



# 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

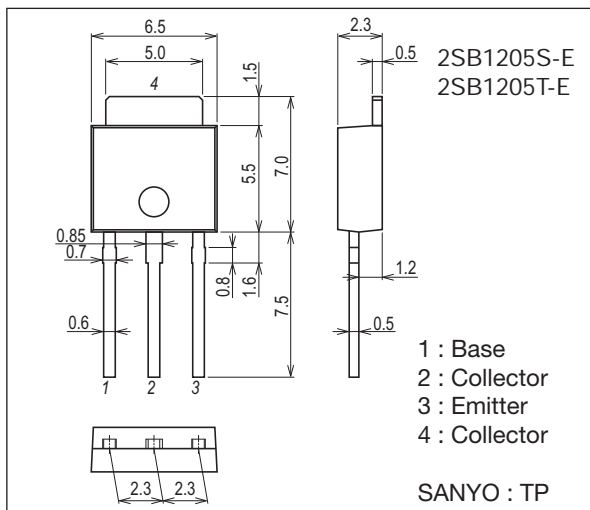
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		-25	V
Collector-to-Emitter Voltage	V <sub>CE0</sub>		-20	V
Emitter-to-Base Voltage	V <sub>EB0</sub>		-5	V
Collector Current	I <sub>C</sub>		-5	A
Collector Current (Pulse)	I <sub>CP</sub>		-8	A

Continued on next page.

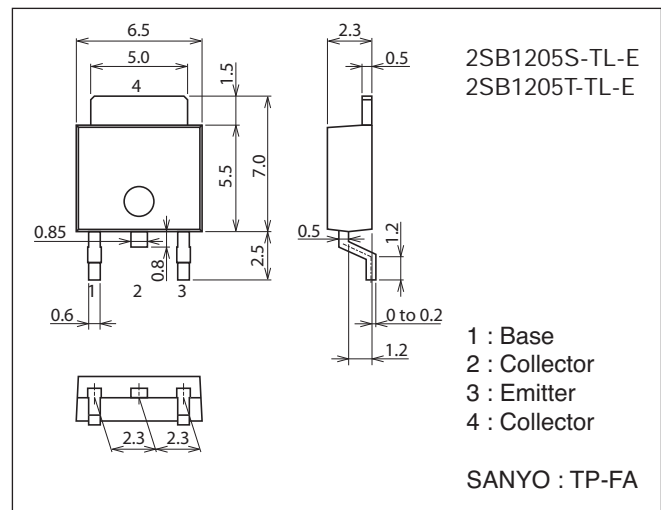
### Package Dimensions unit : mm (typ)

7518-003



### Package Dimensions unit : mm (typ)

7003-003

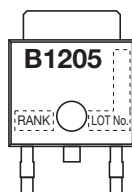


### Product & Package Information

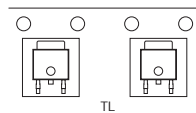
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

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

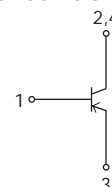
### Marking (TP, TP-FA)



### Packing Type (TP-FA) : TL



### Electrical Connection



## 2SB1205

Continued from preceding page.

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	$^\circ\text{C}$

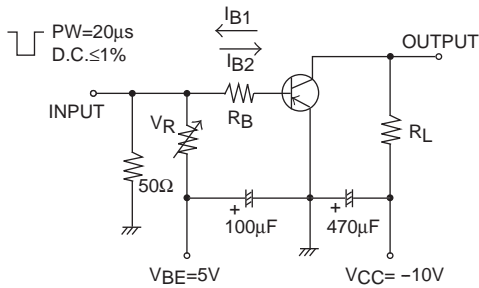
### Electrical Characteristics at $T_a=25^\circ\text{C}$

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

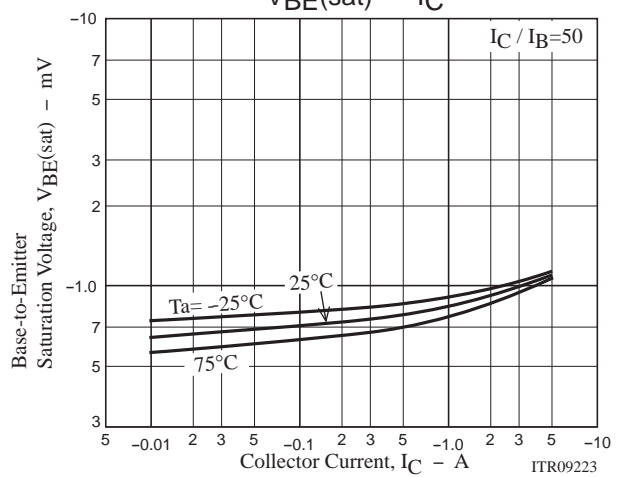
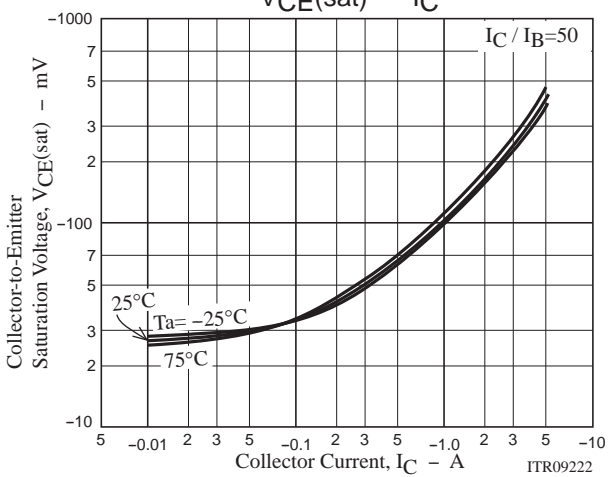
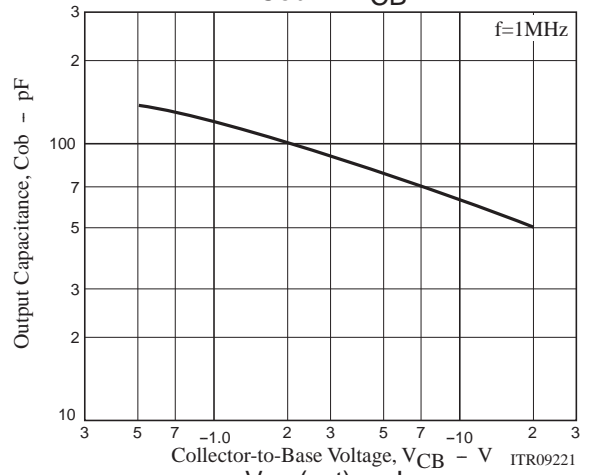
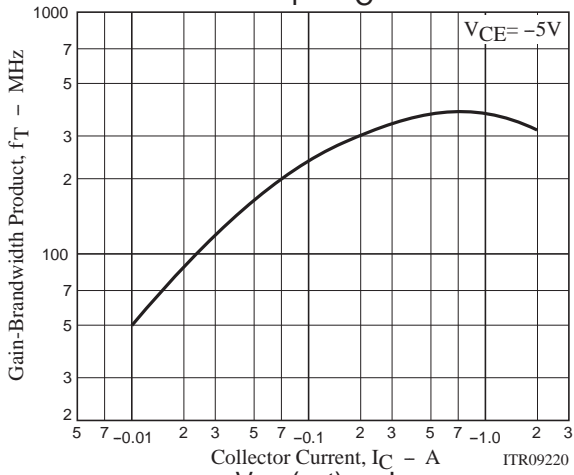
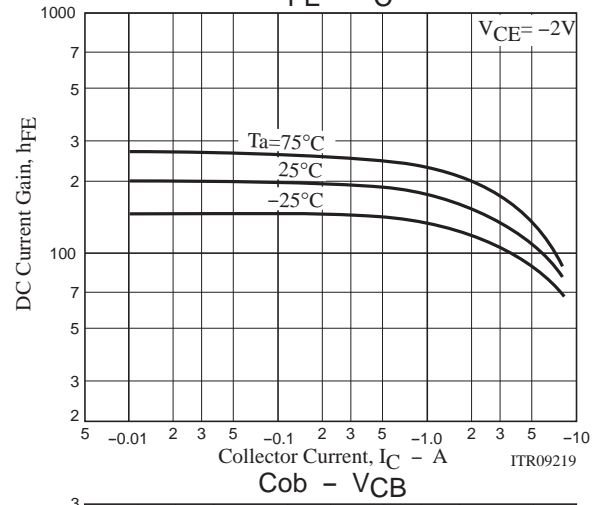
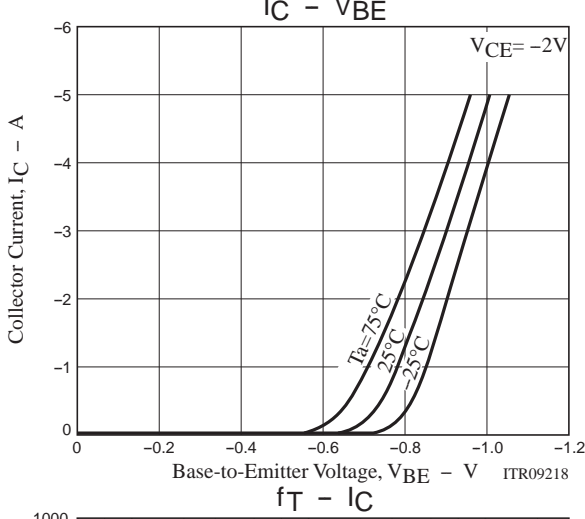
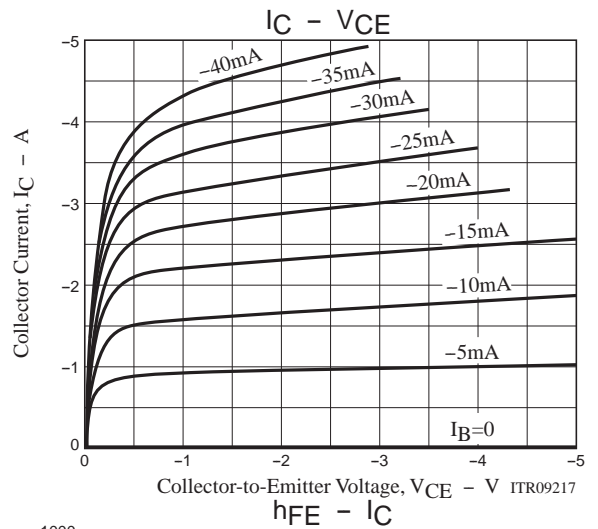
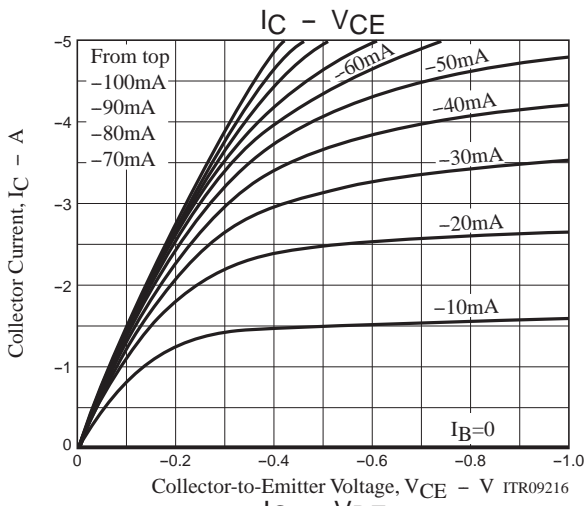
### Switching Time Test Circuit



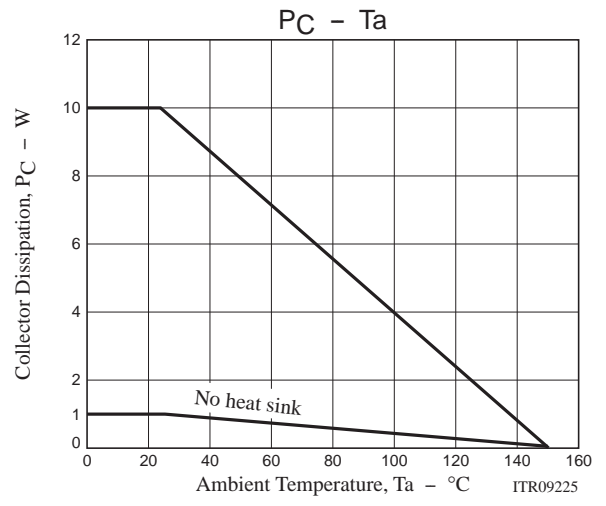
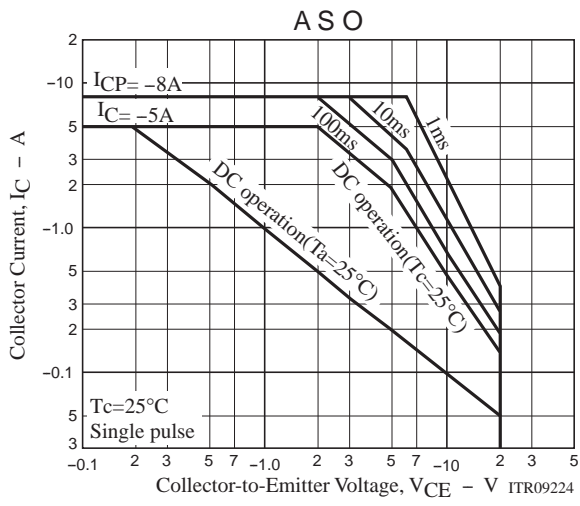
$$I_C = 10I_{B1} = -10I_{B2} = -2\text{A}$$

### 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

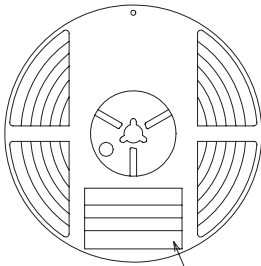
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
TP-FA	TP	700	2,100	12,600	3 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

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



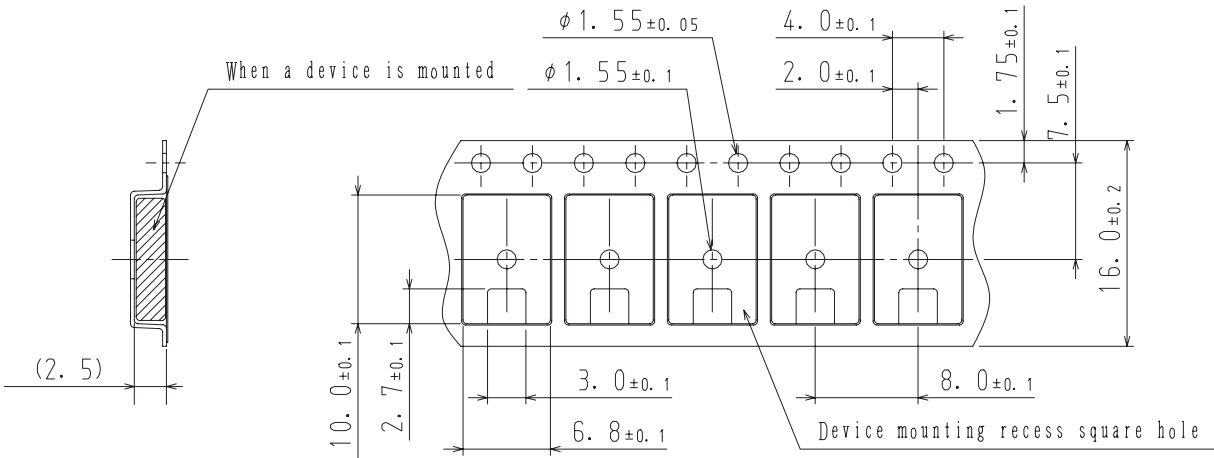
NOTE (1)

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

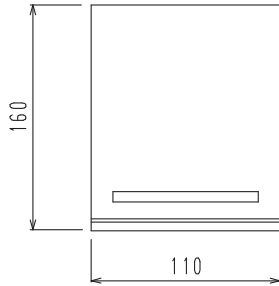
## Bag Packing Specification

2SB1205S-E, 2SB1205T-E

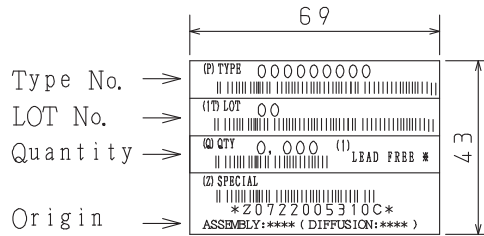
### 1. Packing Format

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)



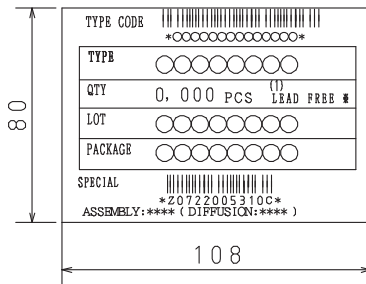
### 4. Outer box label (unit:mm)

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.

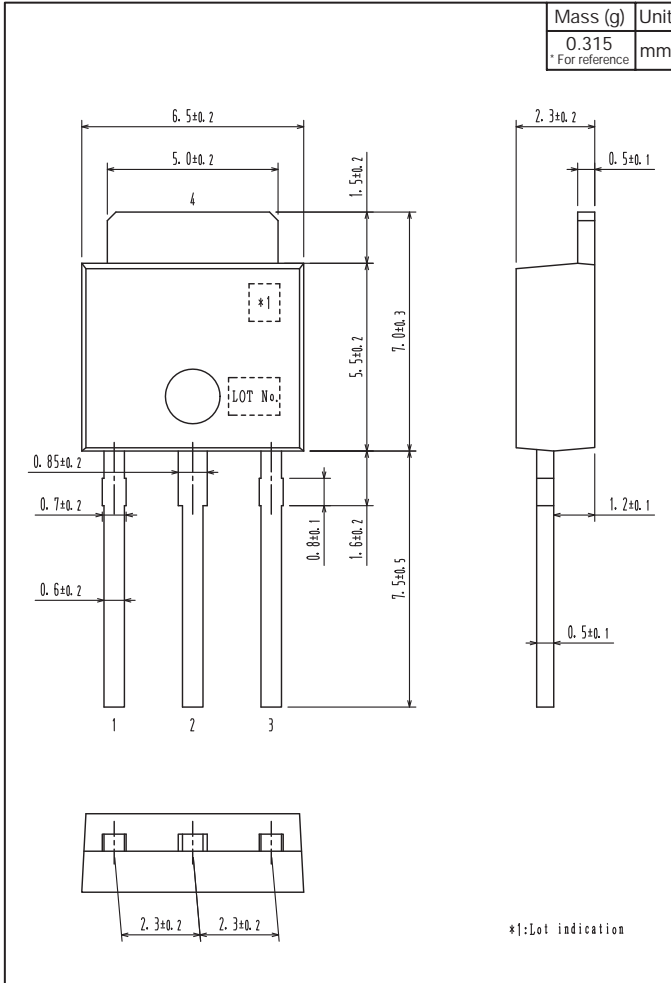
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3



# 2SB1205

## Outline Drawing

2SB1205S-E, 2SB1205T-E





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