



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH3212 — NPN Epitaxial Planar Silicon Transistor DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, flash

Features

- Adoption of MBIT processes
- High current capacitance
- Low collector-to-emitter saturation voltage
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm)
- High allowable power dissipation

Specifications

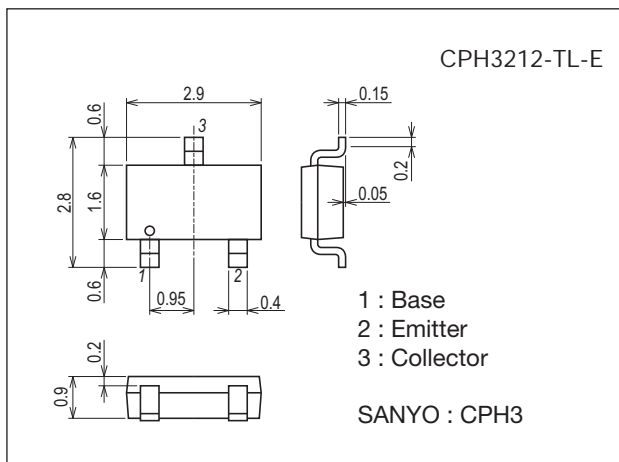
Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|--------|---|-------------|------|
| Collector-to-Base Voltage | VCBO | | 100 | V |
| Collector-to-Emitter Voltage | VCES | | 100 | V |
| Collector-to-Emitter Voltage | VCEO | | 50 | V |
| Emitter-to-Base Voltage | VEBO | | 6 | V |
| Collector Current | IC | | 5 | A |
| Collector Current (Pulse) | ICP | | 7 | A |
| Base Current | IB | | 1.2 | A |
| Collector Dissipation | PC | When mounted on ceramic substrate (600mm ² ×0.8mm) | 0.9 | W |
| Junction Temperature | Tj | | 150 | °C |
| Storage Temperature | Tstg | | -55 to +150 | °C |

Package Dimensions

unit : mm (typ)

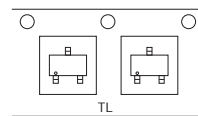
7015A-003



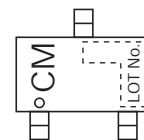
Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

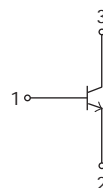
Packing Type: TL



Marking



Electrical Connection



SANYO Semiconductor Co., Ltd.

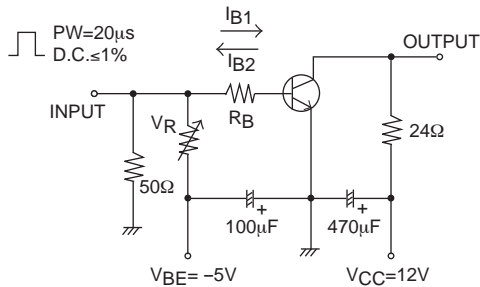
<http://semicon.sanyo.com/en/network>

CPH3212

Electrical Characteristics at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|---------------------------------------|---------|------|-----|---------------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=40\text{V}, I_E=0\text{A}$ | | | 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_{FE} | $V_{CE}=2\text{V}, I_C=500\text{mA}$ | 200 | | 560 | |
| Gain-Bandwidth Product | f_T | $V_{CE}=10\text{V}, I_C=500\text{mA}$ | | 330 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=10\text{V}, f=1\text{MHz}$ | | 26 | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=2\text{A}, I_B=40\text{mA}$ | | 100 | 150 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=2\text{A}, I_B=40\text{mA}$ | | 0.80 | 1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=10\mu\text{A}, I_E=0\text{A}$ | 100 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CES}$ | $I_C=100\mu\text{A}, R_{BE}=0\Omega$ | 100 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=1\text{mA}, R_{BE}=\infty$ | 50 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=10\mu\text{A}, I_C=0\text{A}$ | 6 | | | V |
| Turn-On Time | t_{on} | See specified Test Circuit. | | 32 | | ns |
| Storage Time | t_{stg} | | | 420 | | ns |
| Fall Time | t_f | | | 28 | | ns |

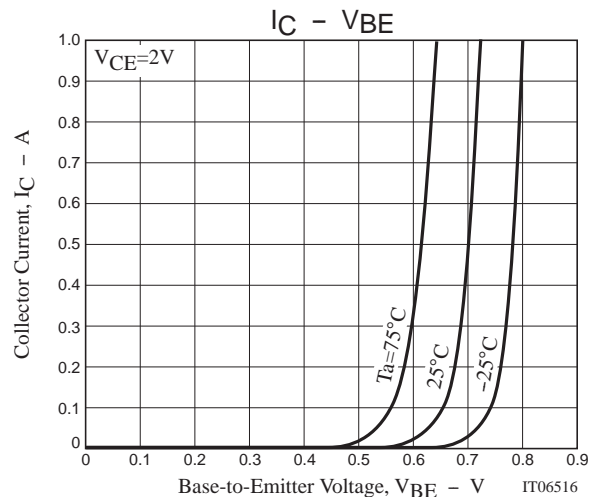
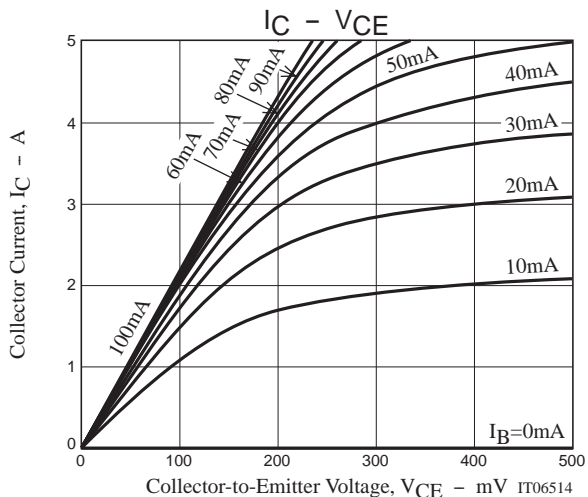
Switching Time Test Circuit

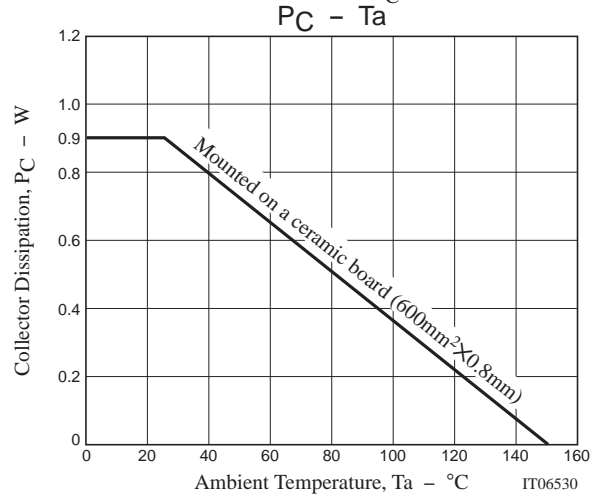
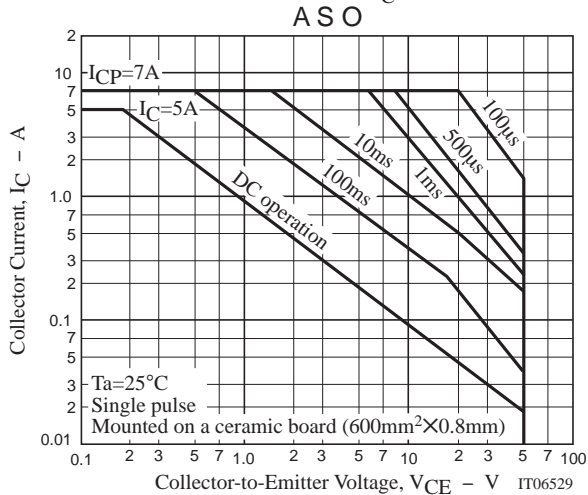
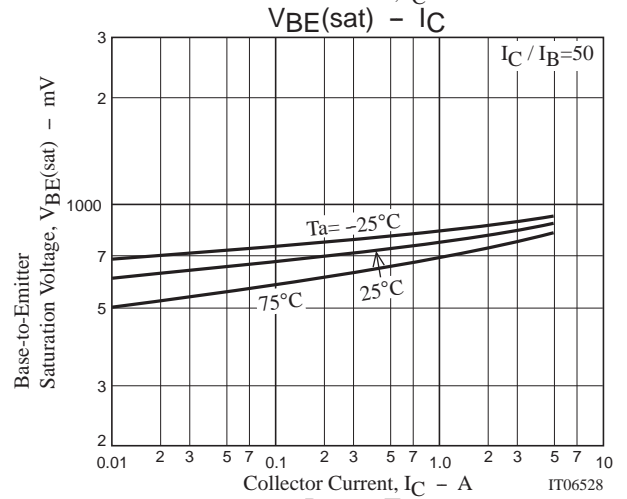
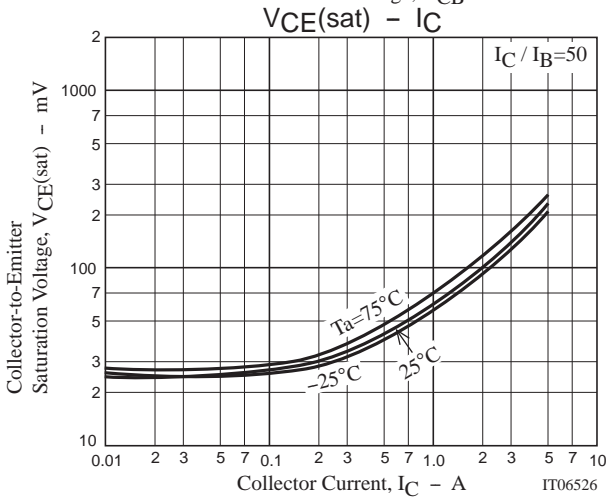
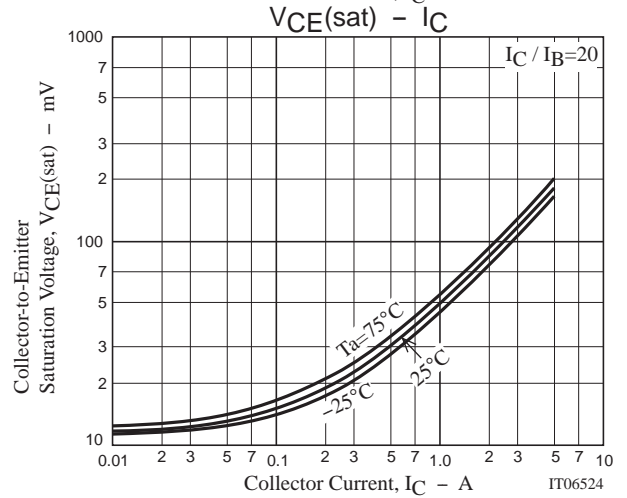
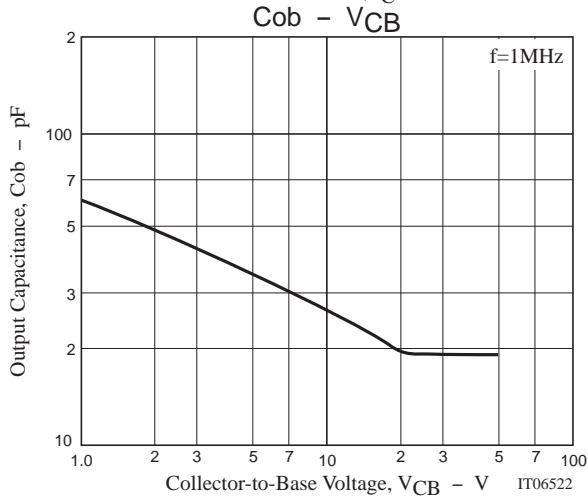
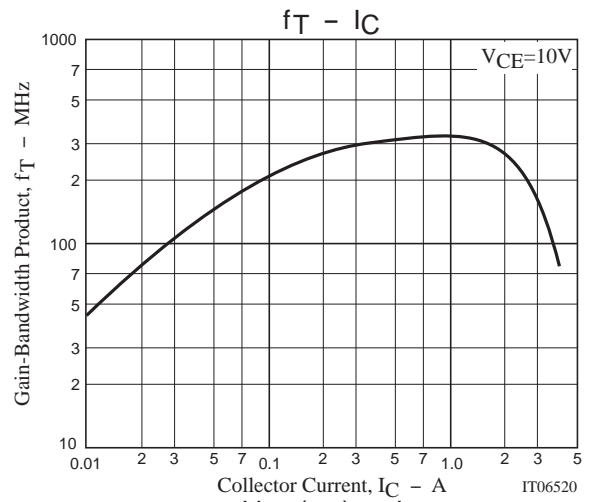
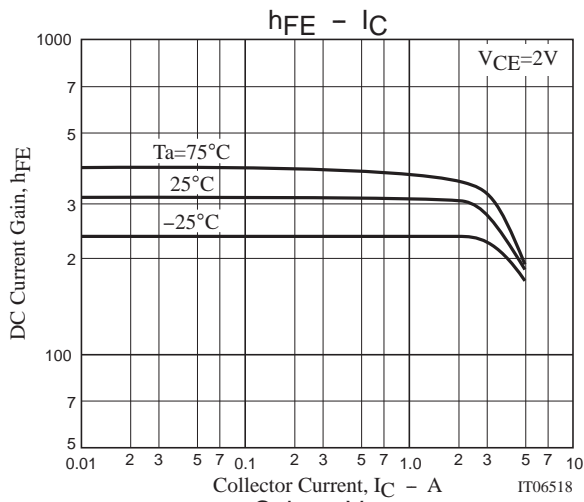


$$I_C = 20I_{B1} = -20I_{B2} = 2.5\text{A}$$

Ordering Information

| Device | Package | Shipping | memo |
|--------------|---------|----------------|---------|
| CPH3212-TL-E | CPH3 | 3,000pcs./reel | Pb Free |





Embossed Taping Specification

CPH3212-TL-E

1. Packing Format

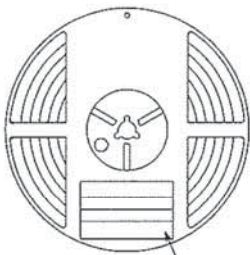
| Package Name | Carrier Tape Type | Maximum Number of devices contained (pcs) | | | Packing format | |
|--------------|-------------------|---|-----------|-----------|---|--|
| | | Reel | Inner box | Outer box | Inner BOX (C-1) | Outer BOX (A-7) |
| CPH3 | CPH3 | 3,000 | 15,000 | 90,000 | 5 reels contained 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

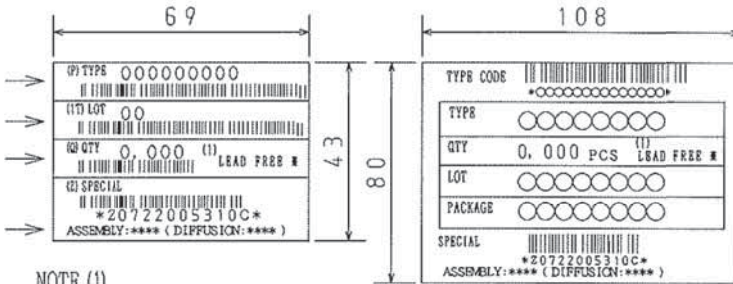
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin



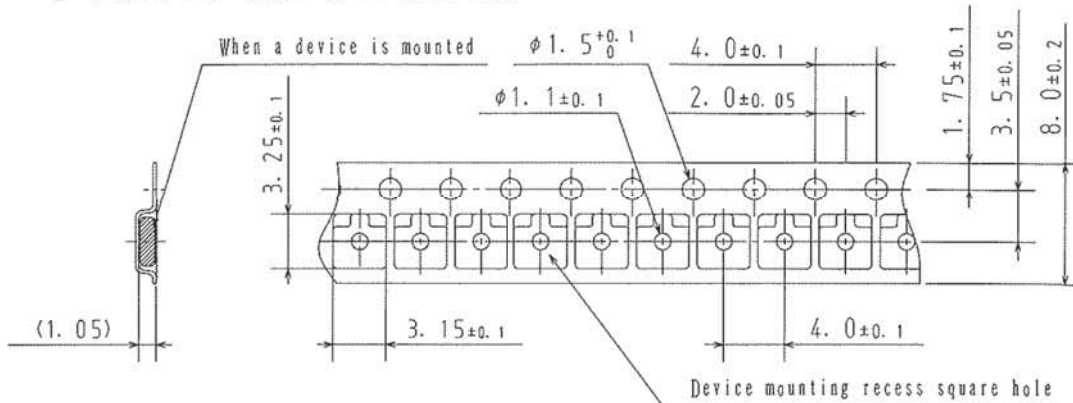
NOTE (1)

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

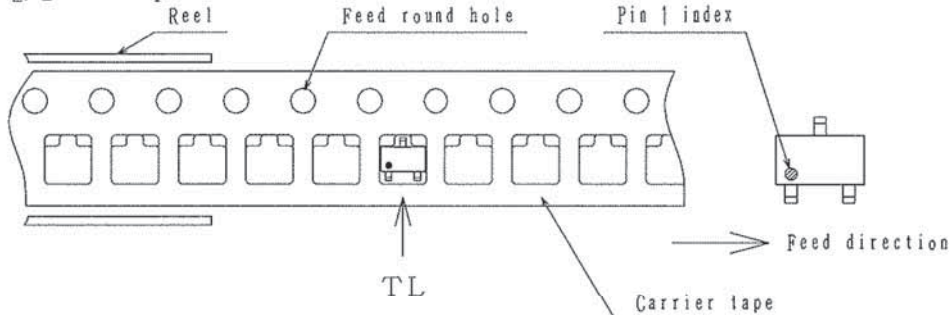
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

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



2-2. Device placement direction

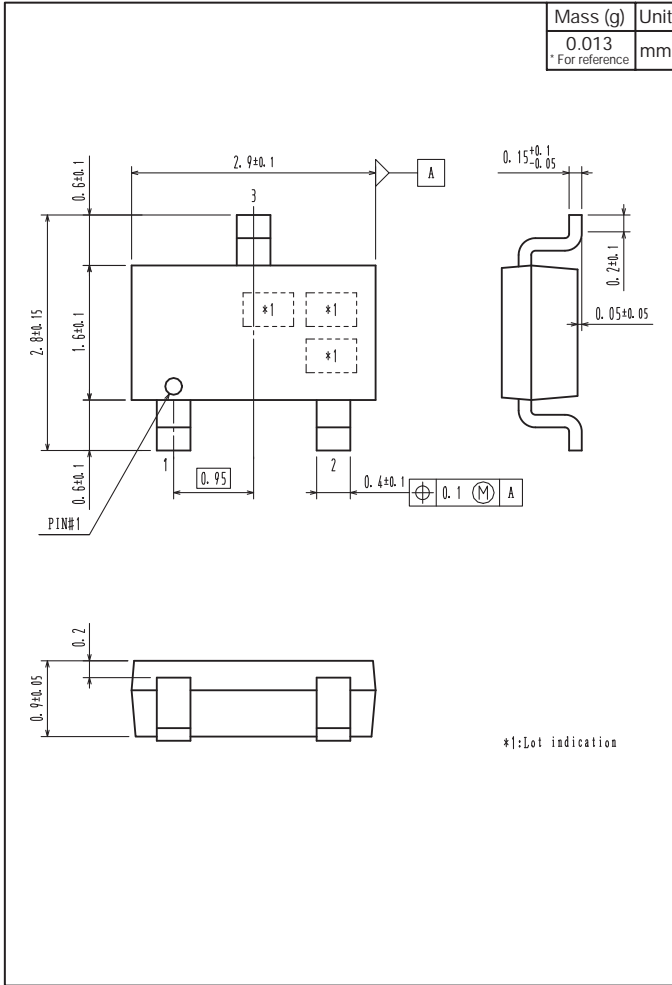


Those with one electrode terminal on the feed hole side.....TL

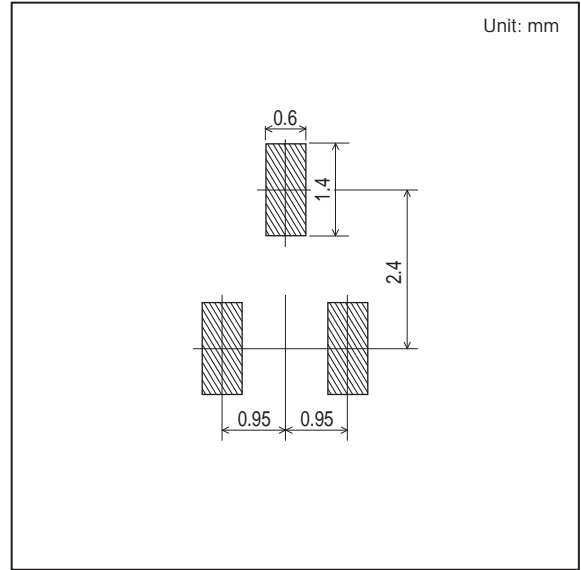
CPH3212

Outline Drawing

CPH3212-TL-E



Land Pattern Example



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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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