



2SA2205

Bipolar Transistor -100V, -2A, Low VCE(sat), PNP Single TP/TP-FA

ON Semiconductor®

<http://onsemi.com>

Applications

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

Features

- Adoption of FBET, MBIT processes
- Low collector-to-emitter saturation voltage
- High allowable power dissipation
- Large current capacity
- High-speed switching

Specifications

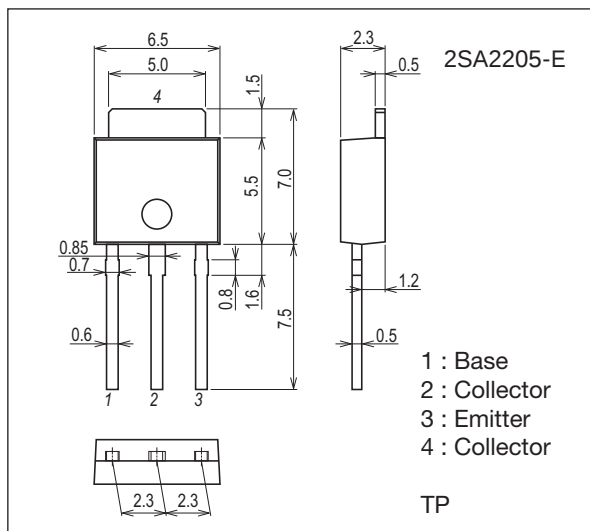
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		-100	V
Collector-to-Emitter Voltage	V _{CES}		-100	V
	V _{CEO}		-100	V
Emitter-to-Base Voltage	V _{EB0}		-7	V

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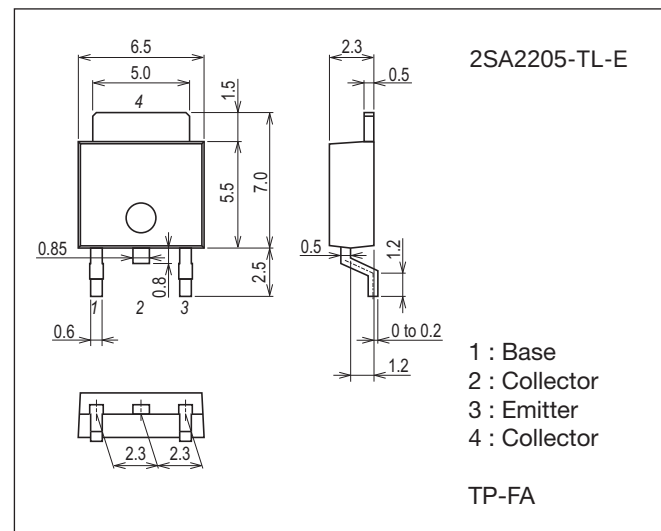
Package Dimensions unit : mm (typ)

7518-003



Package Dimensions unit : mm (typ)

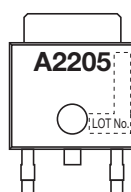
7003-003



Product & Package Information

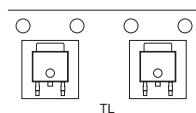
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

Marking (TP, TP-FA)

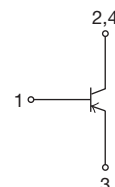


- Package : TP-FA
- JEITA, JEDEC : SC-63, TO-252
- Minimum Packing Quantity : 700 pcs./reel

Packing Type (TP-FA) : TL



Electrical Connection



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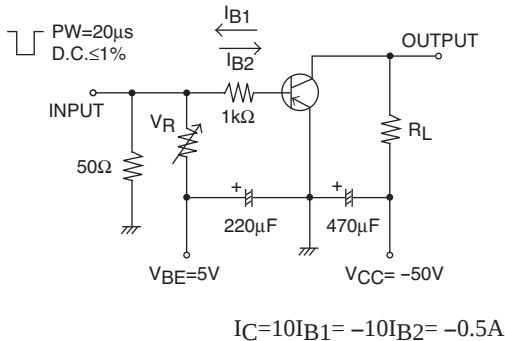
Parameter	Symbol	Conditions	Ratings	Unit
Collector Current	I_C		-2	A
Collector Current (Pulse)	I_{CP}		-3	A
Base Current	I_B		-400	mA
Collector Dissipation	P_C		0.8	W
		$T_C=25^\circ\text{C}$	15	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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 $T_a=25^\circ\text{C}$

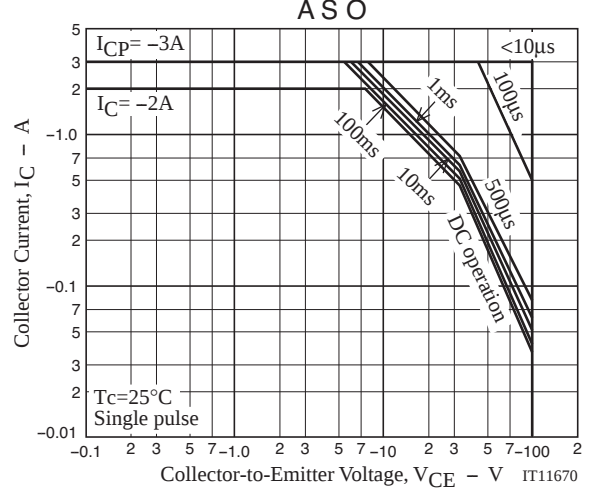
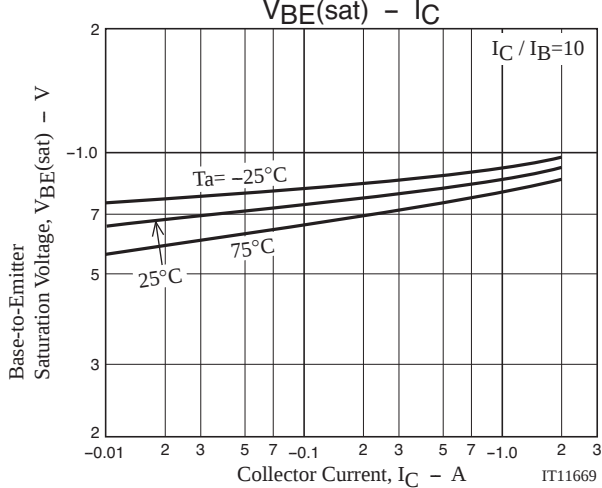
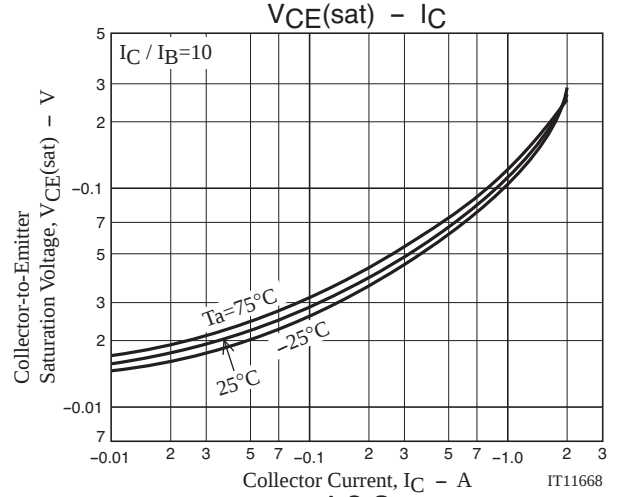
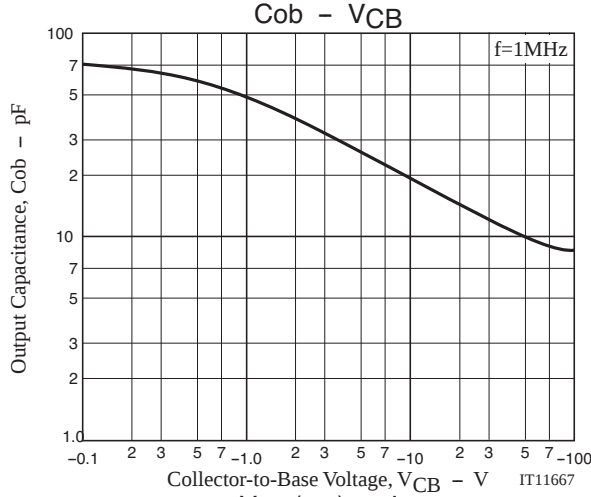
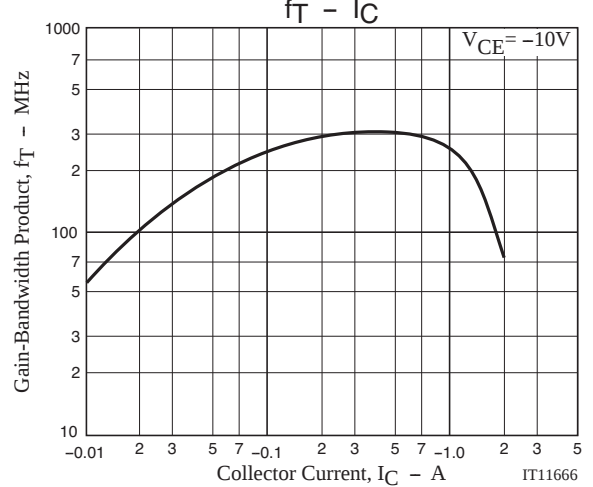
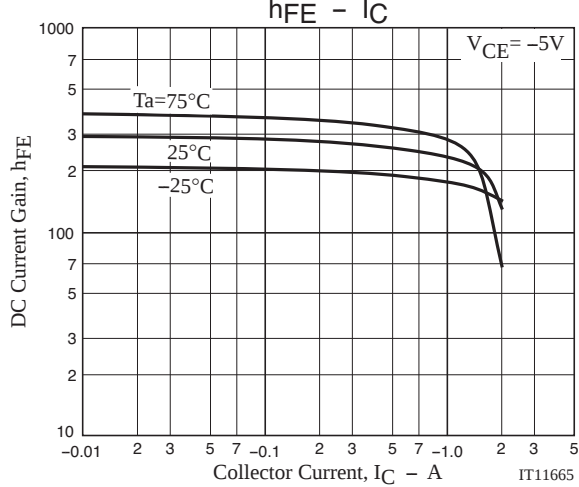
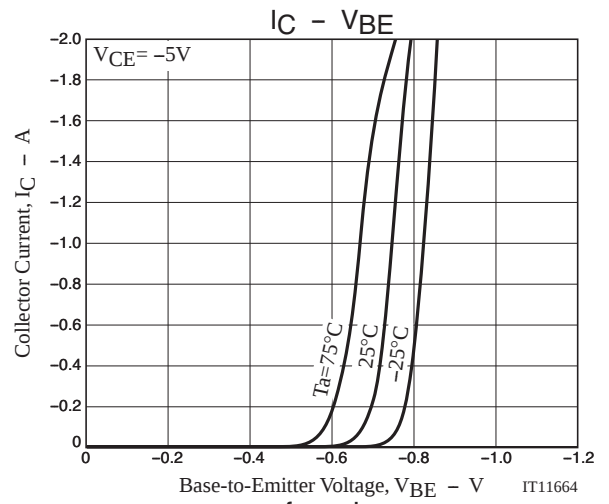
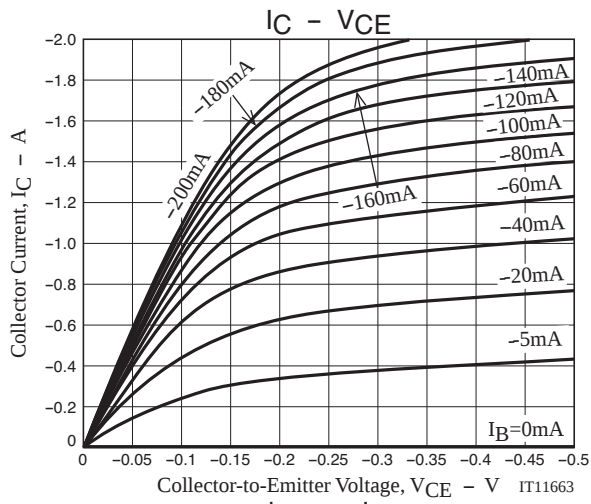
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=-80\text{V}, I_E=0\text{A}$			-1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0\text{A}$			-1	μA
DC Current Gain	h_{FE}	$V_{CE}=-5\text{V}, I_C=-100\text{mA}$	200		400	
Gain-Bandwidth Product	f_T	$V_{CE}=-10\text{V}, I_C=-500\text{mA}$		300		MHz
Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, f=1\text{MHz}$		20		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-1\text{A}, I_B=-100\text{mA}$		-120	-240	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-1\text{A}, I_B=-100\text{mA}$		-0.85	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0\text{A}$	-100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=-100\mu\text{A}, R_{BE}=0\Omega$	-100			V
	$V_{(BR)CEO}$	$I_C=-1\text{mA}, R_{BE}=\infty$	-100			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0\text{A}$	-7			V
Turn-ON Time	t_{on}	See specified Test Circuit.		40		ns
Storage Time	t_{stg}			600		ns
Fall Time	t_f			30		ns

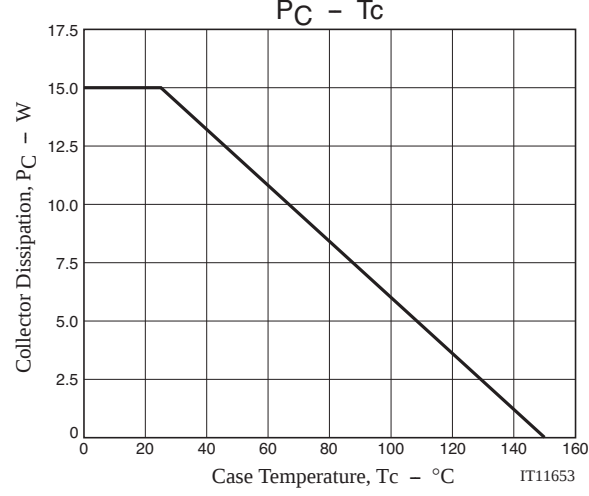
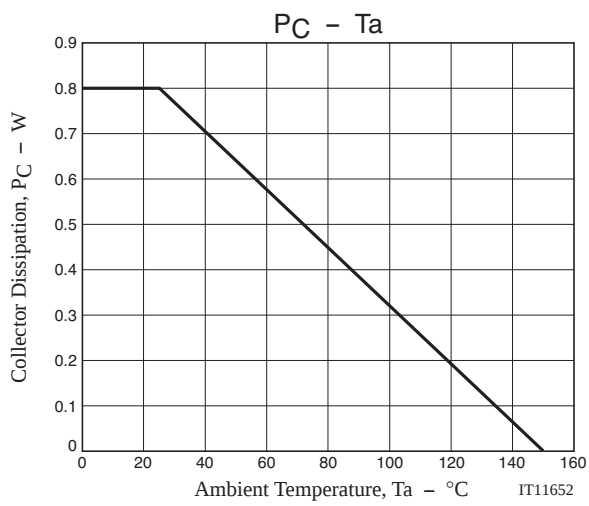
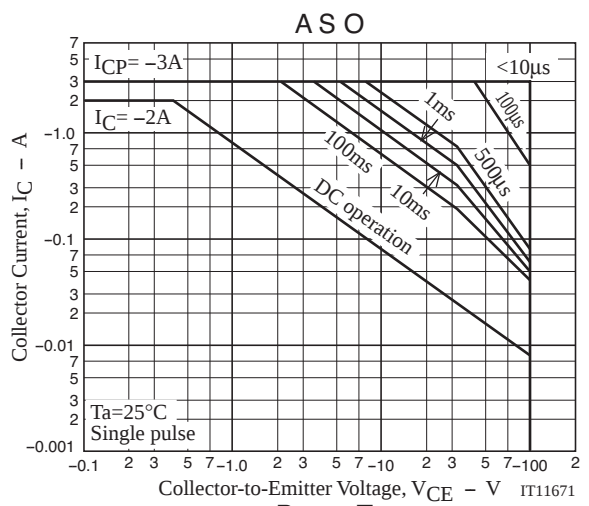
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
2SA2205-E	TP	500pcs./bag	Pb Free
2SA2205-TL-E	TP-FA	700pcs./reel	





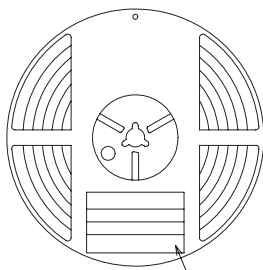
Taping Specification

2SA2205-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

Packing method



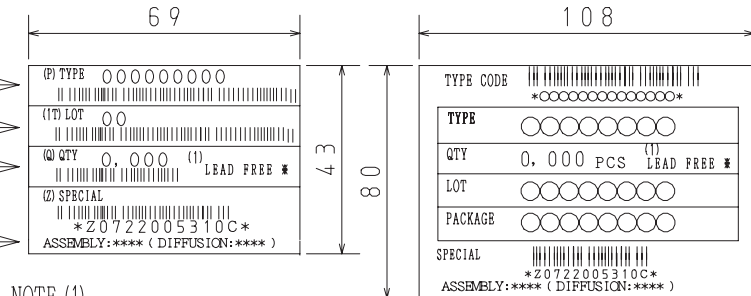
Reel label

Type No.
LOT No.
Quantity
Origin

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.



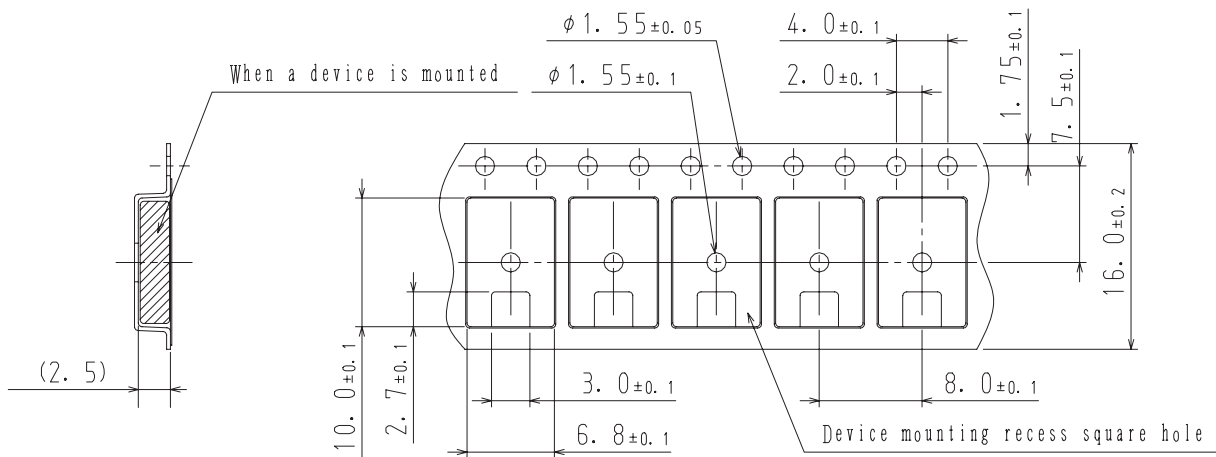
NOTE (1)

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

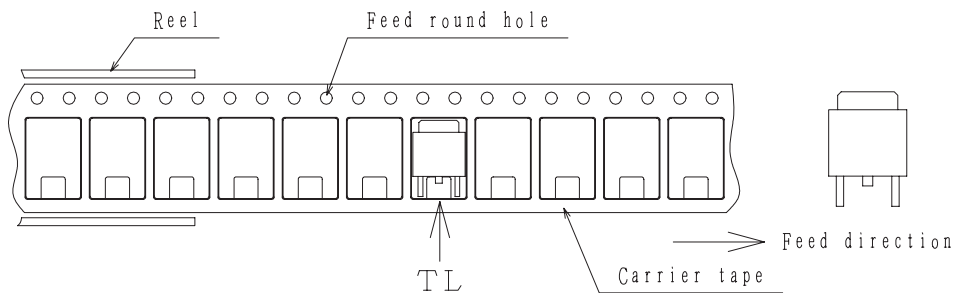
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

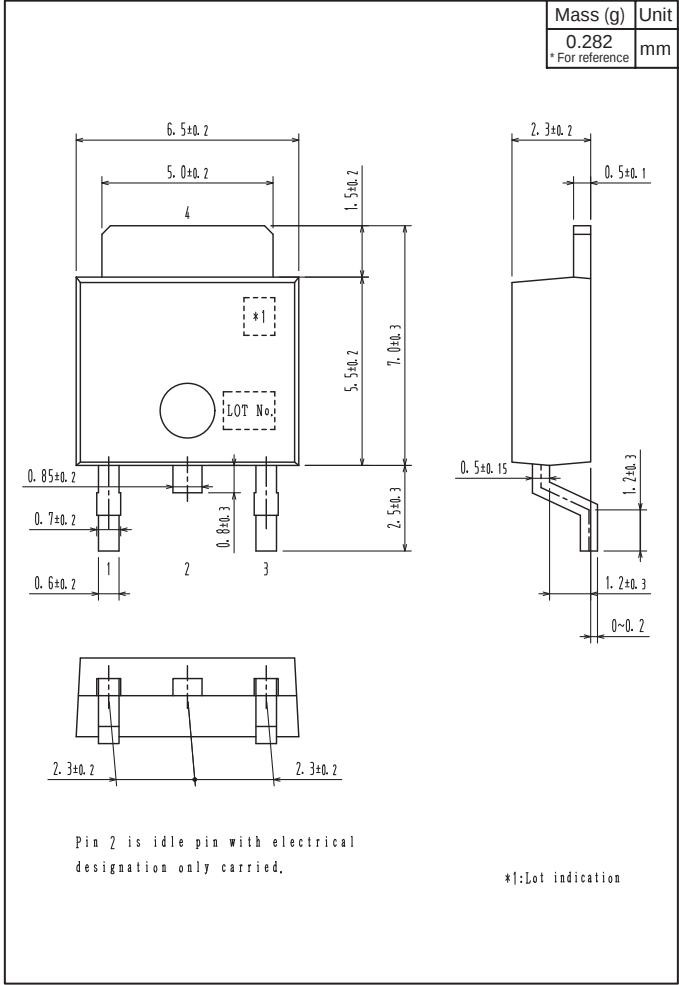
1. Carrier tape size (unit:mm)



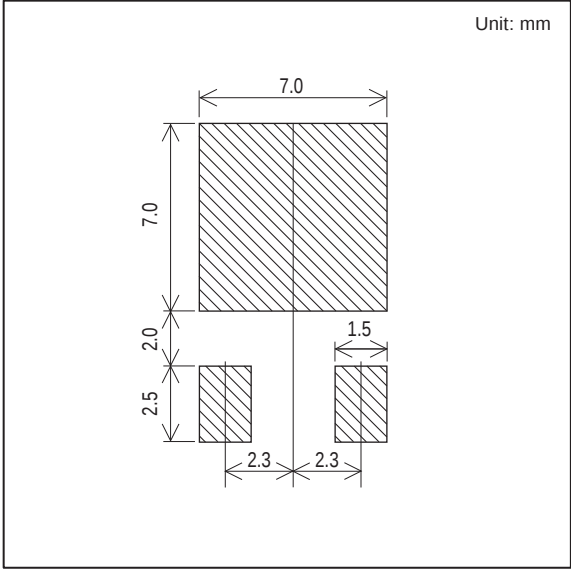
2. Device placement direction



Outline Drawing
2SA2205-TL-E



Land Pattern Example

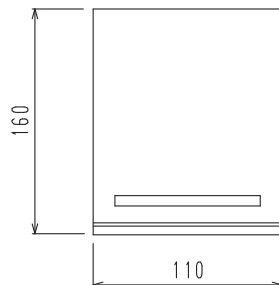
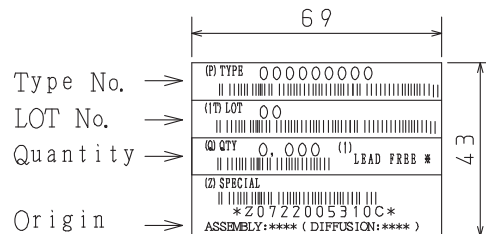


Bag Packing Specification

2SA2205-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

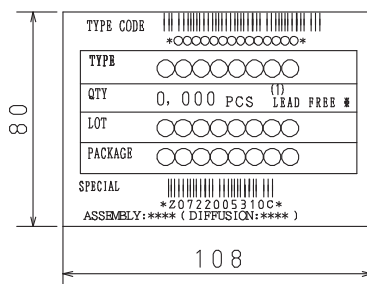
2. Bag dimensions
(unit:mm)3. Bag label, Inner box label
(unit:mm)4. Outer box label
(unit:mm)

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

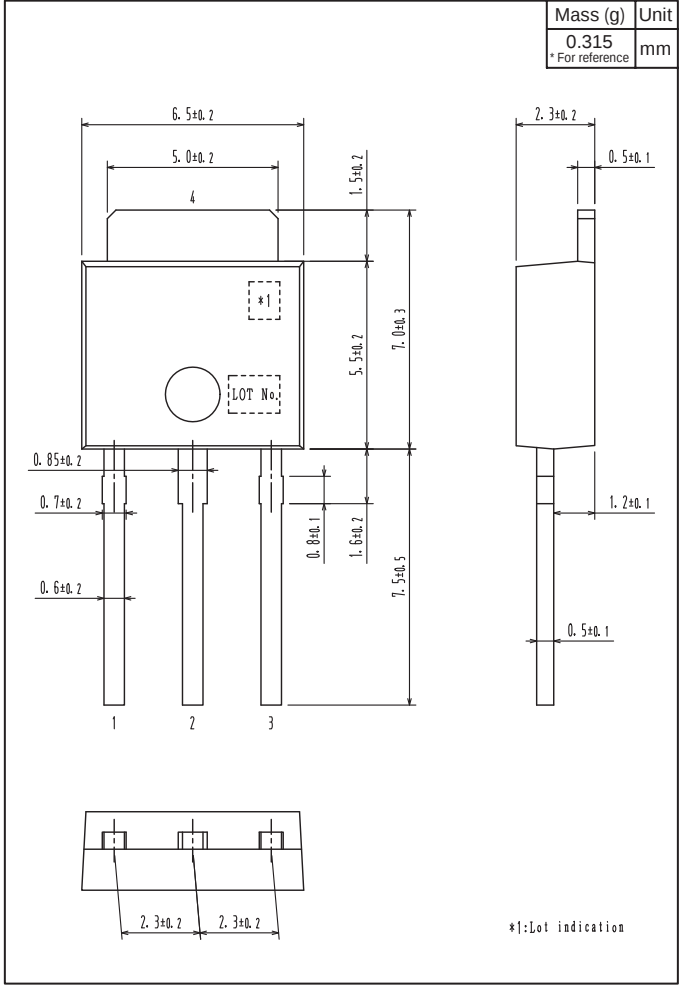
NOTE (1)

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



Outline Drawing
2SA2205-E



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