



2SB1205 — PNP Epitaxial Planar Silicon Transistor

Strobe High-Current Switching Applications

Applications

- Flash, voltage regulators, relay drivers, lamp drivers

Features

- Adoption of FBET, MBIT processes
- Fast switching speed
- Small and slim package making it easy to make 2SB1205-applied sets smaller
- Low saturation voltage
- Large current capacity

Specifications

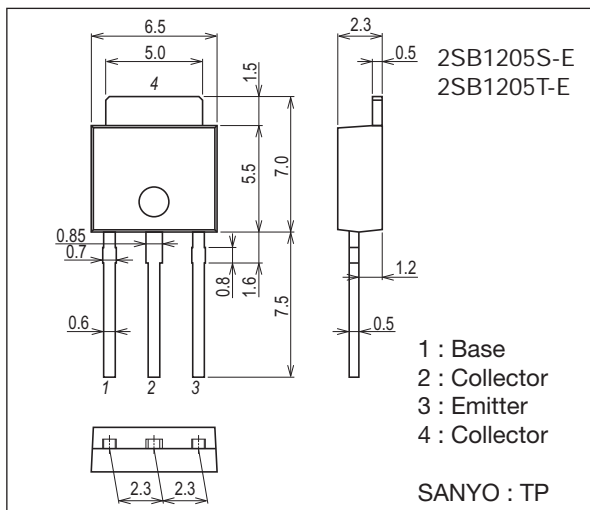
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		-25	V
Collector-to-Emitter Voltage	V _{CE0}		-20	V
Emitter-to-Base Voltage	V _{EB0}		-5	V
Collector Current	I _C		-5	A
Collector Current (Pulse)	I _{CP}		-8	A

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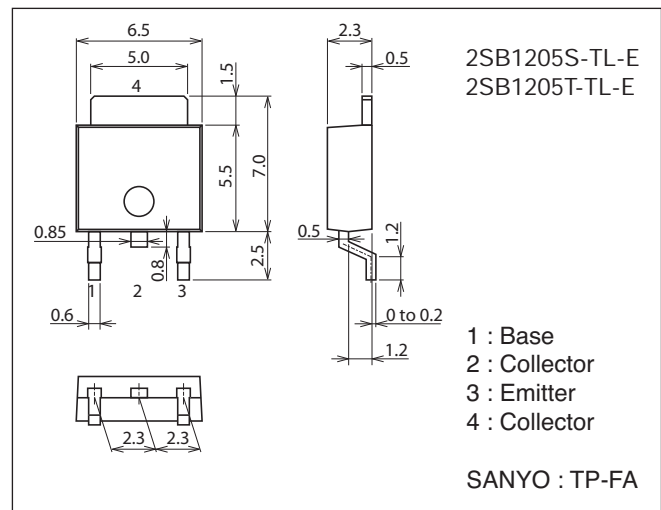
Package Dimensions unit : mm (typ)

7518-003



Package Dimensions unit : mm (typ)

7003-003

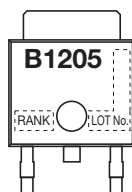


Product & Package Information

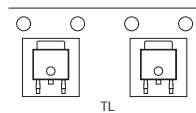
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

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

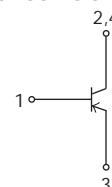
Marking (TP, TP-FA)



Packing Type (TP-FA) : TL



Electrical Connection



2SB1205

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Parameter	Symbol	Conditions	Ratings	Unit
Base Current	I_B		-0.5	A
Collector Dissipation	P_C		1	W
		$T_C=25^\circ\text{C}$	10	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

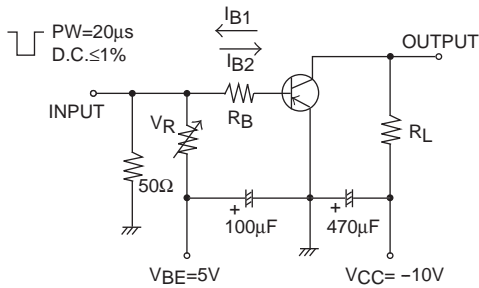
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=-20\text{V}, I_E=0\text{A}$			-500	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0\text{A}$			-500	nA
DC Current Gain	h_{FE1}	$V_{CE}=-2\text{V}, I_C=500\text{mA}$	100*		400*	
	h_{FE2}	$V_{CE}=-2\text{V}, I_C=-4\text{A}$	60			
Gain-Bandwidth Product	f_T	$V_{CE}=-5\text{V}, I_C=-200\text{mA}$		320		MHz
Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, f=1\text{MHz}$		60		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-3\text{A}, I_B=-60\text{mA}$	-250		-500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-3\text{A}, I_B=-60\text{mA}$	-1.0		-1.3	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0\text{A}$	-25			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, R_{BE}=\infty$	-20			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0\text{A}$	-5			V
Turn-On Time	t_{on}	See specified Test Circuit.		40		ns
Storage Time	t_{stg}			200		ns
Fall Time	t_f			10		ns

* : The 2SB1205 is classified by 500mA h_{FE} as follows :

Rank	R	S	T
h_{FE}	100 to 200	140 to 280	200 to 400

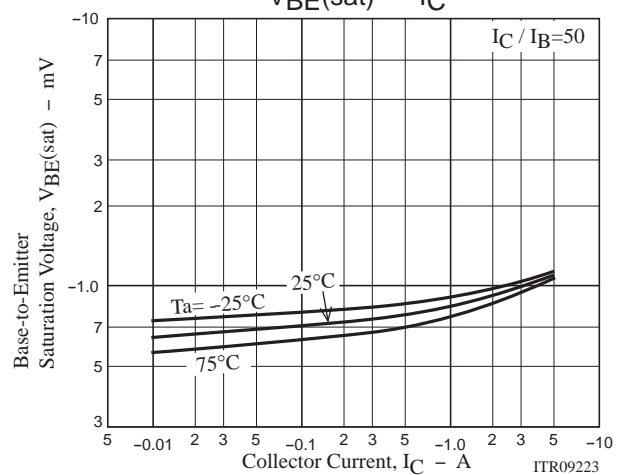
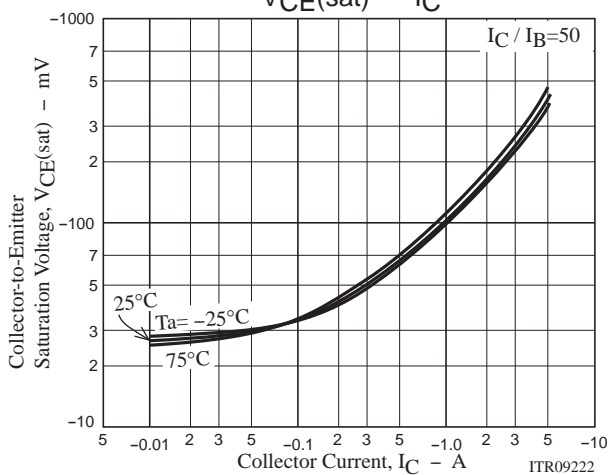
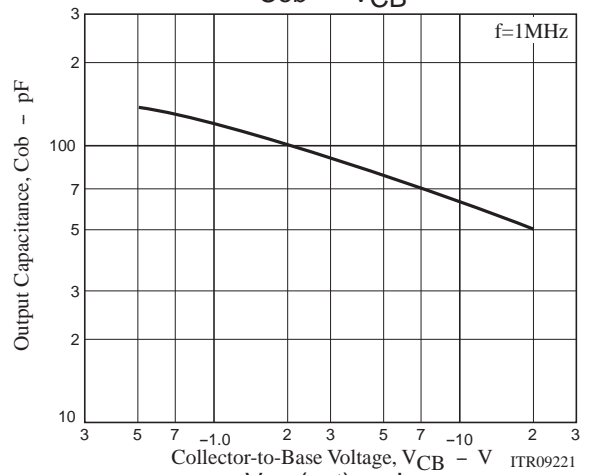
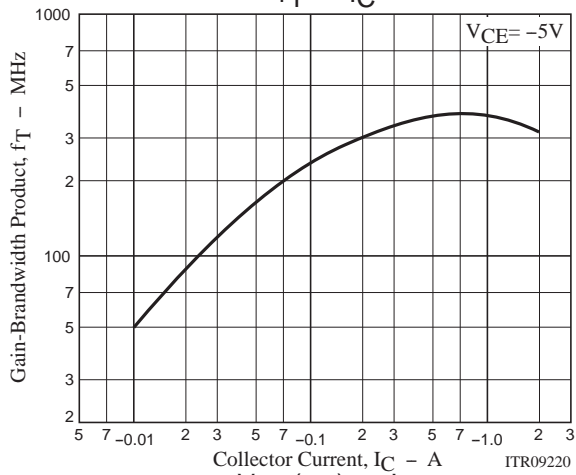
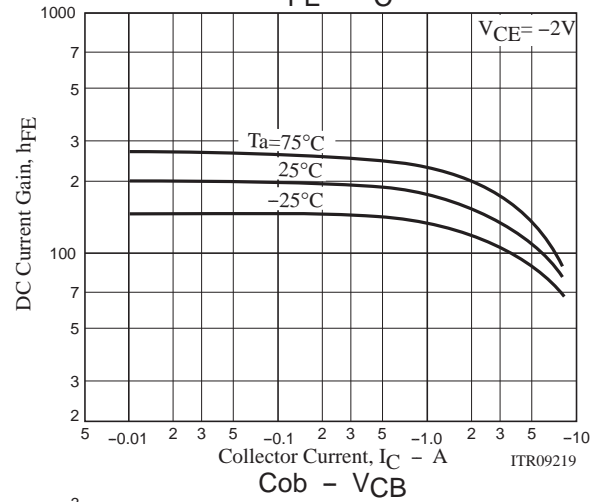
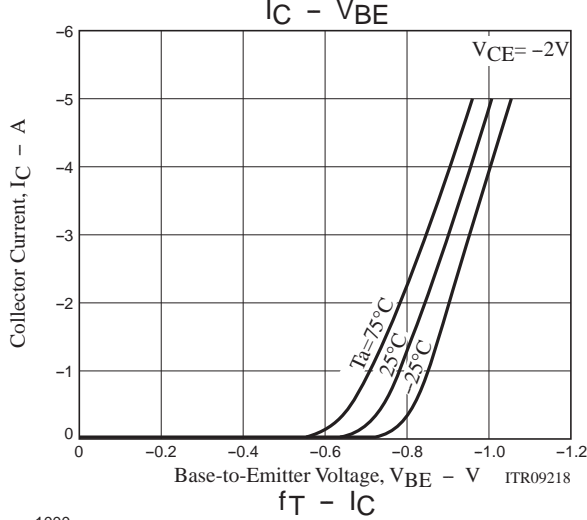
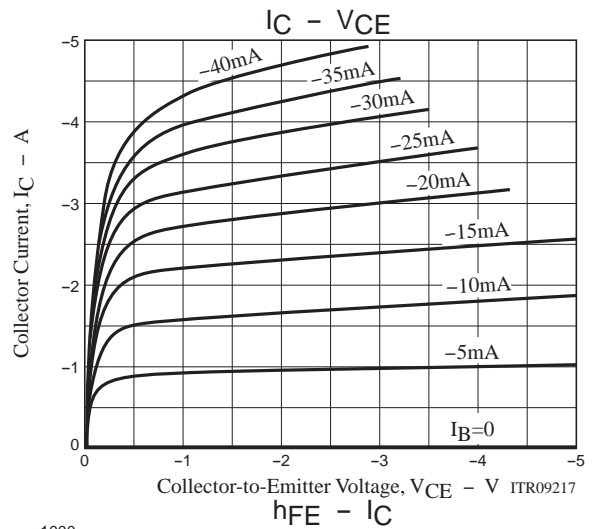
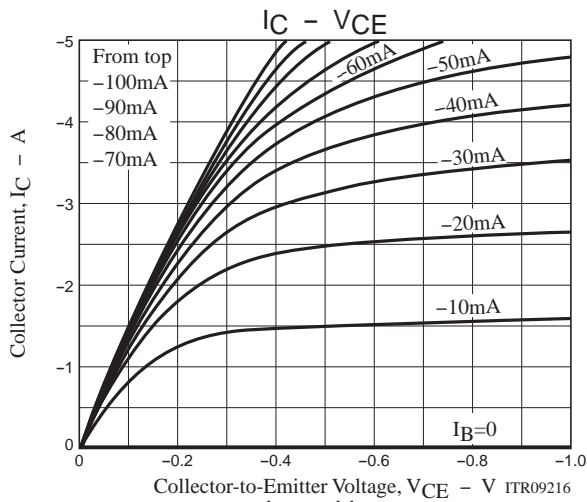
Switching Time Test Circuit



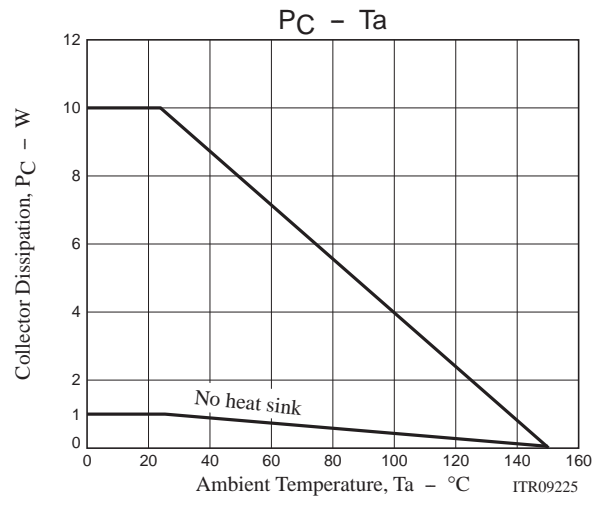
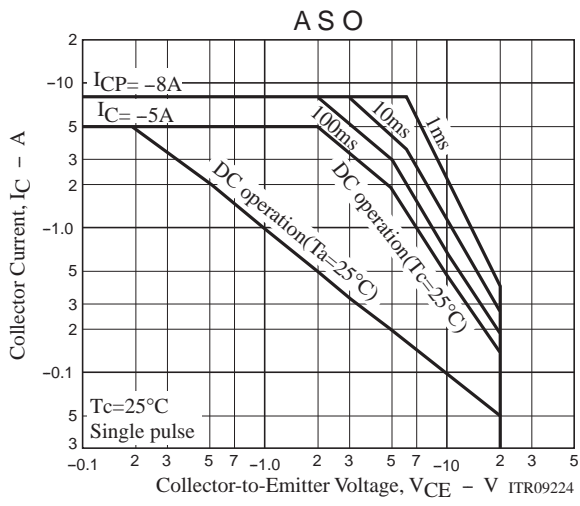
$$I_C = 10I_{B1} = -10I_{B2} = -2\text{A}$$

Ordering Information

Device	Package	Shipping	memo
2SB1205S-E	TP	500pcs./bag	Pb Free
2SB1205T-E	TP	500pcs./bag	
2SB1205S-TL-E	TP-FA	700pcs./reel	
2SB1205T-TL-E	TP-FA	700pcs./reel	



2SB1205



Taping Specification

2SB1205S-TL-E, 2SB1205T-TL-E

Packing Format

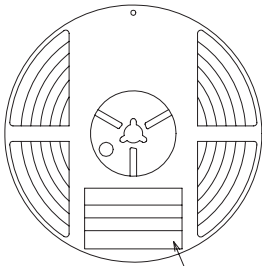
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
TP-FA	TP	700	2,100	12,600	3 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Reel label, Inner box label
(unit:mm)

Outer box label

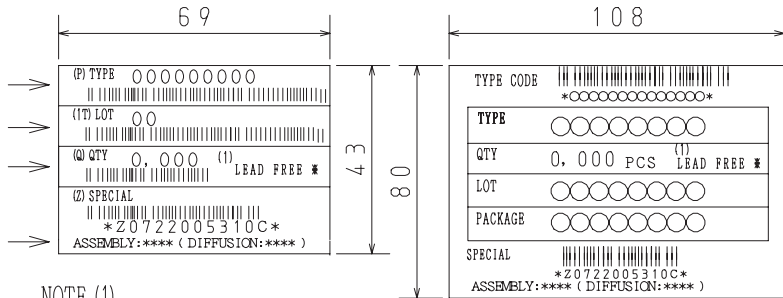
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Type No.
LOT No.
Quantity
Origin

Reel label



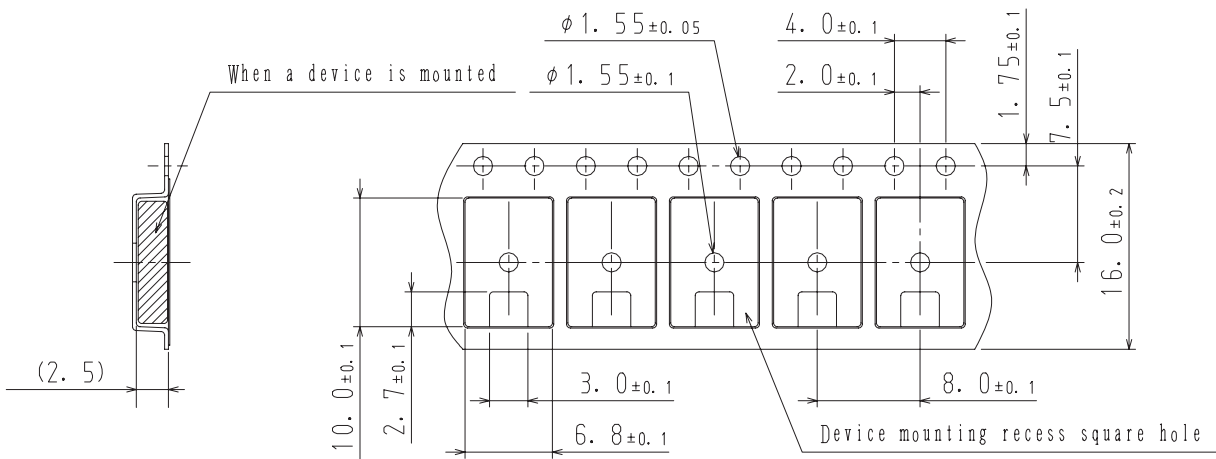
NOTE (1)

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

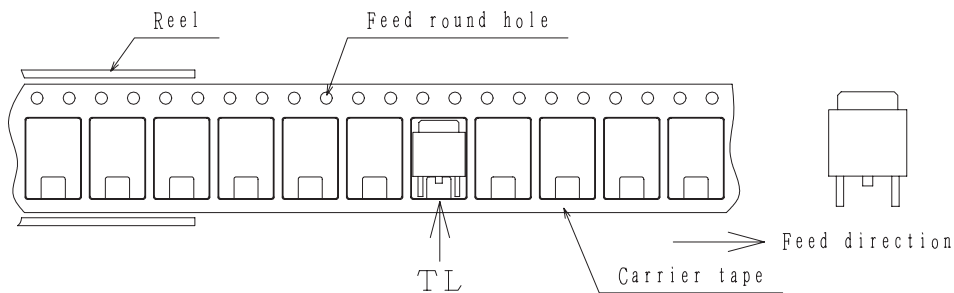
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

1. Carrier tape size (unit:mm)



2. Device placement direction

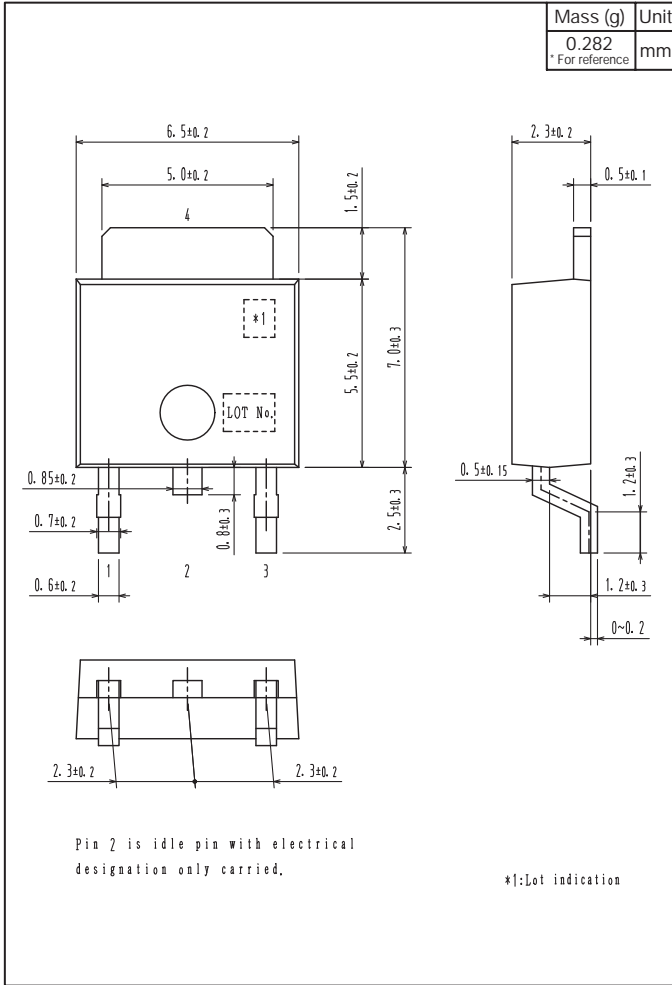


Those with one electrode terminal on the feed hole side.....TL

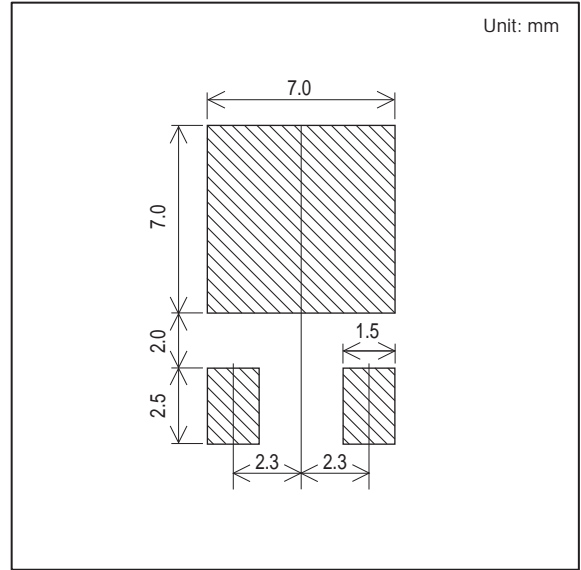
2SB1205

Outline Drawing

2SB1205S-TL-E, 2SB1205T-TL-E



Land Pattern Example



2SB1205

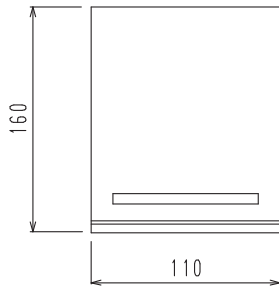
Bag Packing Specification

2SB1205S-E, 2SB1205T-E

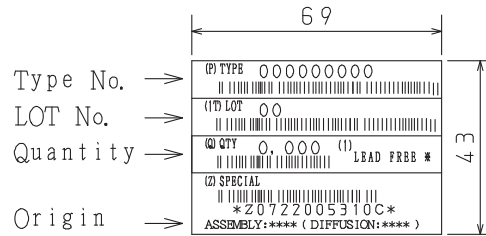
1. Packing Format

Package Name	Maximum Number of devices contained (pcs)			
	Bag	Inner box	Outer box	
TP	500	B-1	A-1	A-2
		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)



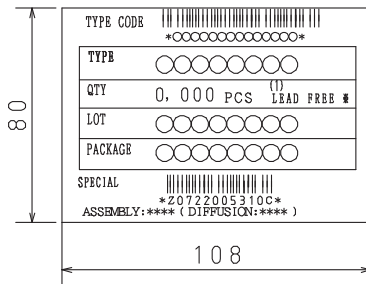
4. Outer box label (unit:mm)

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

NOTE (1)

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

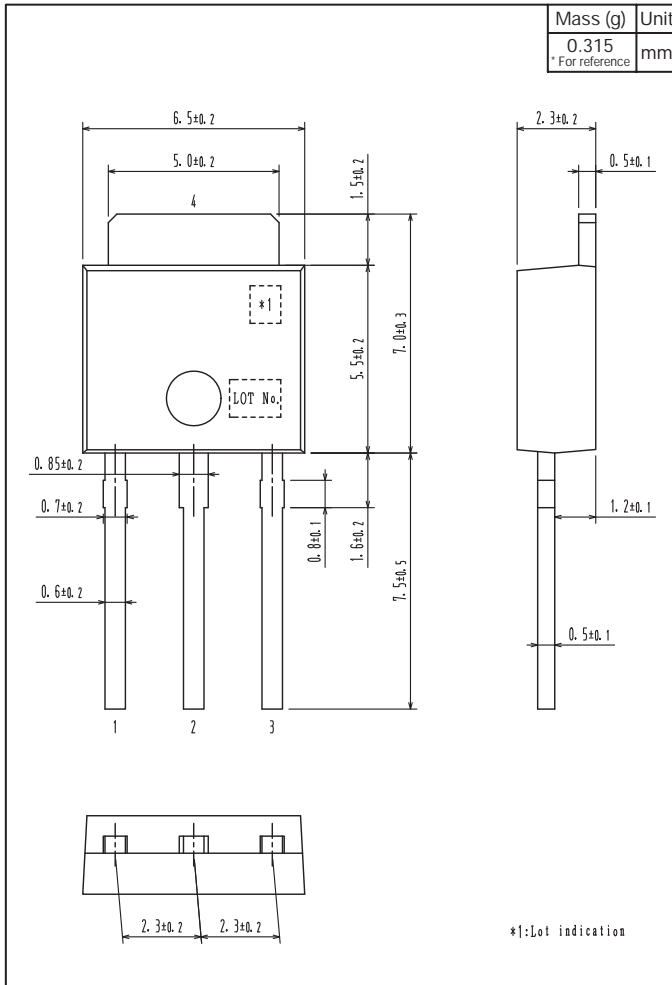
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3



2SB1205

Outline Drawing

2SB1205S-E, 2SB1205T-E



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