Ordering number : EN7920B

2SA2124

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

ON Semiconductor®
http://onsemi.com

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

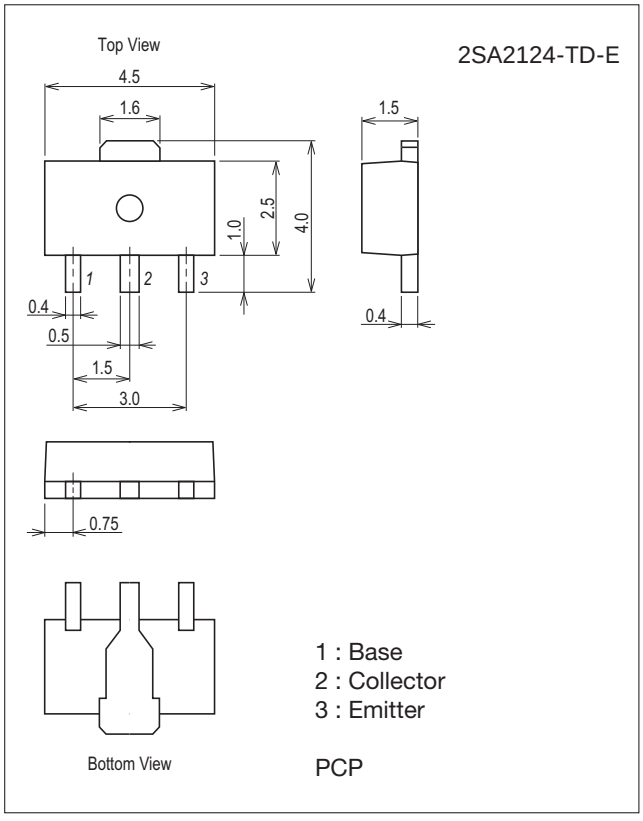
Features
- Adoption of MBIT processes
- Large current capacity
- Low collector-to-emitter saturation voltage
- High-speed switching

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

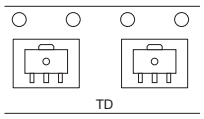
Continued on next page.

Package Dimensions
unit : mm (typ)
7007B-004

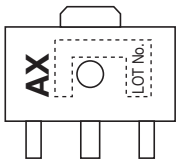


Product & Package Information
- Package : PCP
- JEITA, JEDEC : SC-62, SOT-89, TO-243
- Minimum Packing Quantity : 1,000 pcs./reel

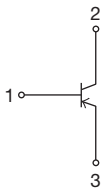
Packing Type: TD



Marking



Electrical Connection



Continued from preceding page.

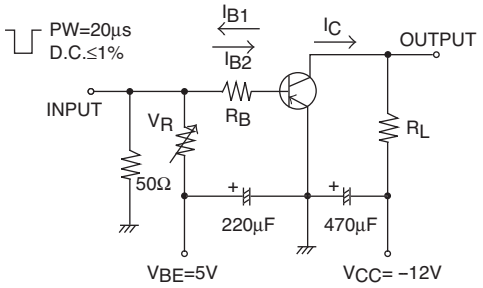
Parameter	Symbol	Conditions	Ratings	Unit
Base Current	I_B		−400	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (450mm^2×0.8mm)	1.3	W
		Tc=25°C	3.5	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

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	I_{CBO}	V_{CB}=−30V, I_E=0A			−0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=−4V, I_C=0A			−0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=−2V, I_C=−100mA	200		560	
	$h_{FE}2$	V_{CE}=−2V, I_C=−1.5A	65			
Gain-Bandwidth Product	f_T	V_{CE}=−10V, I_C=−300mA		440		MHz
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=−1.5A, I_B=−75mA		−0.2	−0.4	V
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=−1.5A, I_B=−75mA		−0.95	−1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=−10μA, I_E=0A	−30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=−1mA, R_{BE}=∞	−30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=−10μA, I_C=0A	−6			V
Output Capacitance	Cob	V_{CB}=−10V, f=1MHz		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

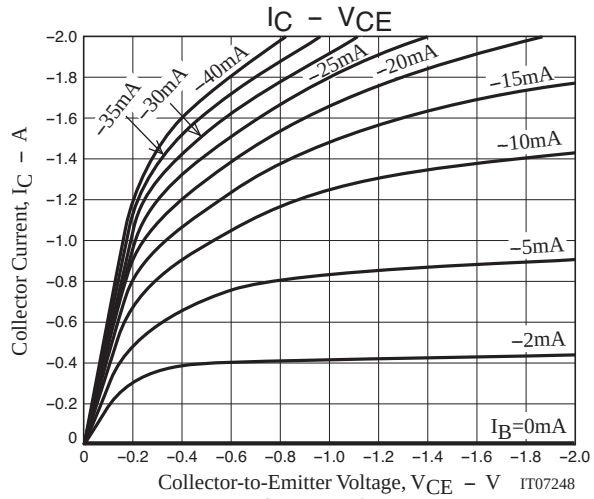
Switching Time Test Circuit

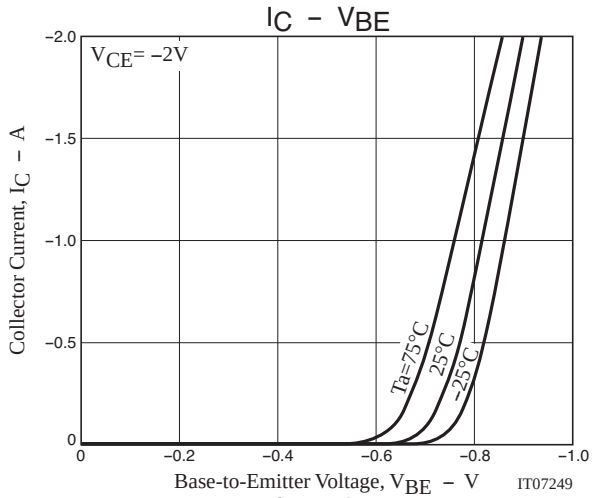


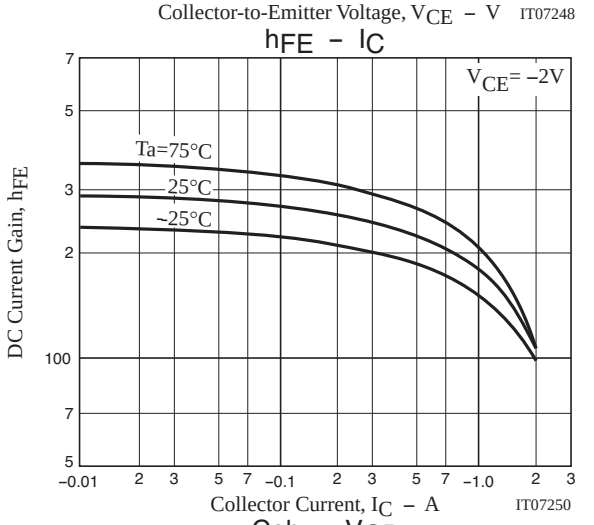
I_C=20I_{B1}= −20I_{B2}= −0.5A

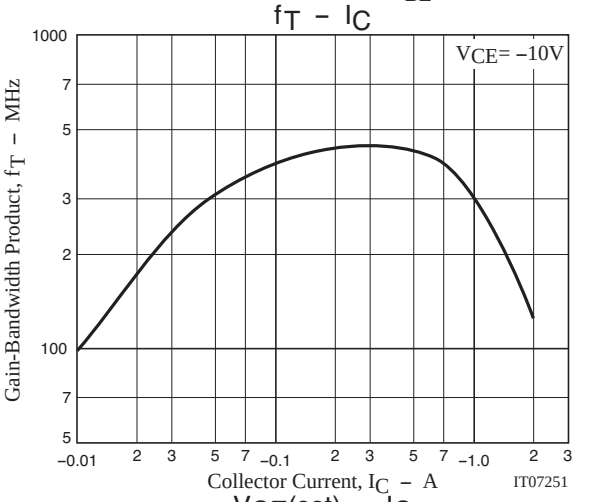
Ordering Information

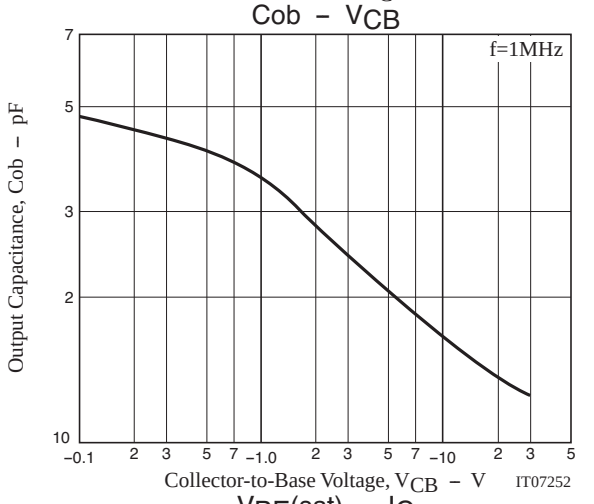
Device	Package	Shipping	memo
2SA2124-TD-E	PCP	1,000pcs./reel	Pb Free

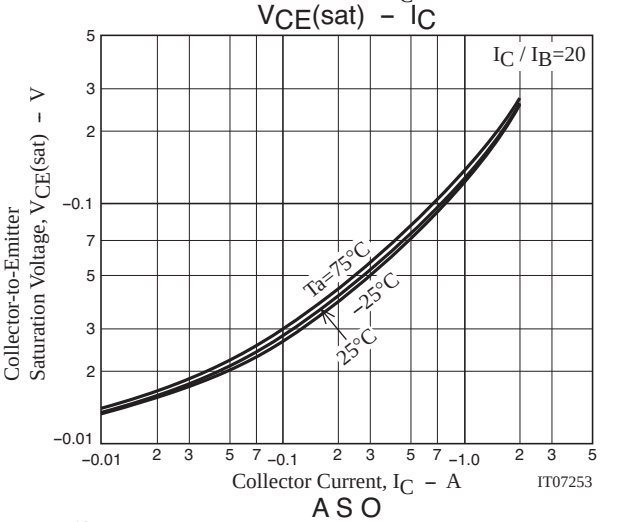

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT07248
–35mA
–30mA
–40mA
–25mA
–20mA
–15mA
–10mA
–5mA
–2mA
IB=0mA

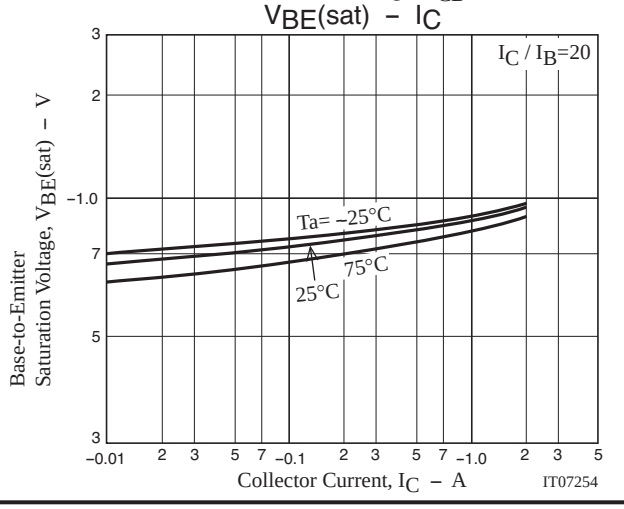

IC – VBE
VCE= –2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT07249
Ta=75°C
25°C
–25°C

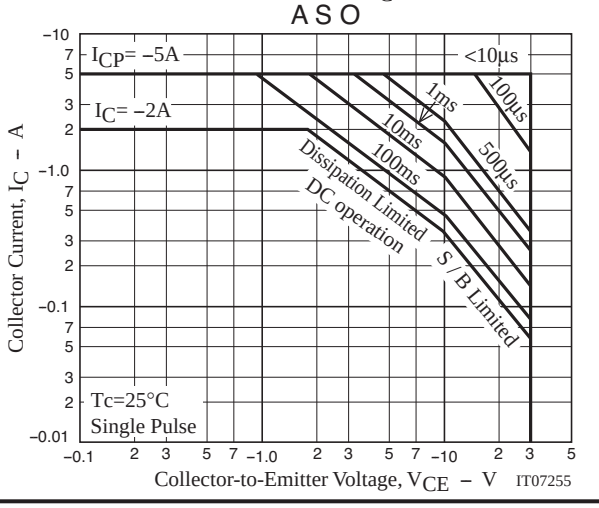

hFE – IC
VCE= –2V
DC Current Gain, hFE
Collector Current, IC – A
IT07250
Ta=75°C
25°C
–25°C

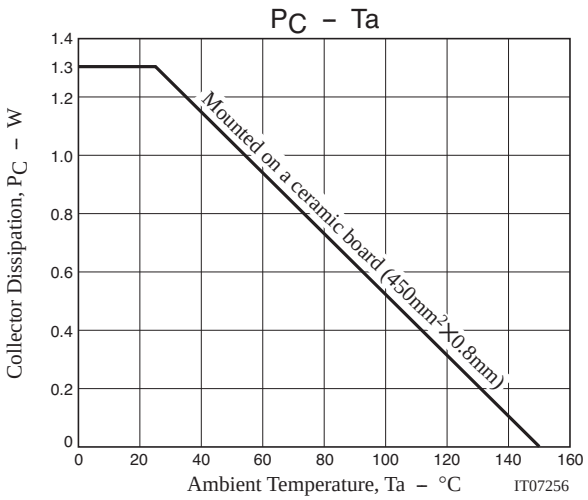

fT – IC
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT07251

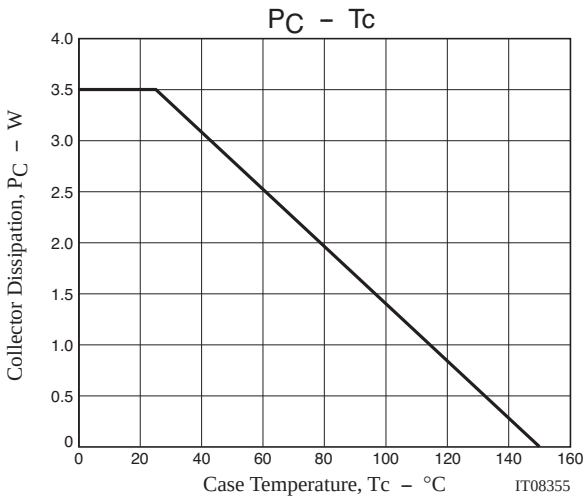

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT07252


VCE(sat) – IC
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT07253
Ta=75°C
–25°C
25°C


VBE(sat) – IC
IC / IB=20
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT07254
Ta= –25°C
75°C
25°C


A S O
ICP= –5A
IC= –2A
<10µs
100µs
1ms
10ms
500µs
100ms
Dissipation Limited
DC operation
S / B Limited
Tc=25°C
Single Pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT07255


PC – Ta
Collector Dissipation, PC – W
1.4
1.3
1.2
1.0
0.8
0.6
0.4
0.2
0
0
20
40
60
80
100
120
140
160
Mounted on a ceramic board (450mm2×0.8mm)
Ambient Temperature, Ta – °C
IT07256


PC – Tc
Collector Dissipation, PC – W
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
0
20
40
60
80
100
120
140
160
Case Temperature, Tc – °C
IT08355

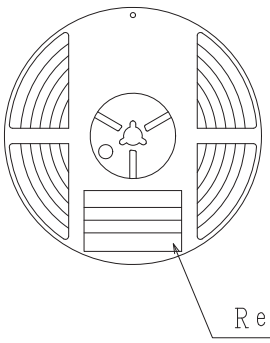
Bag Packing Specification

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

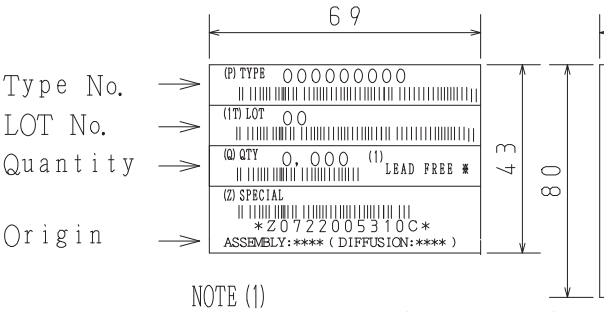
Packing method



Reel label

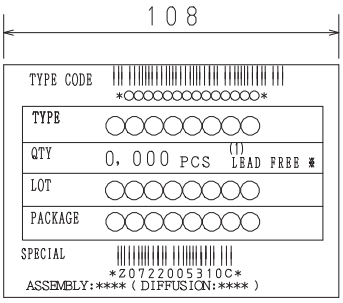
Reel label, Inner box label

(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.



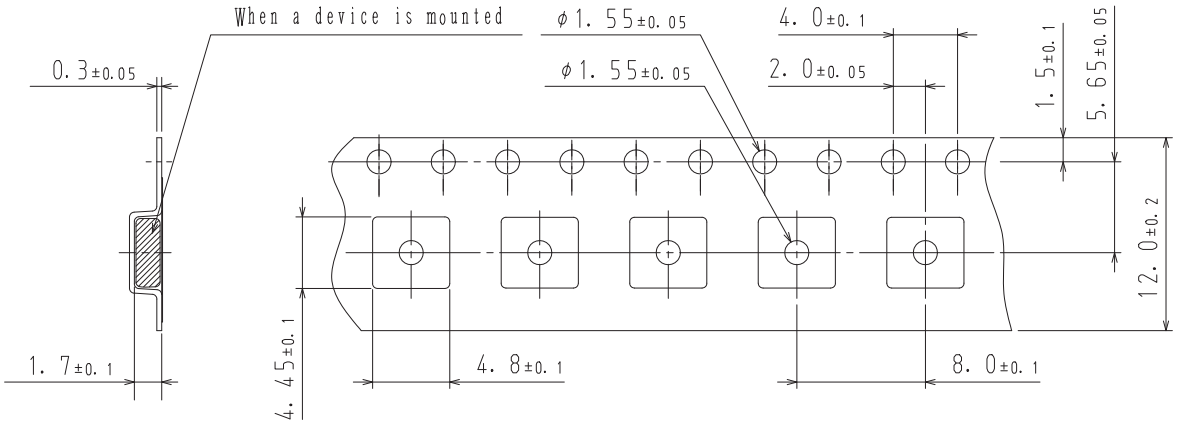
NOTE (1)

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

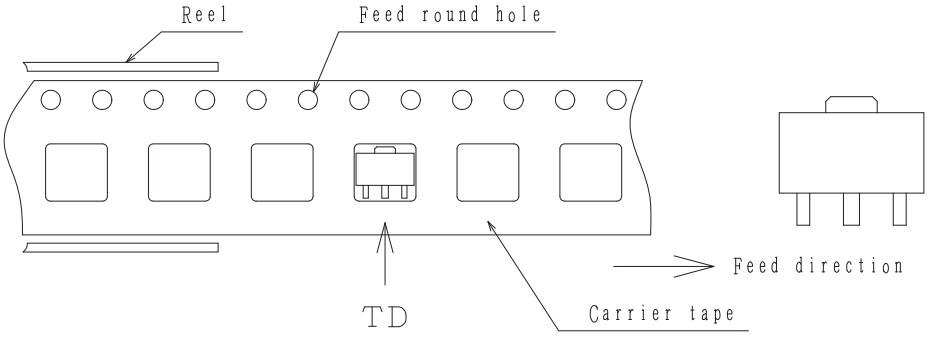
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



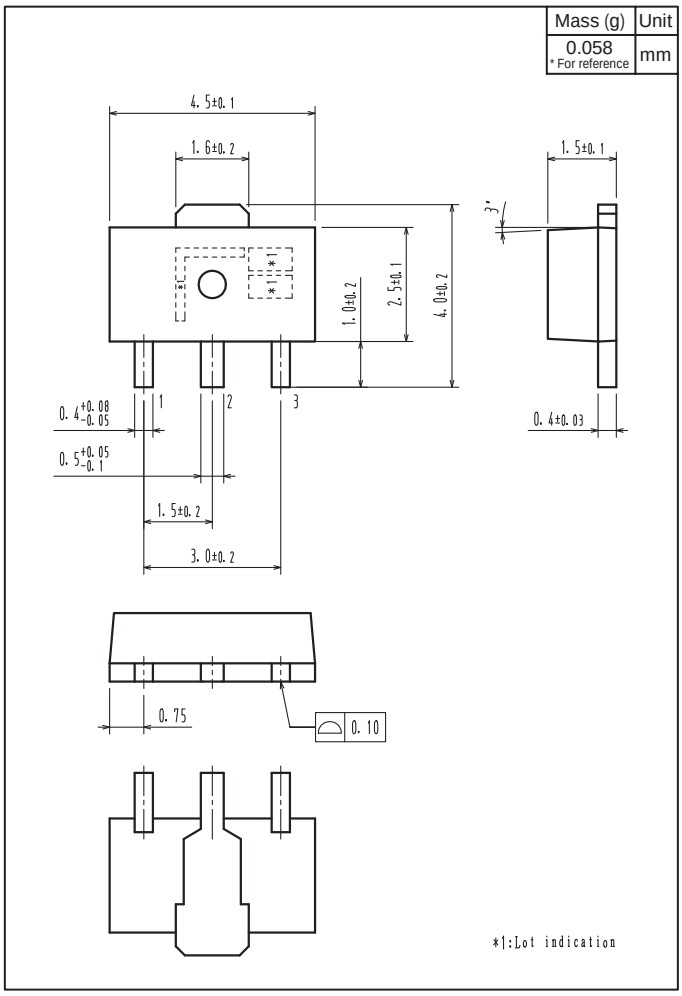
2-2. Device placement direction



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

Outline Drawing

2SA2124-TD-E



Land Pattern Example