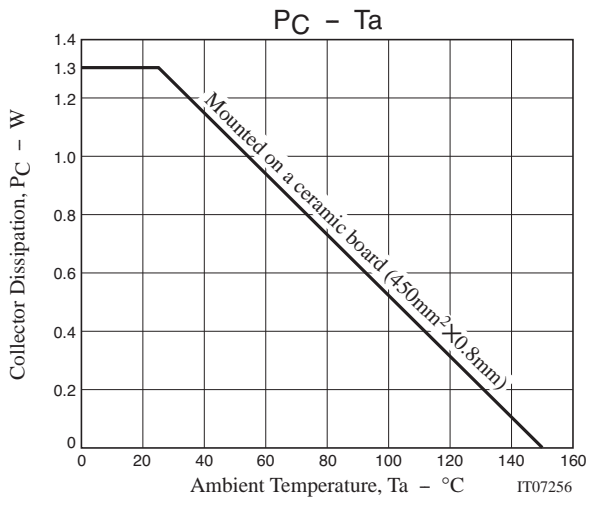
$$I_C = 20I_{B1} = -20I_{B2} = -0.5\text{A}$$

Ordering Information

| Device | Package | Shipping | memo |
|--------------|---------|----------------|---------|
| 2SA2124-TD-E | PCP | 1,000pcs./reel | Pb Free |



2SA2124



Bag Packing Specification

2SA2124-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)

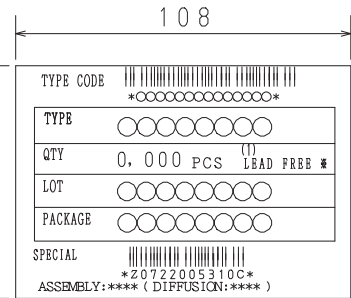
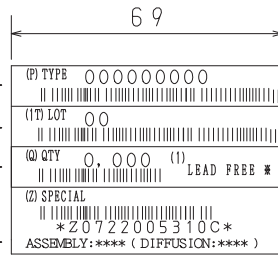
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin



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

Outline Drawing

2SA2124-TD-E



Land Pattern Example



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