Ordering number : EN7990A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

PNP Epitaxial Planar Silicon Transistor

2SA2126 — DC / DC Converter Applications

Applications

- DC / DC converter, relay drivers, lamp drivers, motor drivers

Features

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

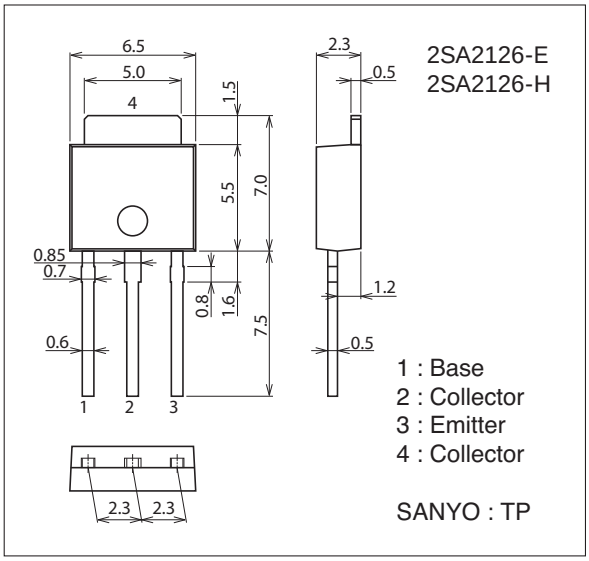
Specifications

Absolute Maximum Ratings at Ta=25°C

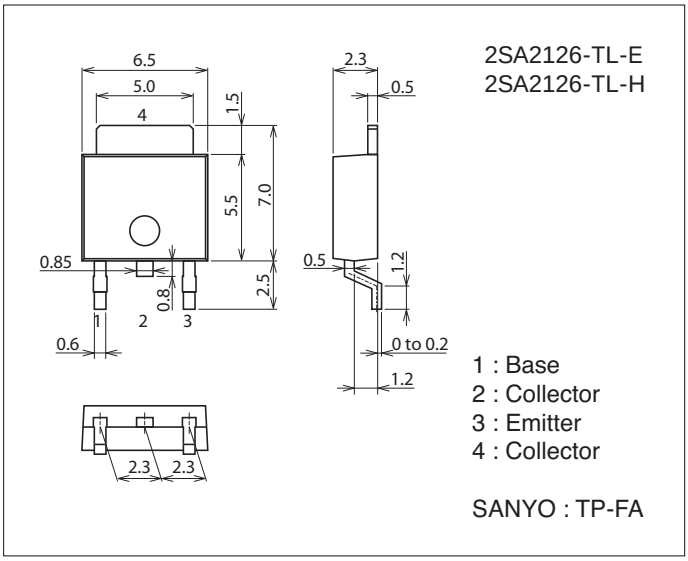
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		−50	V
Collector-to-Emitter Voltage	V_{CES}		−50	V
Collector-to-Emitter Voltage	V_{CEO}		−50	V
Emitter-to-Base Voltage	V_{EBO}		−6	V
Collector Current	I_C		−3	A
Collector Current (Pulse)	I_{CP}		−6	A
Base Current	I_B		−600	mA

Continued on next page.

Package Dimensions unit : mm (typ)
7518-003



Package Dimensions unit : mm (typ)
7003-003

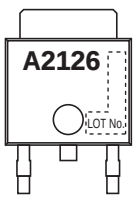


Product & Package Information

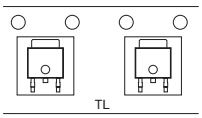
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

- Package : TP-FA
- JEITA, JEDEC : SC-63, TO-252
- Minimum Packing Quantity : 700 pcs./reel

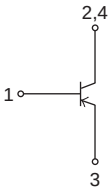
Marking (TP, TP-FA)



Packing Type (TP-FA) : TL



Electrical Connection



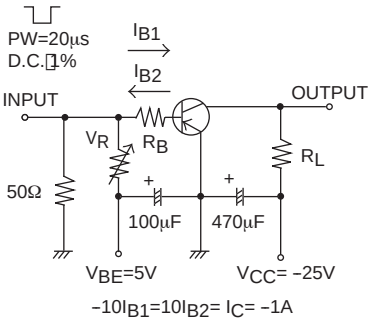
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Collector Dissipation	P_C		0.8	W
		Tc=25°C	15	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta=25°C

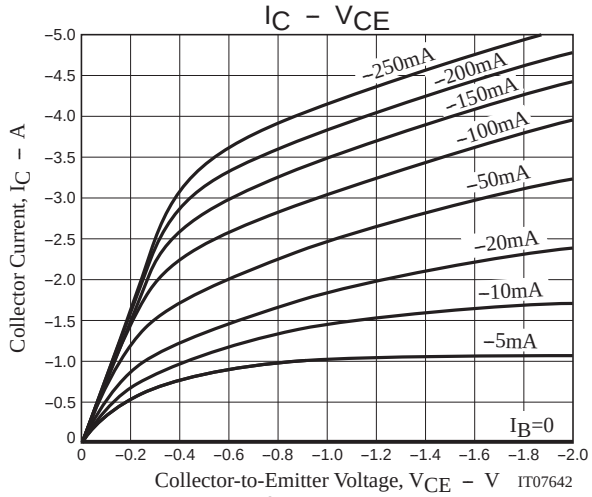
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}= −40V, I_E=0A			−1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}= −4V, I_C=0A			−1	μA
DC Current Gain	h_{FE}	V_{CE}= −2V, I_C= −100mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}= −10V, I_C= −500mA		390		MHz
Output Capacitance	Cob	V_{CB}= −10V, f=1MHz		24		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)1	I_C= −1A, I_B= −50mA		−135	−270	mV
	V_{CE}(sat)2	I_C= −2A, I_B= −100mA		−260	−520	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C= −2A, I_B= −100mA		−0.96	−1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C= −10μA, I_E=0A	−50			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	I_C= −100μA, R_{BE}=0	−50			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.		30		ns
Storage Time	t_{stg}			230		ns
Fall Time	t_f			18		ns

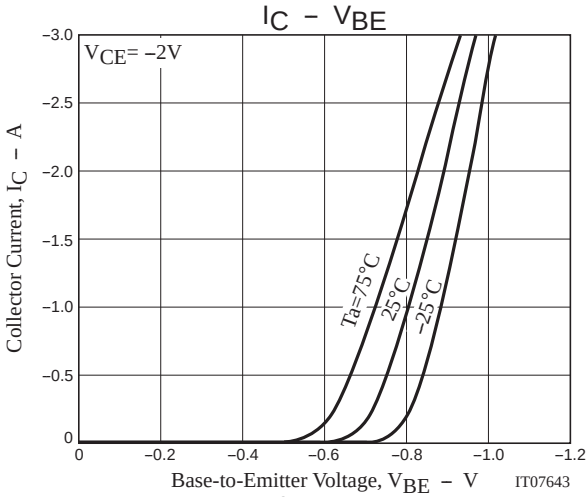
Switching Time Test Circuit

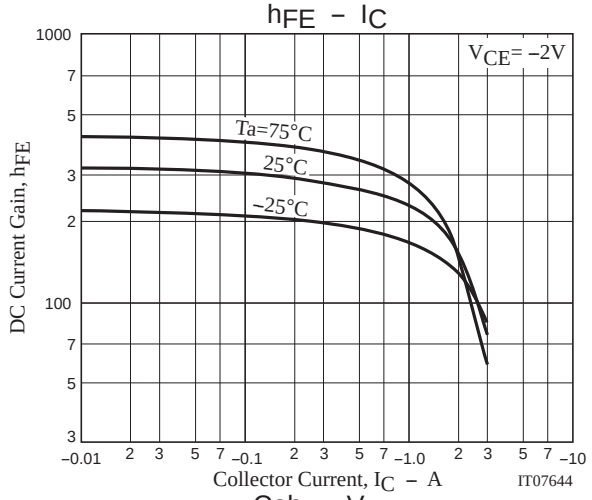


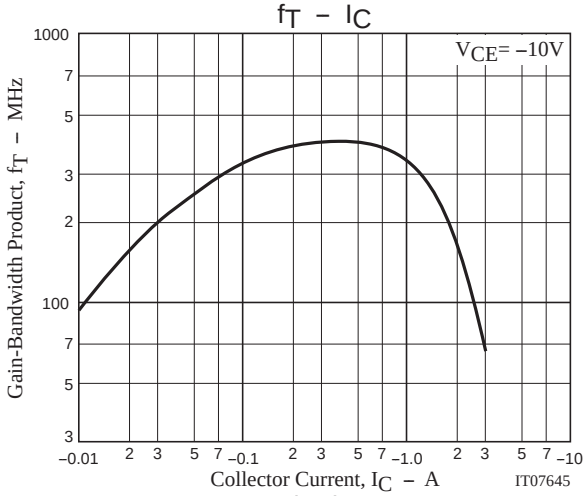
Ordering Information

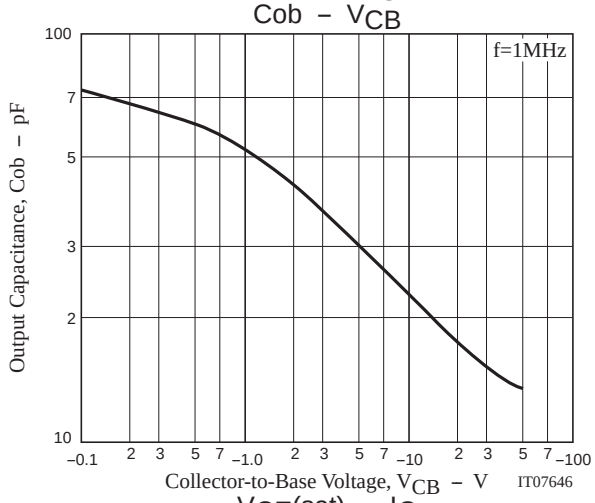
Device	Package	Shipping	memo
2SA2126-E	TP	500pcs./bag	Pb Free
2SA2126-H	TP	500pcs./bag	Pb Free and Halogen Free
2SA2126-TL-E	TP-FA	700pcs./reel	Pb Free
2SA2126-TL-H	TP-FA	700pcs./reel	Pb Free and Halogen Free

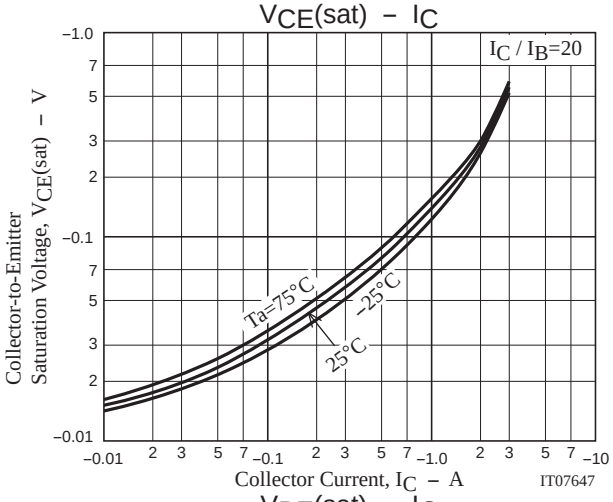

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT07642
–250mA
–200mA
–150mA
–100mA
–50mA
–20mA
–10mA
–5mA
IB=0

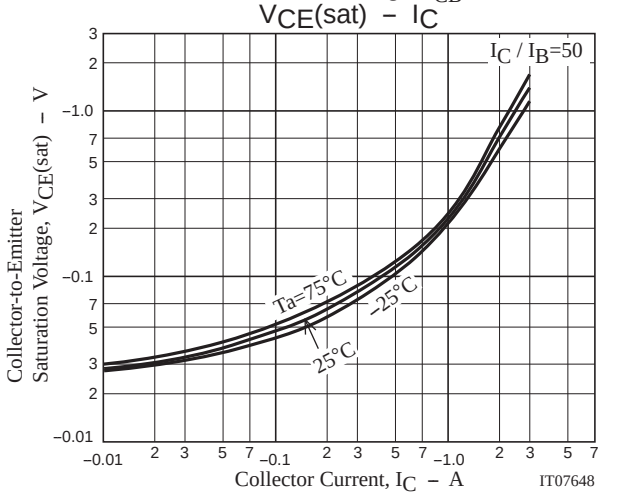

IC – VBE
VCE= –2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT07643
Ta=75°C
25°C
–25°C

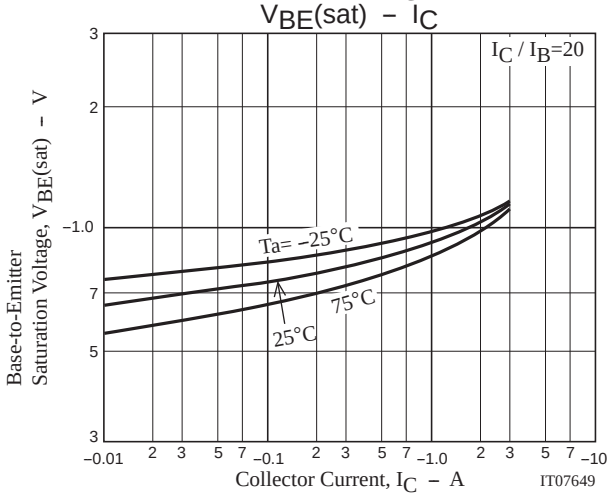

hFE – IC
VCE= –2V
DC Current Gain, hFE
Collector Current, IC – A
IT07644
Ta=75°C
25°C
–25°C

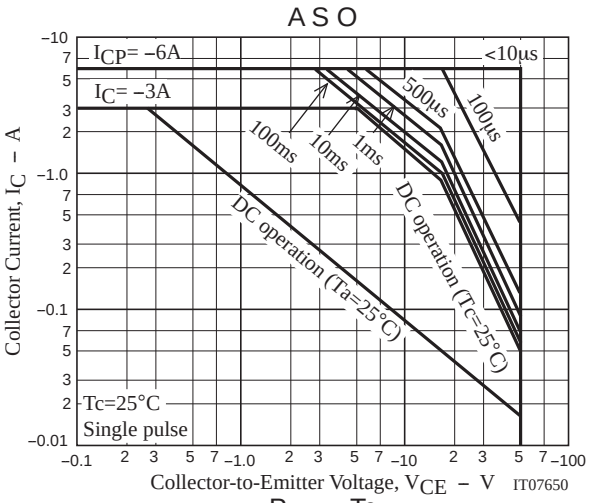

fT – IC
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT07645

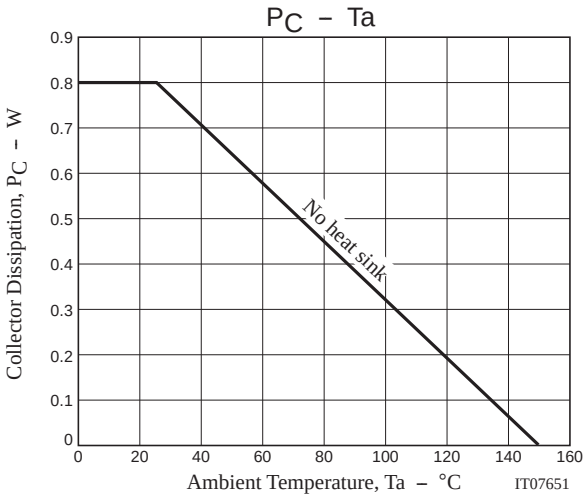

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT07646

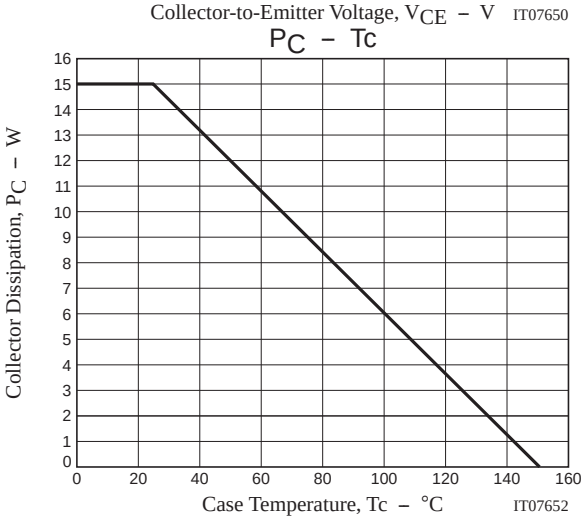

VCE(sat) – IC
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT07647
Ta=75°C
–25°C
25°C


VCE(sat) – IC
IC / IB=50
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT07648
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
IT07649
Ta= –25°C
75°C
25°C


A S O
I_{CP}= –6A
I_C= –3A
<10µs
500µs
100µs
100ms
10ms
1ms
DC operation (Ta=25°C)
DC operation (Tc=25°C)
Tc=25°C
Single pulse
Collector Current, I_C – A
Collector-to-Emitter Voltage, V_{CE} – V
IT07650


P_C – Ta
No heat sink
Collector Dissipation, P_C – W
Ambient Temperature, Ta – °C
IT07651


P_C – Tc
Collector Dissipation, P_C – W
Case Temperature, Tc – °C
IT07652

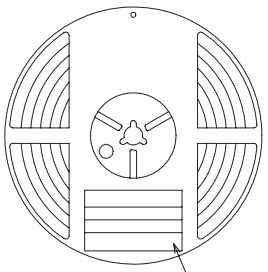
Taping Specification

2SA2126-TL-E, 2SA2126-TL-H

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)
TP-FA	TP	700	2,100	12,600	3 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

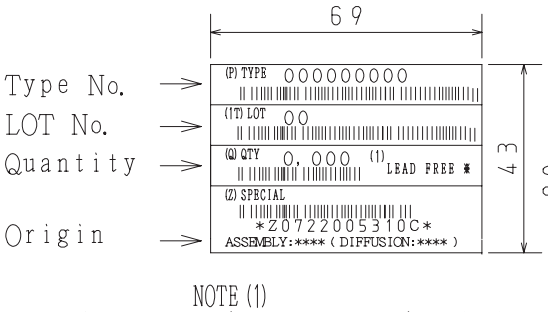
Packing method



Reel label

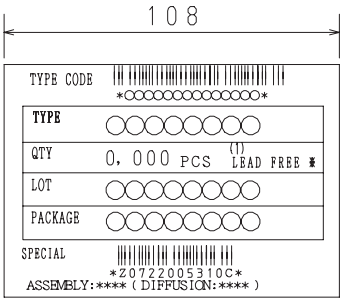
Reel label, Inner box label

(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.

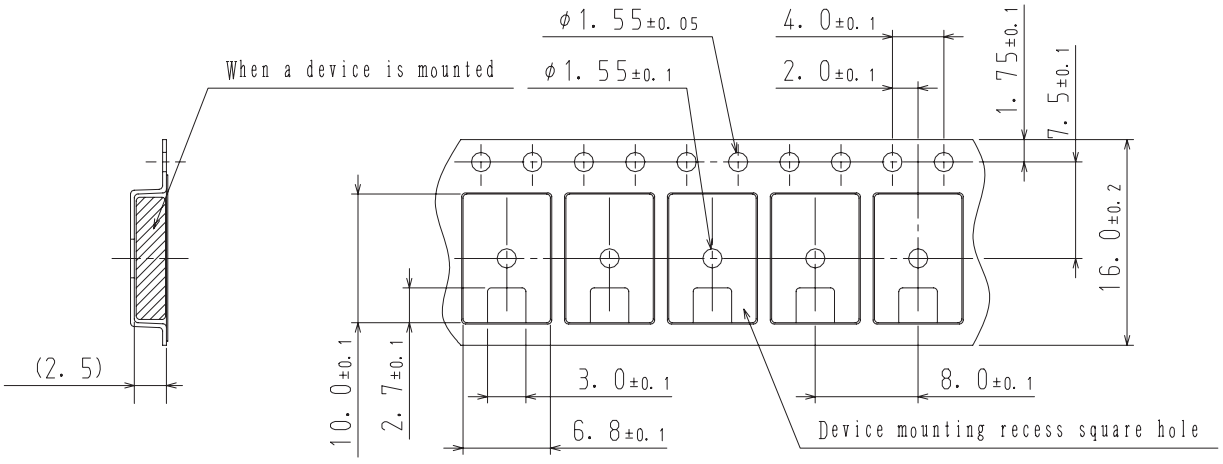


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

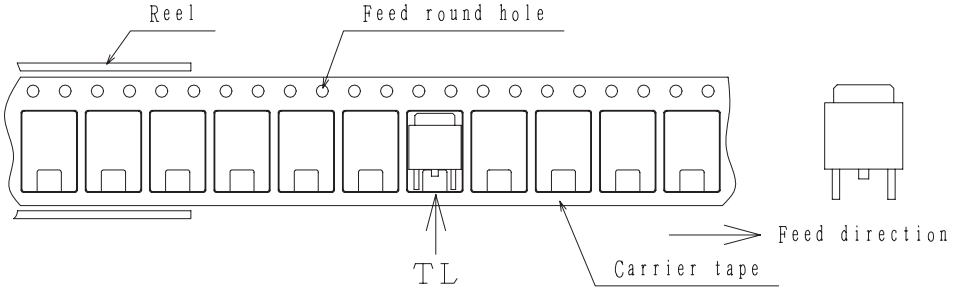
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

1. Carrier tape size (unit:mm)



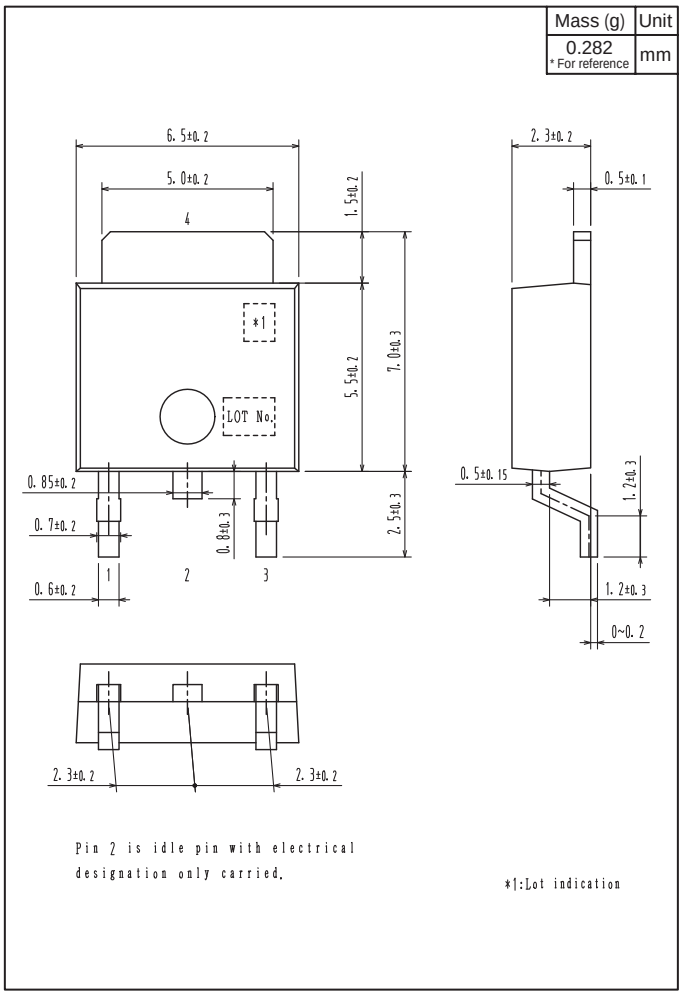
2. Device placement direction



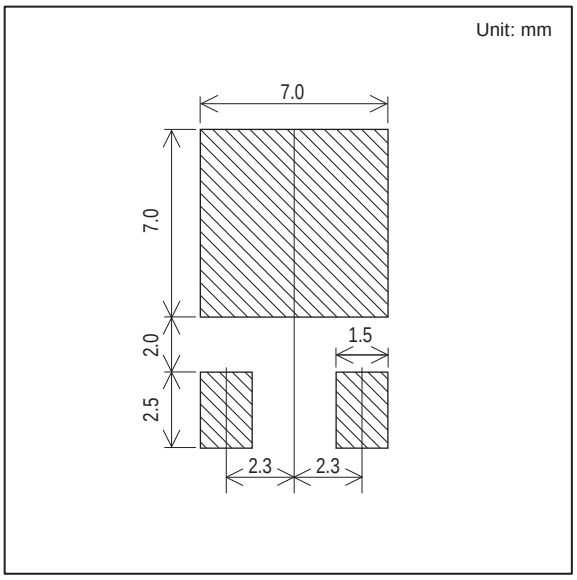
Those with one electrode terminal on the feed hole side·····TL

Outline Drawing

2SA2126-TL-E, 2SA2126-TL-H



Land Pattern Example



Bag Packing Specification

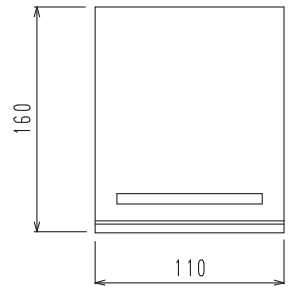
2SA2126-E, 2SA2126-H

1. Packing Format

Package Name	Maximum Number of devices contained (pcs)			
	Bag	Inner box	Outer box	
TP		B-1	A-1	A-2
	500	10,000	50,000	30,000
	Packing format (Dimensions: mm (external))			
	Inner box	Outer box		
	B-1	A-1	A-2	
	445×225×55	470×250×300	470×250×190	

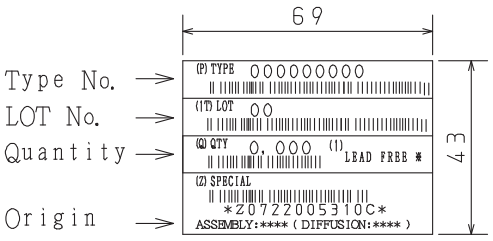
2. Bag dimensions

(unit: mm)



3. Bag label, Inner box label

(unit: mm)



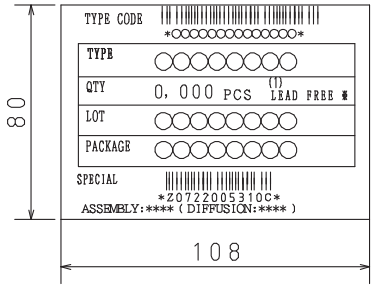
NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

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

4. Outer box label

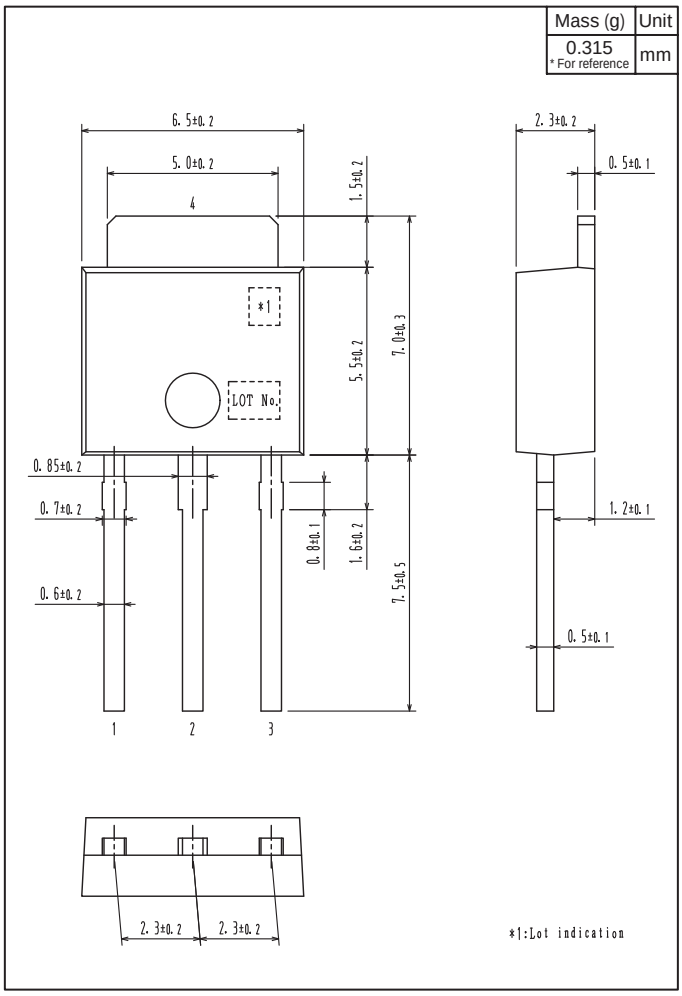
(unit: mm)

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



Outline Drawing

2SA2126-E, 2SA2126-H



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