Ordering number : EN2019B

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SB1124/2SD1624 — High Current Switching Applications

PNP/NPN Epitaxial Planar Silicon Transistors

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

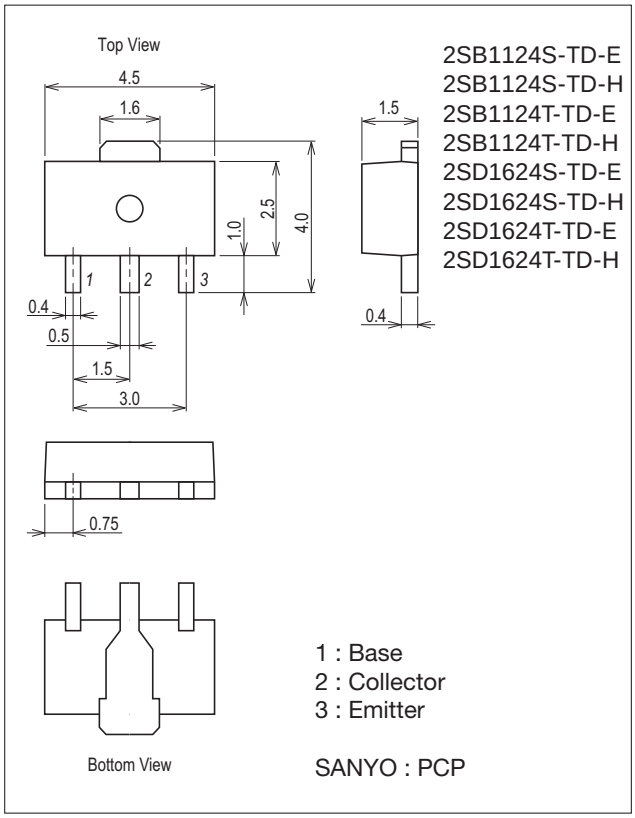
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)60	V
Collector-to-Emitter Voltage	V_{CEO}		(–)50	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)3	A
Collector Current (Pulse)	I_{CP}		(–)6	A

Continued on next page.

Package Dimensions

unit : mm (typ)

7007B-004

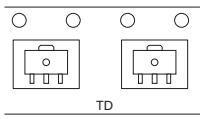


2SB1124S-TD-E
2SB1124S-TD-H
2SB1124T-TD-E
2SB1124T-TD-H
2SD1624S-TD-E
2SD1624S-TD-H
2SD1624T-TD-E
2SD1624T-TD-H

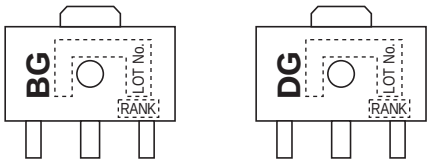
Product & Package Information

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

Packing Type: TD

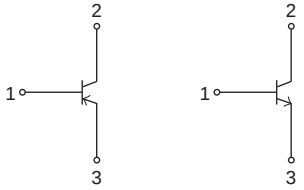


Marking



2SB1124 2SD1624

Electrical Connection



2SB1124 2SD1624

Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Collector Dissipation	P_C		500	mW
		When mounted on ceramic substrate (250mm^2×0.8mm)	1.5	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

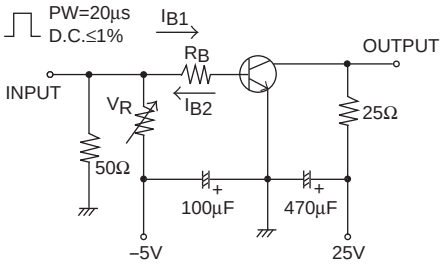
Electrical Characteristics at Ta=25°C

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	$h_{FE}1$	V_{CE}=(−)2V, I_C=(−)100mA	100*		560*	
	$h_{FE}2$	V_{CE}=(−)2V, I_C=(−)3A	35			
Gain-Bandwidth Product	f_T	V_{CE}=(−)10V, I_C=(−)50mA		150		MHz
Output Capacitance	Cob	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

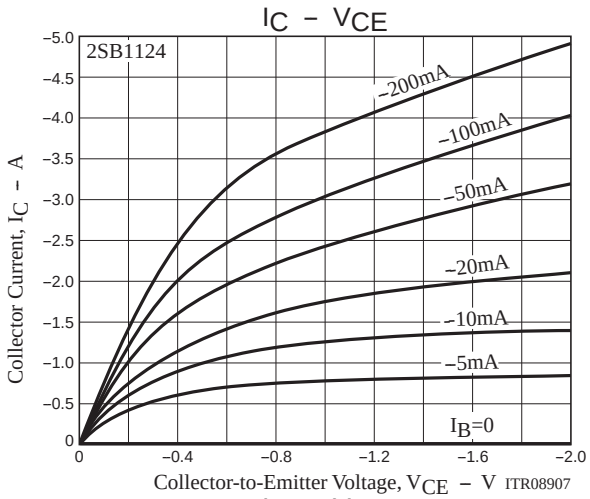
Switching Time Test Circuit

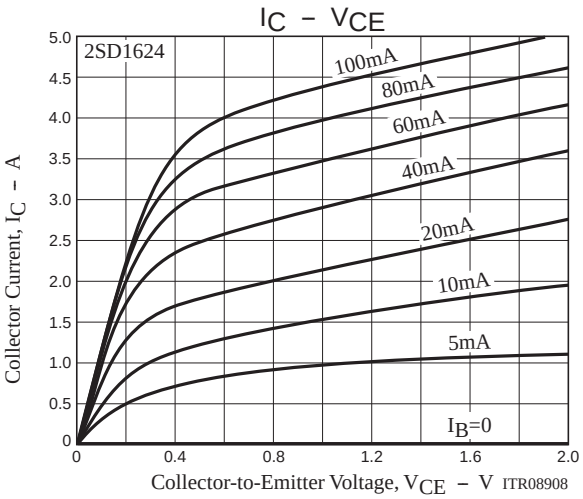


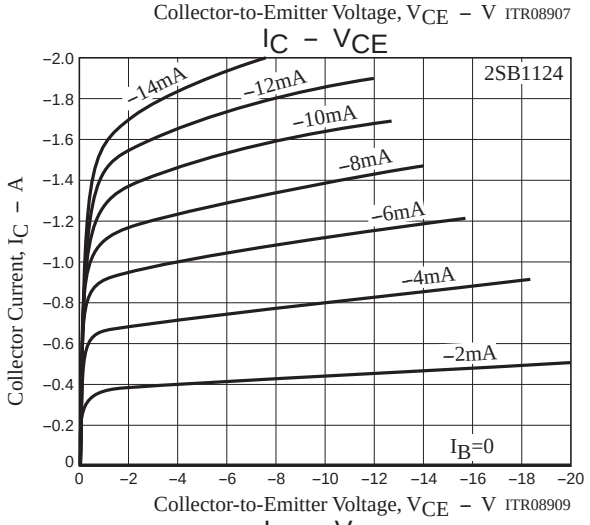
I_C=10I_{B1}= −10I_{B2}=1A
For PNP, the polarity is reversed.

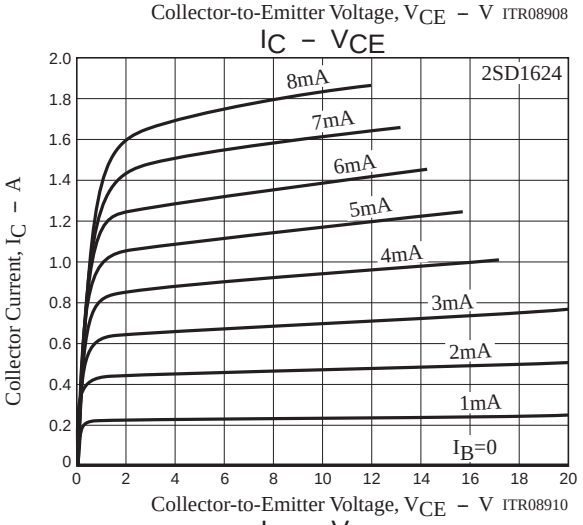
Ordering Information

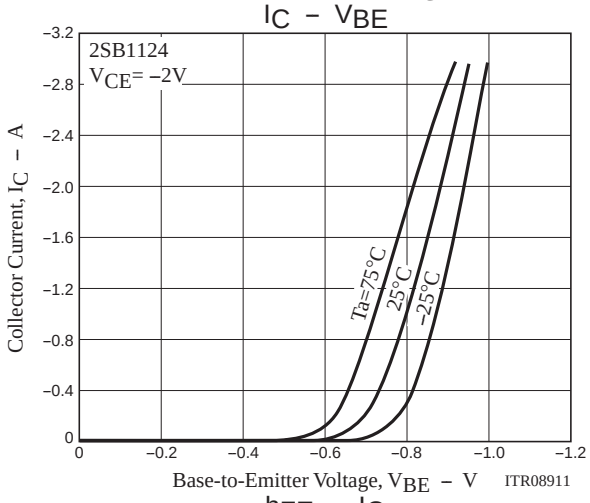
Device	Package	Shipping	memo
2SB1124S-TD-E	PCP	1,00pcs./reel	Pb Free
2SB1124S-TD-H	PCP	1,00pcs./reel	Pb Free and Halogen Free
2SB1124T-TD-E	PCP	1,00pcs./reel	Pb Free
2SB1124T-TD-H	PCP	1,00pcs./reel	Pb Free and Halogen Free
2SD1624S-TD-E	PCP	1,00pcs./reel	Pb Free
2SD1624S-TD-H	PCP	1,00pcs./reel	Pb Free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

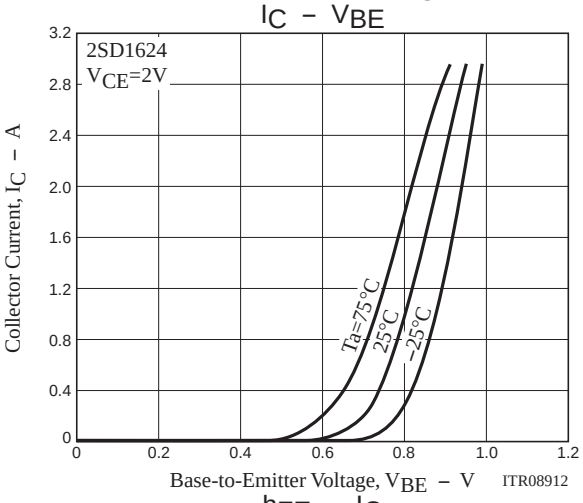

IC – VCE
2SB1124
–200mA
–100mA
–50mA
–20mA
–10mA
–5mA
IB=0
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR08907

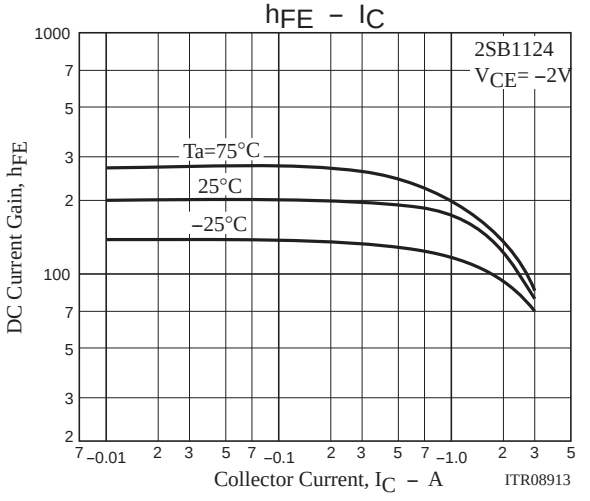

IC – VCE
2SD1624
100mA
80mA
60mA
40mA
20mA
10mA
5mA
IB=0
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR08908

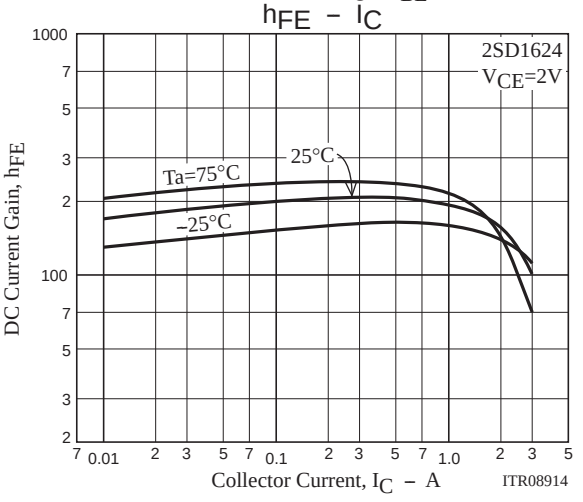

IC – VCE
2SB1124
–14mA
–12mA
–10mA
–8mA
–6mA
–4mA
–2mA
IB=0
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR08909


IC – VCE
2SD1624
8mA
7mA
6mA
5mA
4mA
3mA
2mA
1mA
IB=0
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR08910

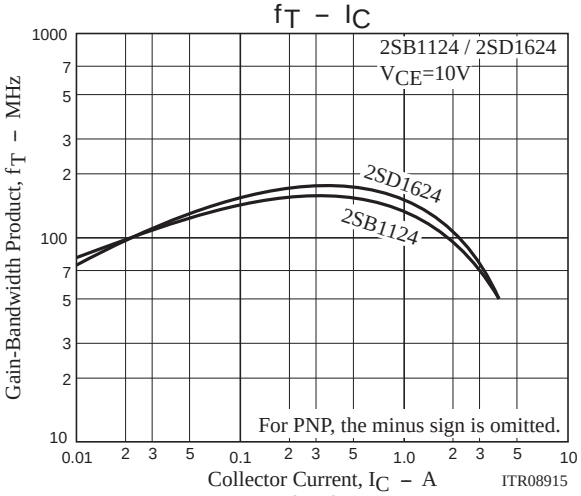

IC – VBE
2SB1124
VCE= –2V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
ITR08911


IC – VBE
2SD1624
VCE=2V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
ITR08912

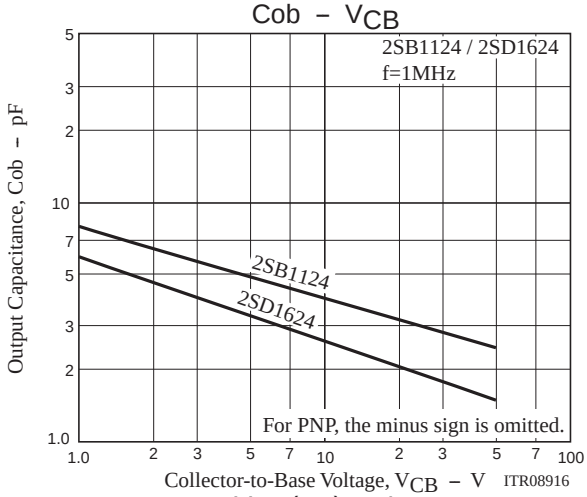

hFE – IC
2SB1124
VCE= –2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
ITR08913


hFE – IC
2SD1624
VCE=2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
ITR08914

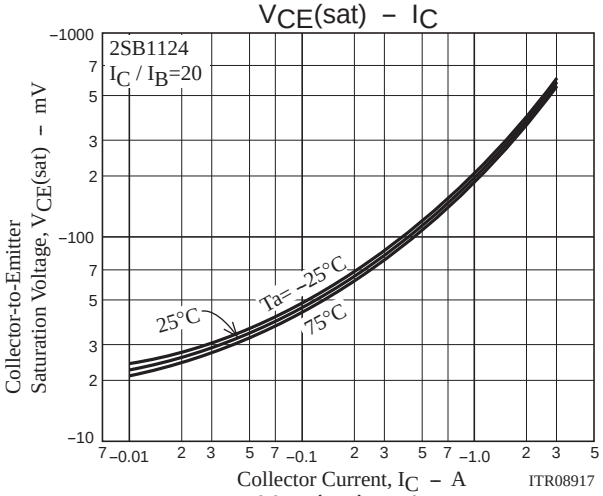
f_T – I_C



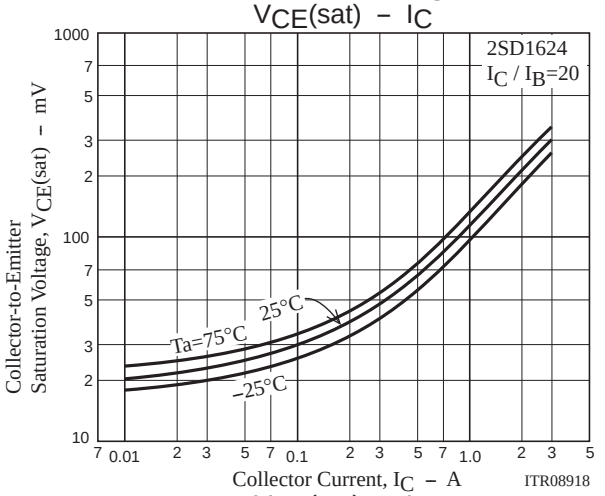
Cob – V_{CB}



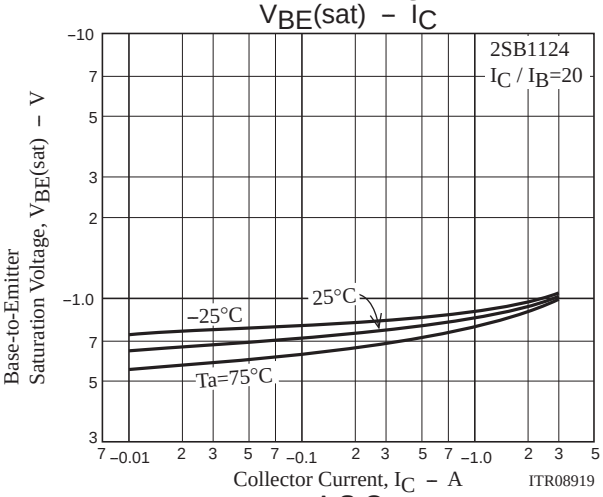
V_{CE}(sat) – I_C



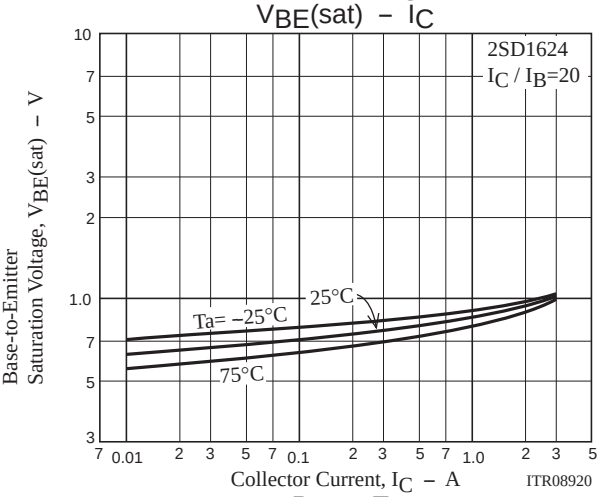
V_{CE}(sat) – I_C



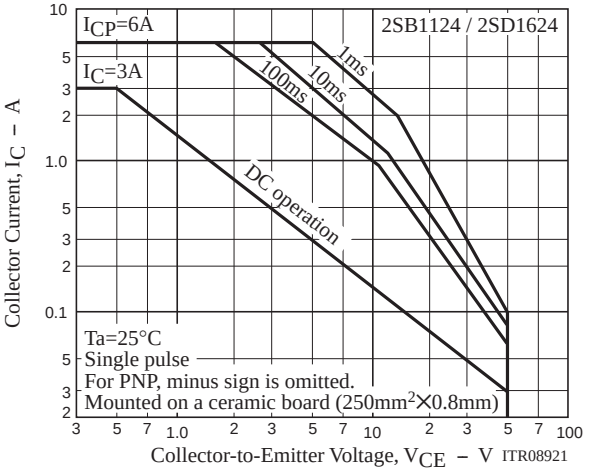
V_{BE}(sat) – I_C



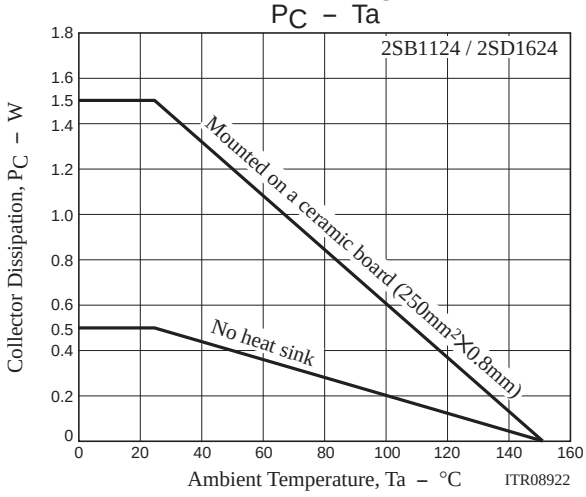
V_{BE}(sat) – I_C



A S O



P_C – Ta



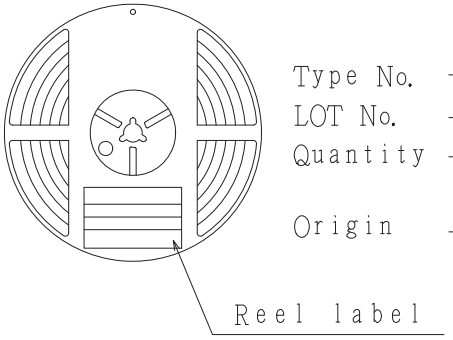
Bag Packing Specification

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

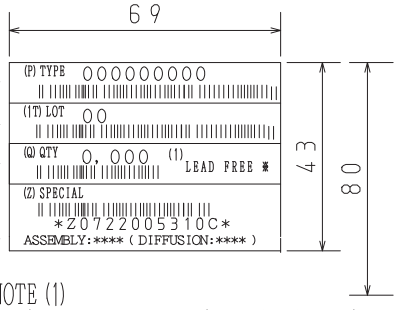
1. Packing Format

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

Packing method

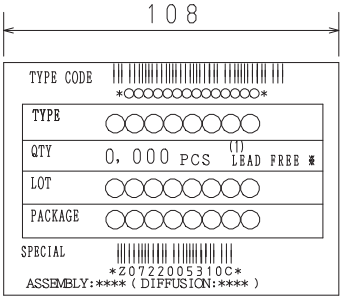


Reel label, Inner box label (unit:mm)



Outer box label

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

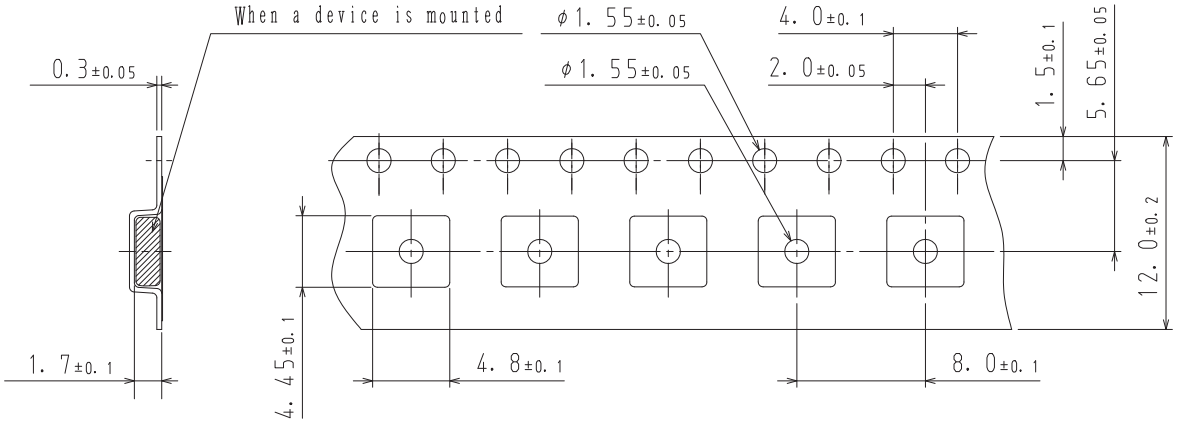


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

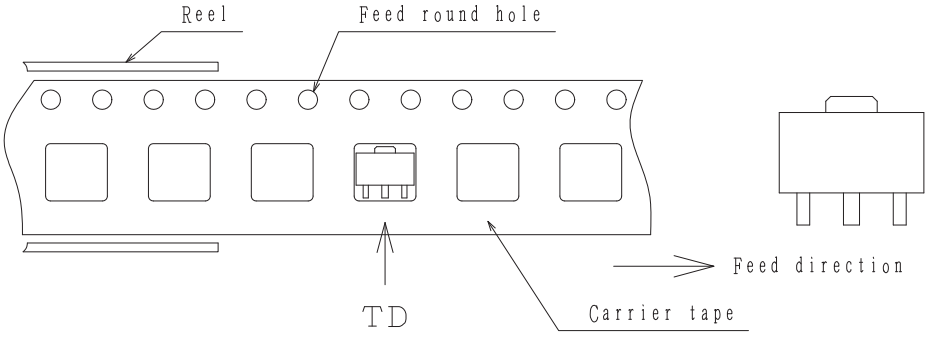
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

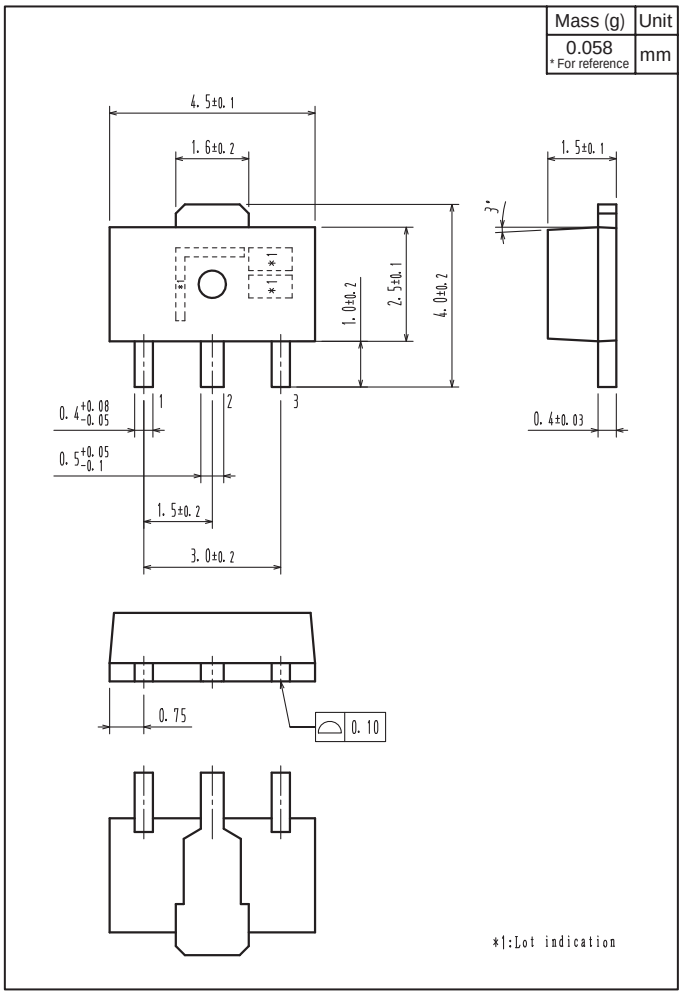


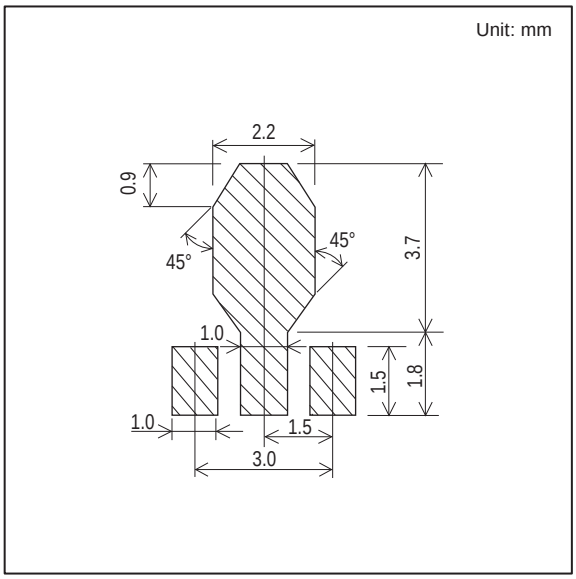
Those with pin 1 index on the feed hole side……TD

Outline Drawing

Land Pattern Example

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





Стандарт Электрон Связь

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Наши контакты:

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Электронная почта: sales@st-electron.ru

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Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331