



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SB1124/2SD1624 — PNP/NPN Epitaxial Planar Silicon Transistors High Current Switching Applications

Applications

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

Features

- Adoption of FBET, MBIT processes
- Fast switching speed
- Low collector-to-emitter saturation voltage
- Large current capacity and wide ASO

Specifications () : 2SB1124

Absolute Maximum Ratings at Ta=25°C

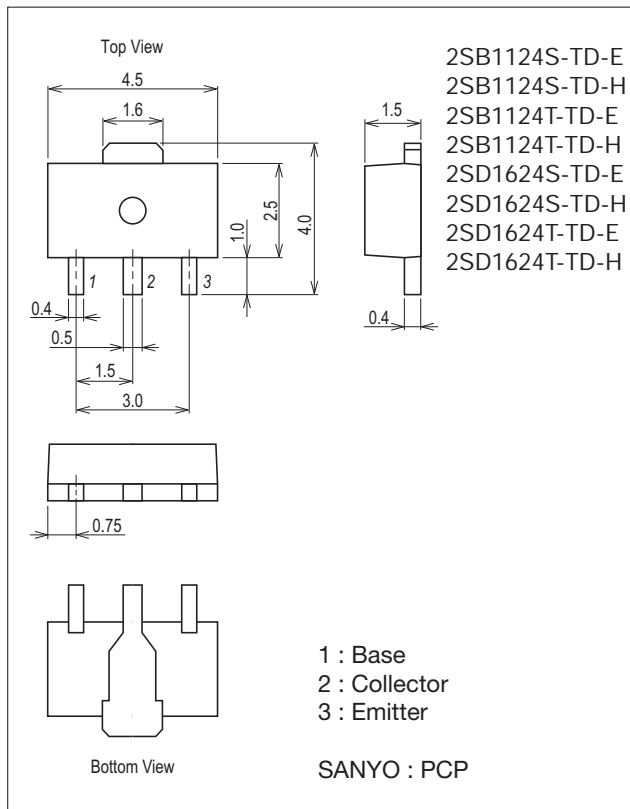
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-)60	V
Collector-to-Emitter Voltage	V _{CE0}		(-)50	V
Emitter-to-Base Voltage	V _{EB0}		(-)6	V
Collector Current	I _C		(-)3	A
Collector Current (Pulse)	I _{CP}		(-)6	A

Continued on next page.

Package Dimensions

unit : mm (typ)

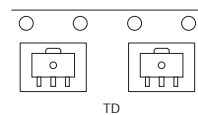
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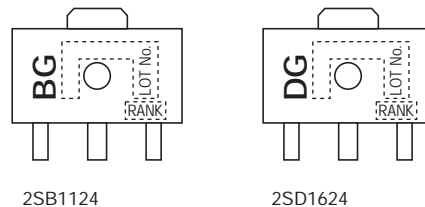
Product & Package Information

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

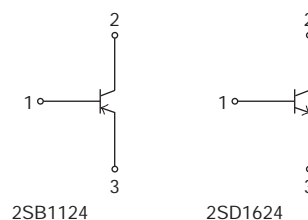
Packing Type: TD



Marking



Electrical Connection



2SB1124/2SD1624

Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Collector Dissipation	PC		500	mW
		When mounted on ceramic substrate (250mm ² ×0.8mm)	1.5	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

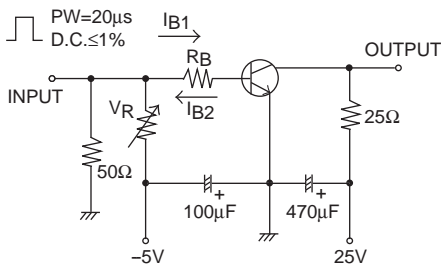
Electrical Characteristics at T_a=25°C

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	100*		560*	
	h _{FE2}	V _{CE} =(-)2V, I _C =(-)3A	35			
Gain-Bandwidth Product	f _T	V _{CE} =(-)10V, I _C =(-)50mA		150		MHz
Output Capacitance	C _{ob}	V _{CB} =(-)10V, f=1MHz		(39)25		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =(-)2A, I _B =(-)100mA		(-0.35)0.19	(-0.7)0.5	V
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	V _{CE} =(-)2A, I _C =(-)100mA		(-)0.94	(-)1.2	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	I _C =(-)10μA, I _E =0A	(-)60			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	I _C =(-)1mA, R _{BE} =∞	(-)50			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	I _E =(-)10μA, I _C =0A	(-)6			V
Turn-ON Time	t _{on}	See specified Test Circuit.		(70)70		ns
Storage Time	t _{stg}			(450)650		ns
Fall Time	t _f			(35)35		ns

* ; The 2SB1124/2SD1624 are classified by 100mA h_{FE} as follows :

Rank	R	S	T	U
h _{FE}	100 to 200	140 to 280	200 to 400	280 to 560

Switching Time Test Circuit



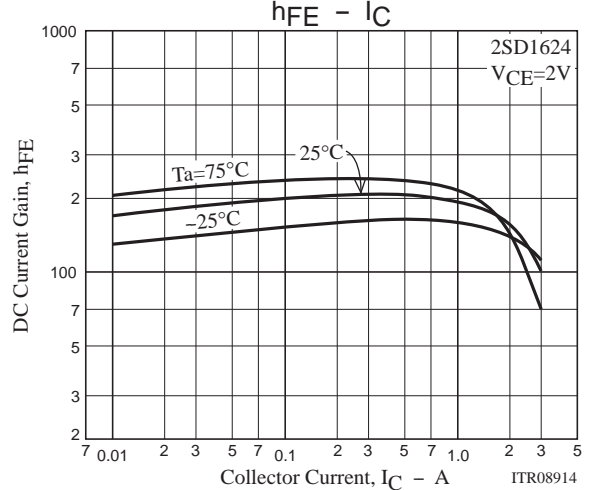
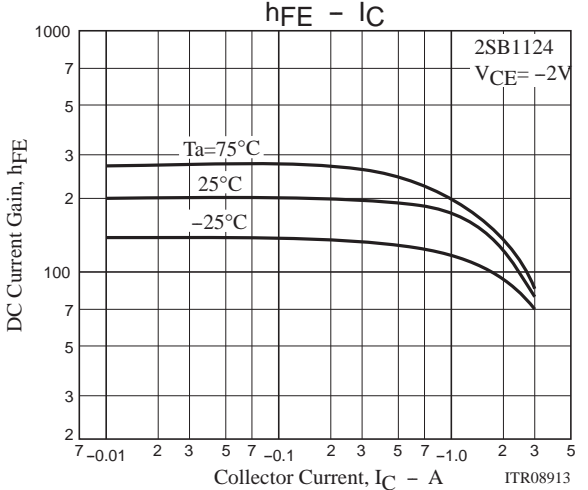
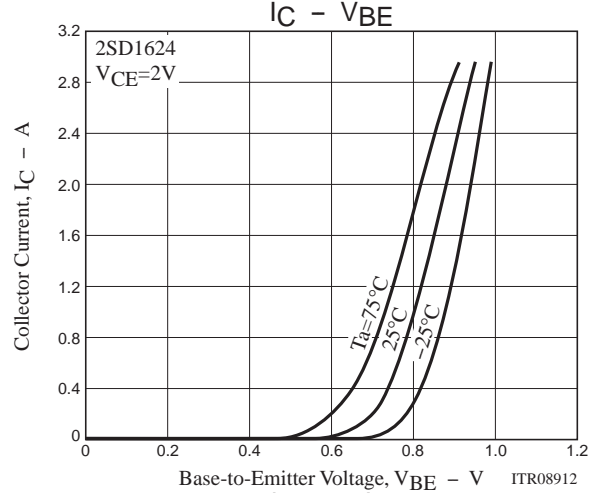
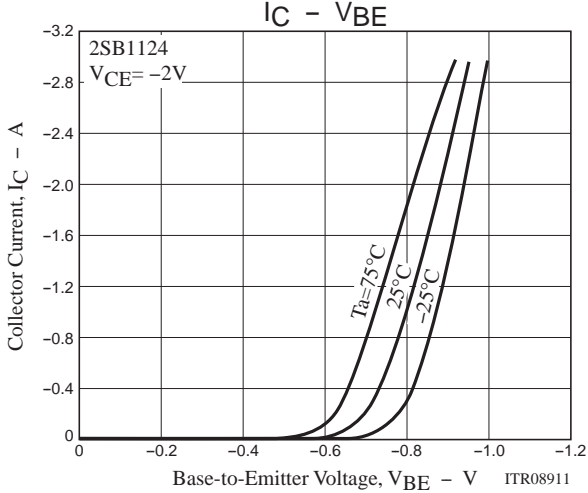
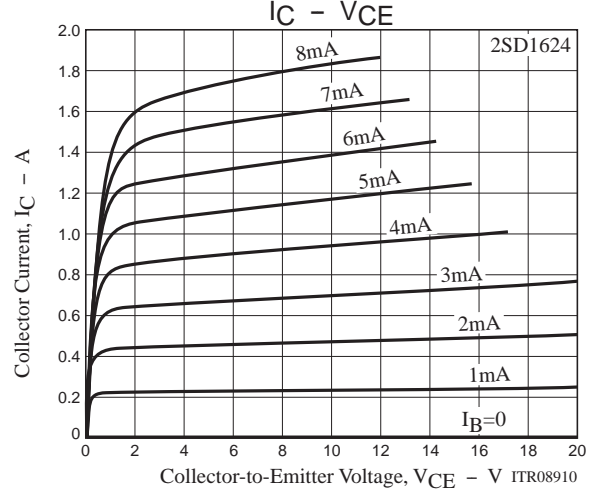
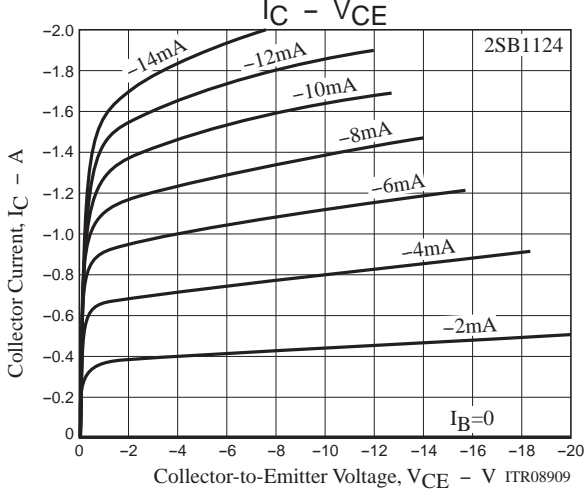
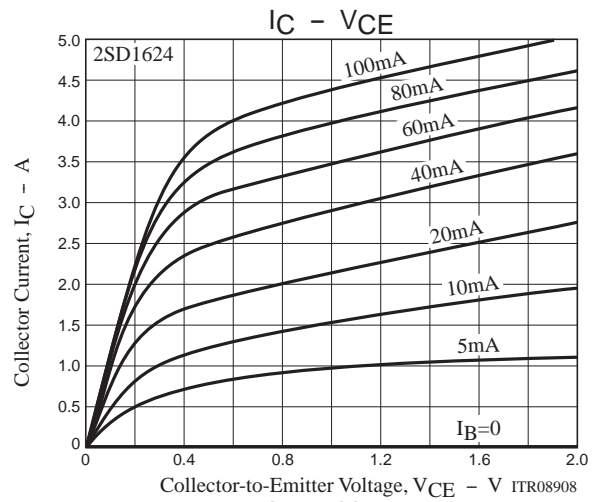
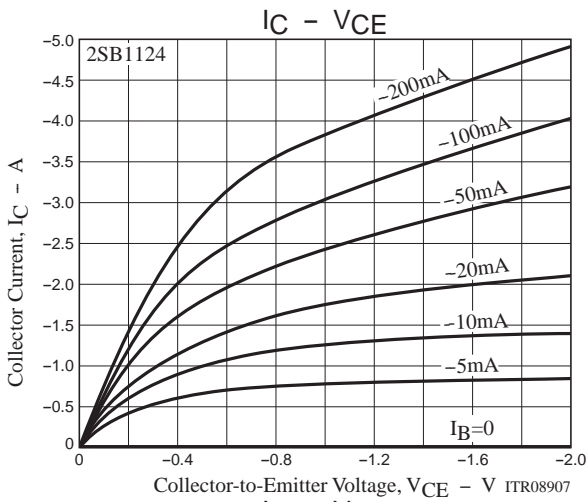
$$I_C = 10I_{B1} = -10I_{B2} = 1A$$

For PNP, the polarity is reversed.

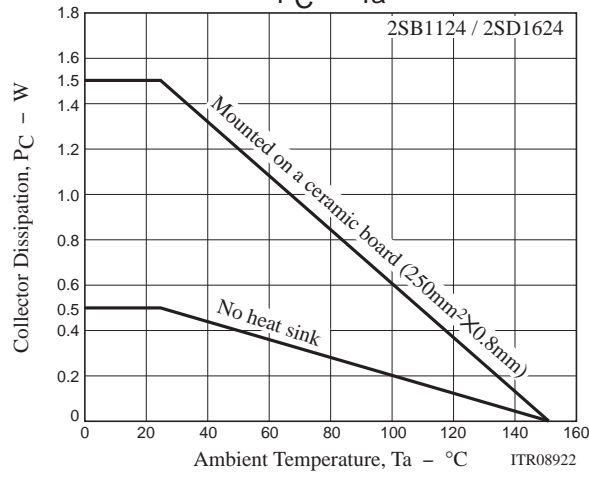
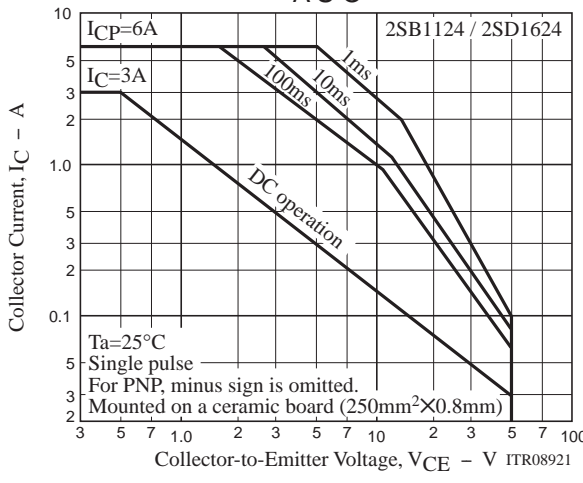
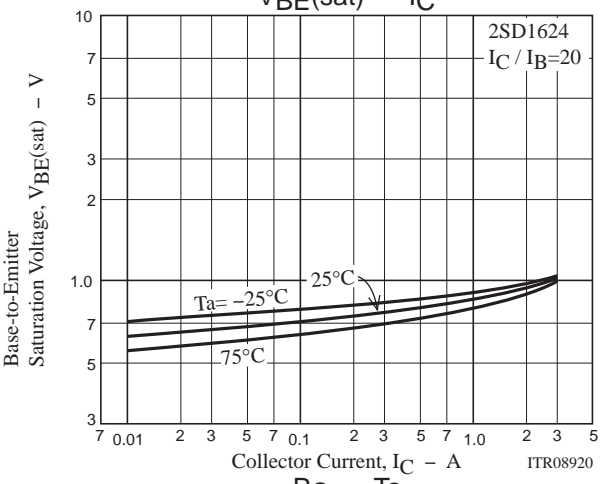
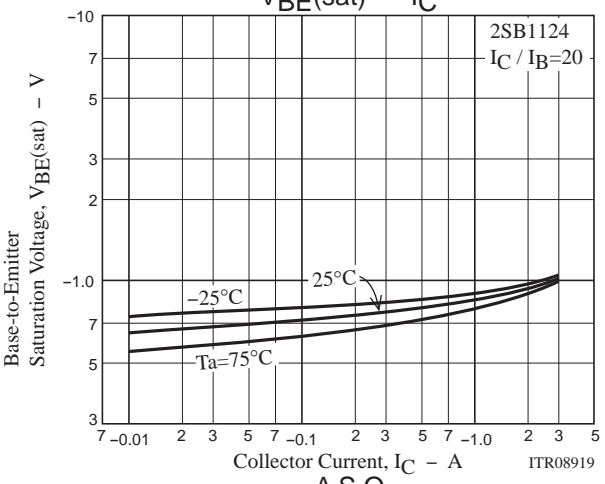
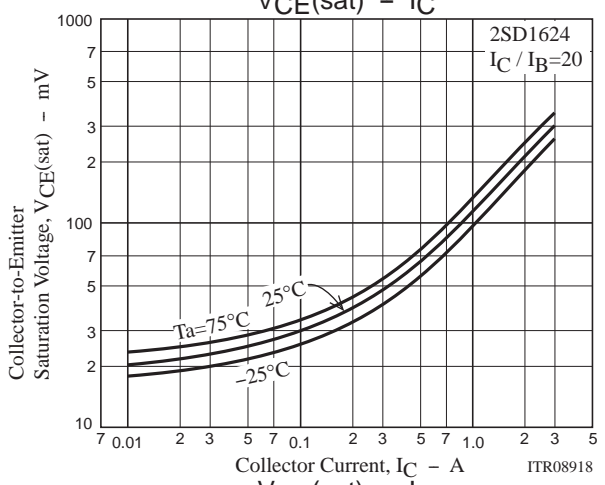
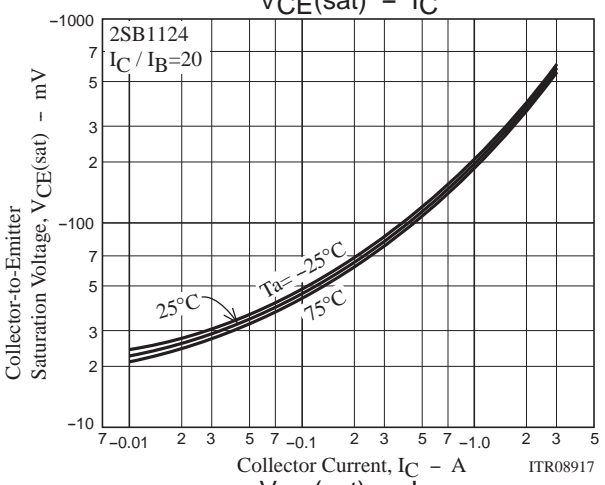
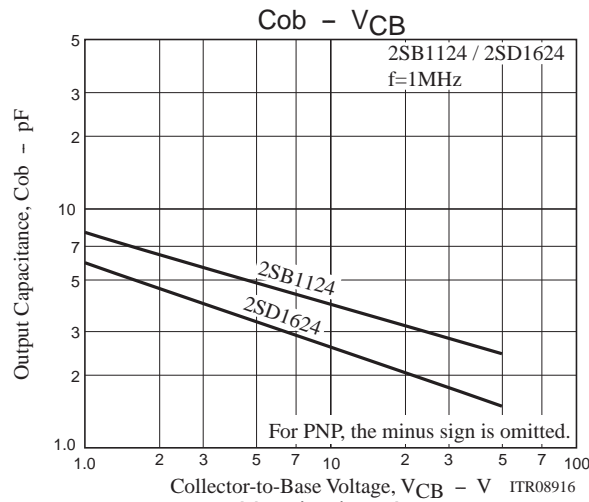
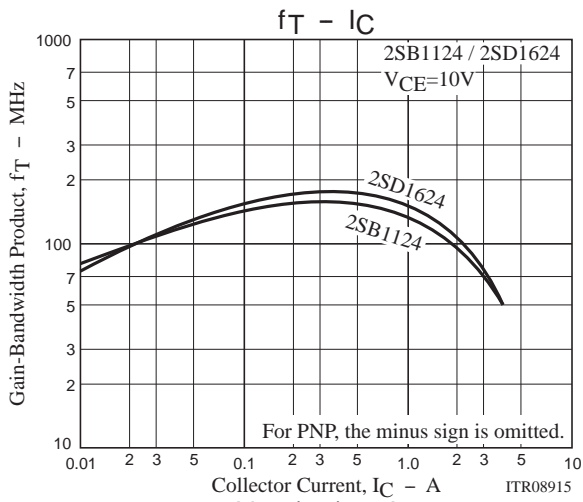
Ordering Information

Device	Package	Shipping	memo
2SB1124S-TD-E	PCP	1,00pcs./reel	Pb Free
2SB1124S-TD-H	PCP	1,00pcs./reel	Pb Free and Halogen Free
2SB1124T-TD-E	PCP	1,00pcs./reel	Pb Free
2SB1124T-TD-H	PCP	1,00pcs./reel	Pb Free and Halogen Free
2SD1624S-TD-E	PCP	1,00pcs./reel	Pb Free
2SD1624S-TD-H	PCP	1,00pcs./reel	Pb Free and Halogen Free
2SD1624T-TD-E	PCP	1,00pcs./reel	Pb Free
2SD1624T-TD-H	PCP	1,00pcs./reel	Pb Free and Halogen Free

2SB1124/2SD1624



2SB1124/2SD1624



2SB1124/2SD1624

Bag Packing Specification

2SB1124S-TD-E, 2SB1124S-TD-H, 2SB1124T-TD-E, 2SB1124T-TD-H, 2SD1624S-TD-E, 2SD1624S-TD-H, 2SD1624T-TD-E, 2SD1624T-TD-H

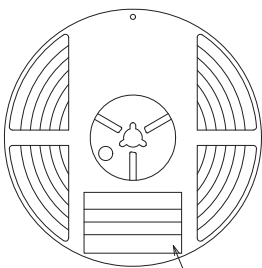
1. Packing Format

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)

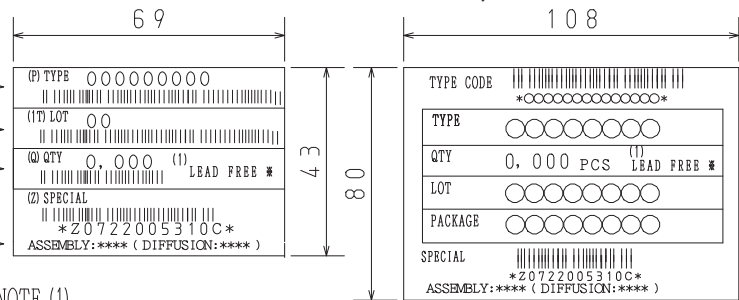
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Type No.
LOT No.
Quantity
Origin

Reel label



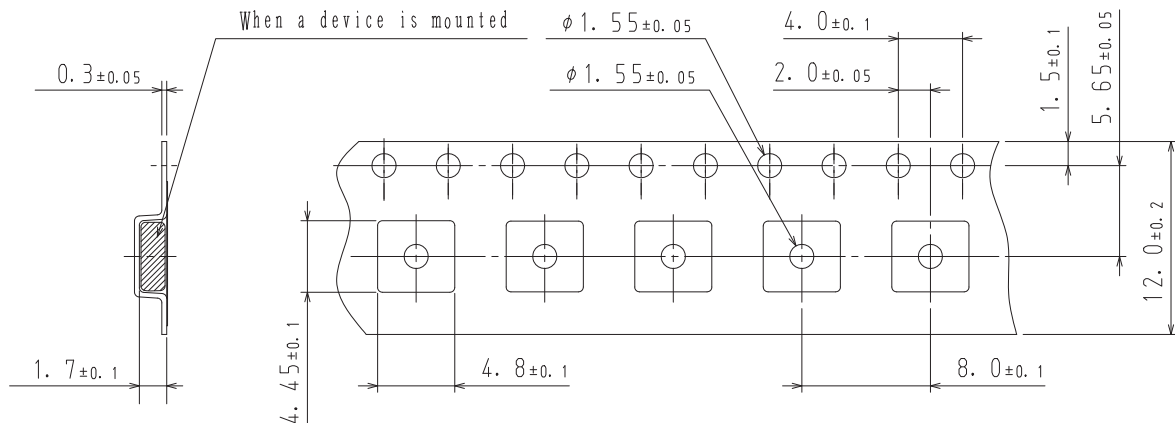
NOTE (1)

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

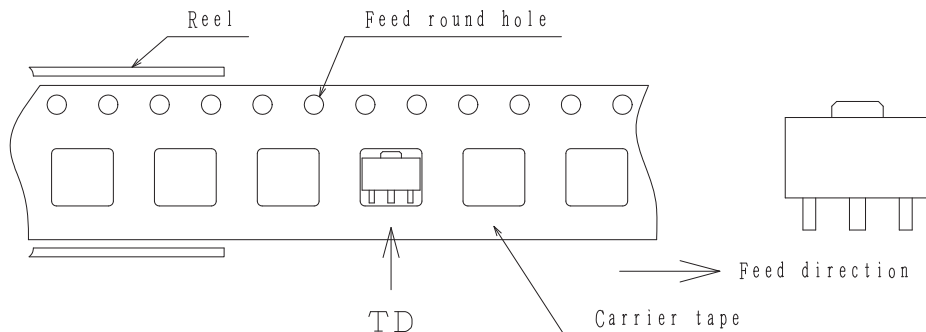
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

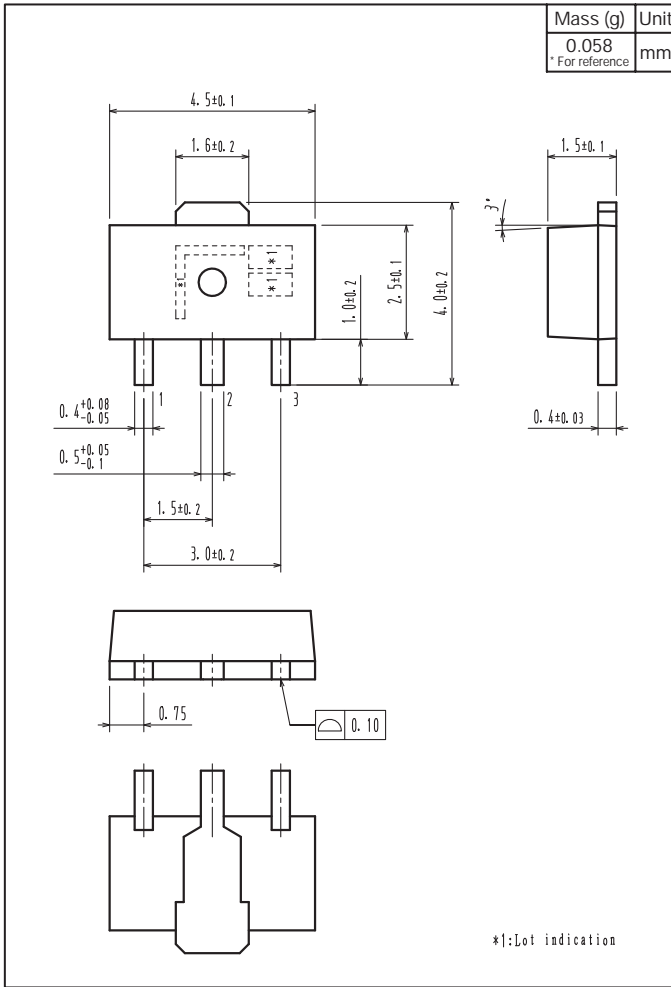


Those with pin 1 index on the feed hole side.....TD

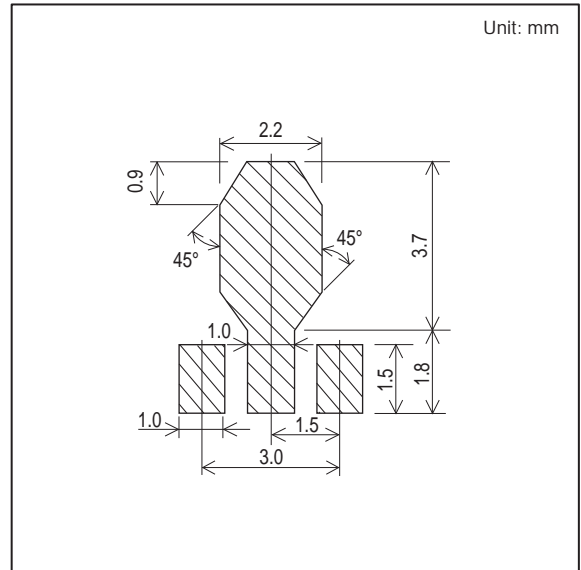
2SB1124/2SD1624

Outline Drawing

2SB1124S-TD-E, 2SB1124S-TD-H, 2SB1124T-TD-E, 2SB1124T-TD-H, 2SD1624S-TD-E, 2SD1624S-TD-H, 2SD1624T-TD-E, 2SD1624T-TD-H



Land Pattern Example



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