



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SA2125/2SC5964 — PNP / NPN Epitaxial Planar Silicon Transistor DC / DC Converter Applications

Applications

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

Features

- Adoption of MBIT process
- Low collector-to-emitter saturation voltage
- Halogen free compliance
- Large current capacity
- High-speed switching

Specifications () : 2SA2125

Absolute Maximum Ratings at Ta=25°C

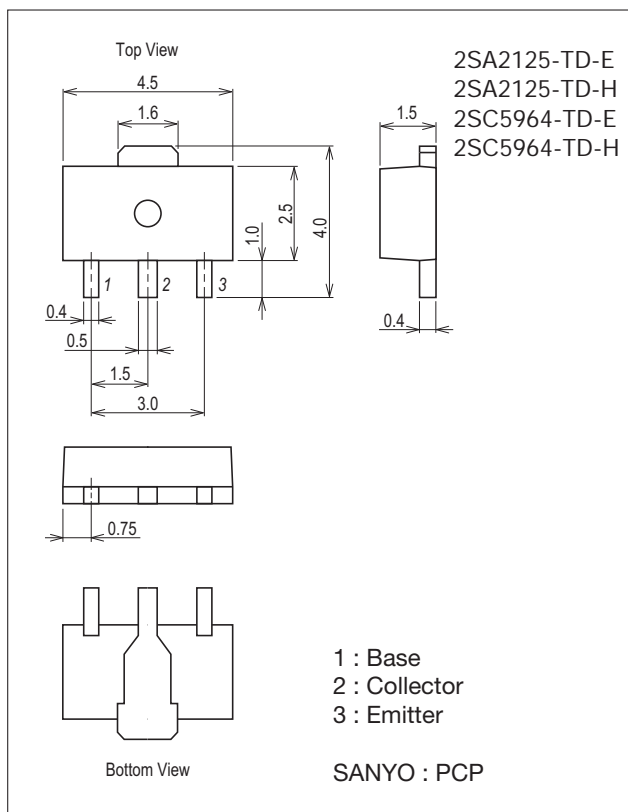
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		(-50)100	V
Collector-to-Emitter Voltage	VCES		(-50)100	V
	VCEO		(-50)	V
Emitter-to-Base Voltage	VEBO		(-6)	V

Continued on next page.

Package Dimensions

unit : mm (typ)

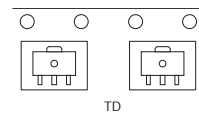
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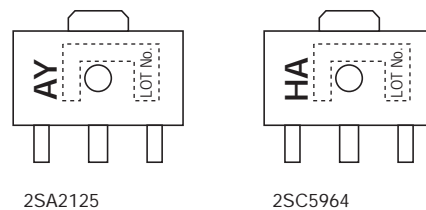
Product & Package Information

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

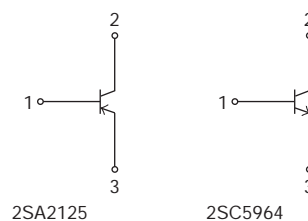
Packing Type: TD



Marking



Electrical Connection



2SA2125 / 2SC5964

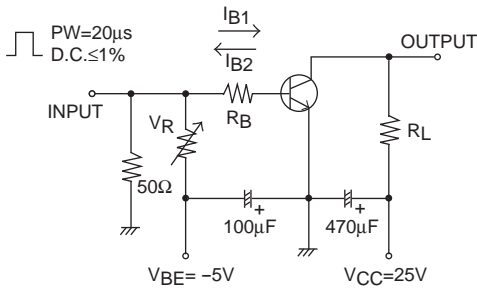
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Parameter	Symbol	Conditions	Ratings	Unit
Collector Current	I_C		(-) 3	A
Collector Current (Pulse)	I_{CP}		(-) 6	A
Base Current	I_B		(-) 600	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (250mm ² ×0.8mm)	1.3	W
		$T_c=25^\circ\text{C}$	3.5	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}	$V_{CB}=-40\text{V}, I_E=0\text{A}$			(-) 1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0\text{A}$			(-) 1	μA
DC Current Gain	h_{FE}	$V_{CE}=-2\text{V}, I_C=-100\text{mA}$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE}=-10\text{V}, I_C=-500\text{mA}$		(390)380		MHz
Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, f=1\text{MHz}$		(24)13		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=-1\text{A}, I_B=-50\text{mA}$		(-125)100	(-230)150	mV
	$V_{CE(sat)2}$	$I_C=-2\text{A}, I_B=-100\text{mA}$		(-250)190	(-500)290	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-2\text{A}, I_B=-100\text{mA}$		(-) 0.94	(-) 1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0\text{A}$	(-) 50	100		V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=-100\mu\text{A}, R_{BE}=0\Omega$	(-) 50	100		V
	$V_{(BR)CEO}$	$I_C=-1\text{mA}, R_{BE}=\infty$	(-) 50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0\text{A}$	(-) 6			V
Turn-ON Time	t_{on}	See specified Test Circuit.		(30)35		ns
Storage Time	t_{stg}			(230)300		ns
Fall Time	t_f			(18)25		ns

Switching Time Test Circuit

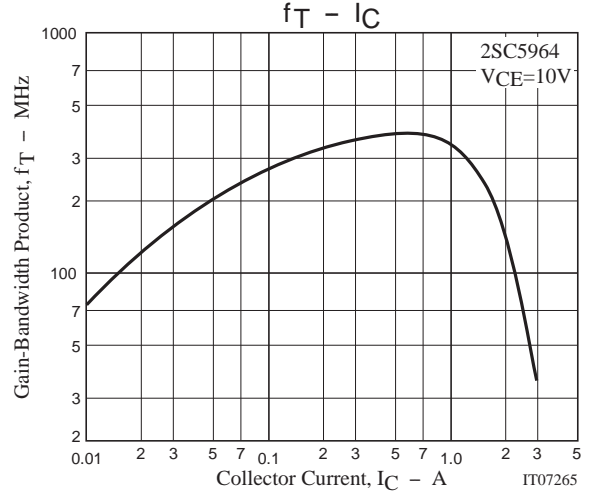
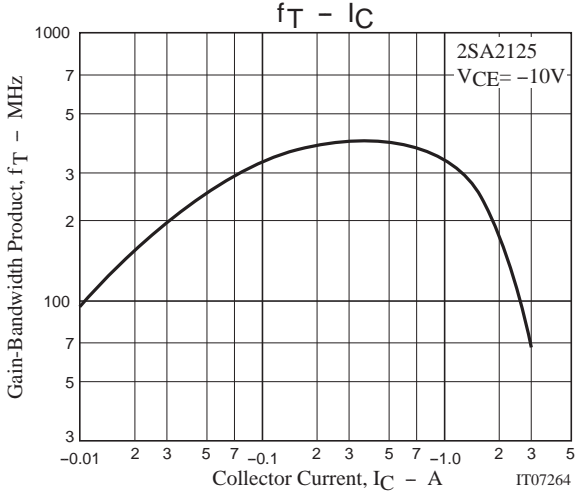
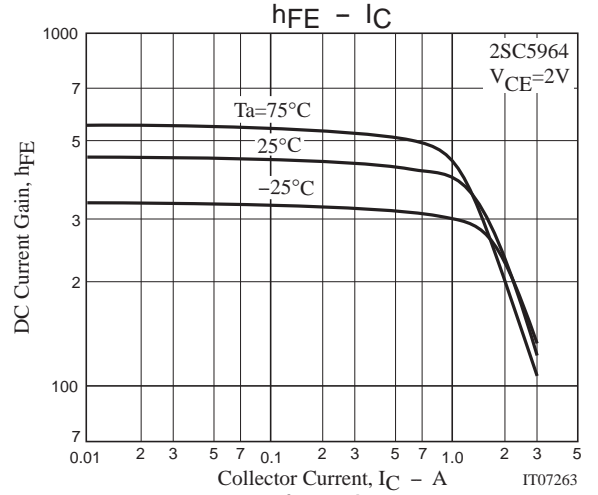
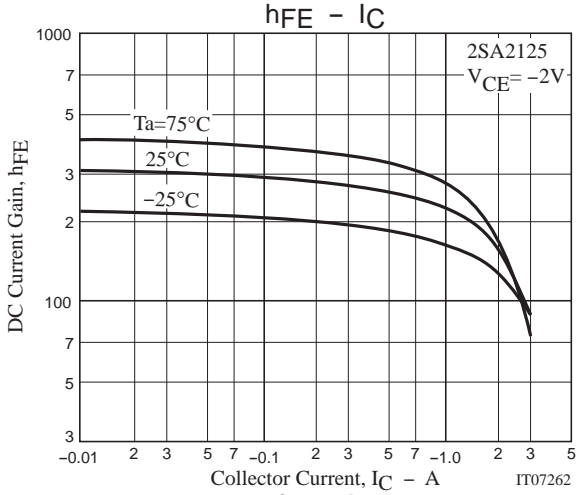
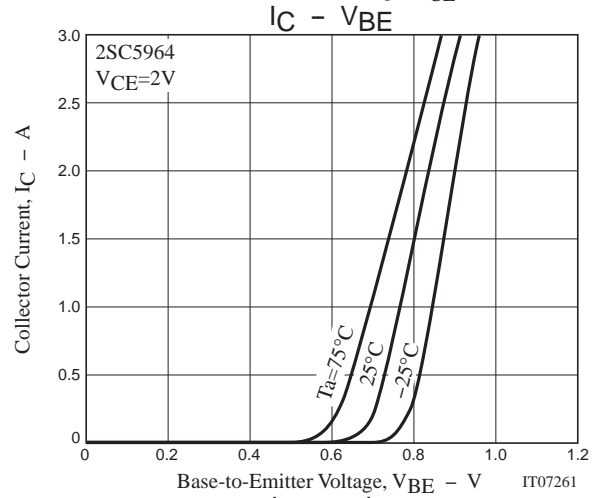
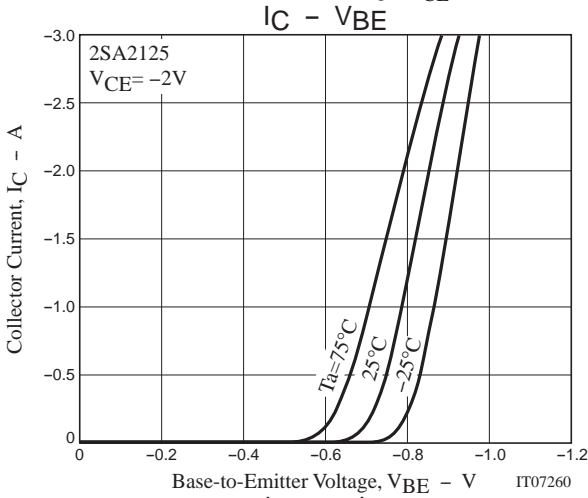
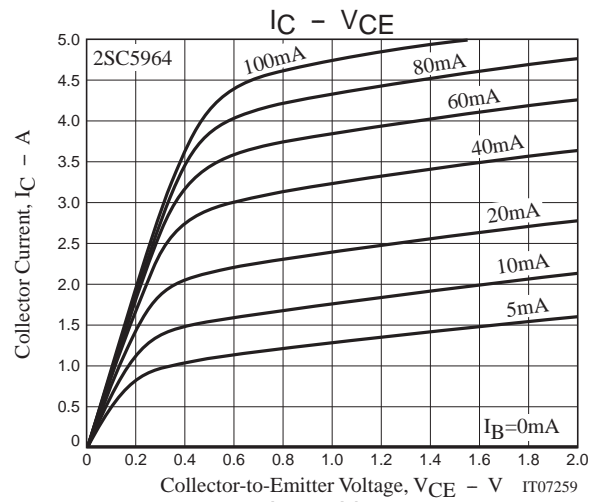
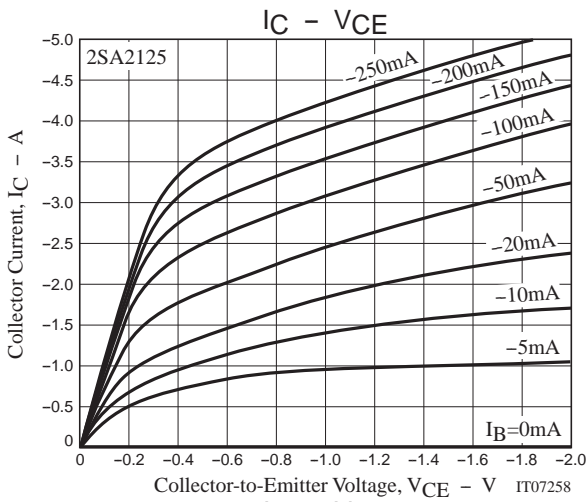


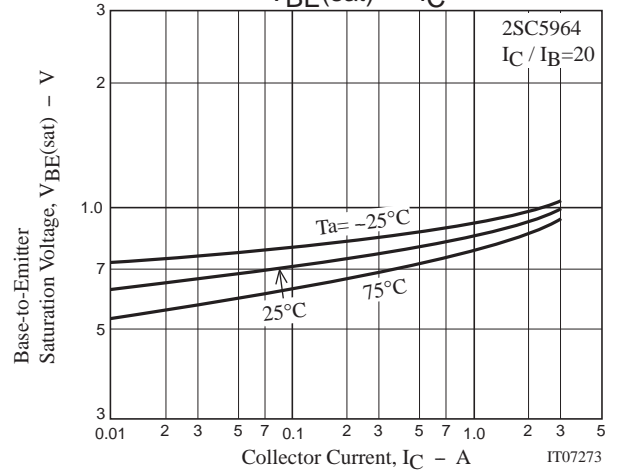
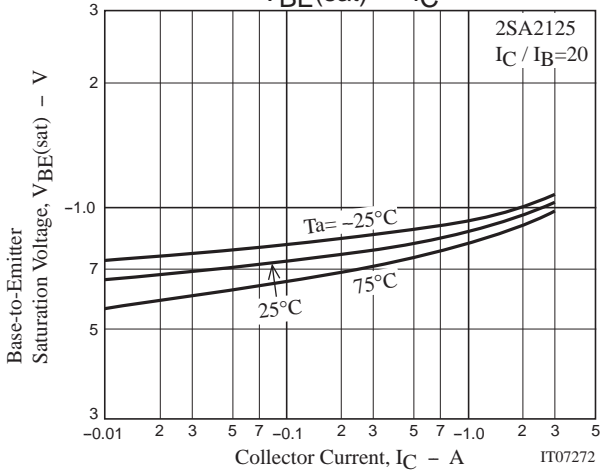
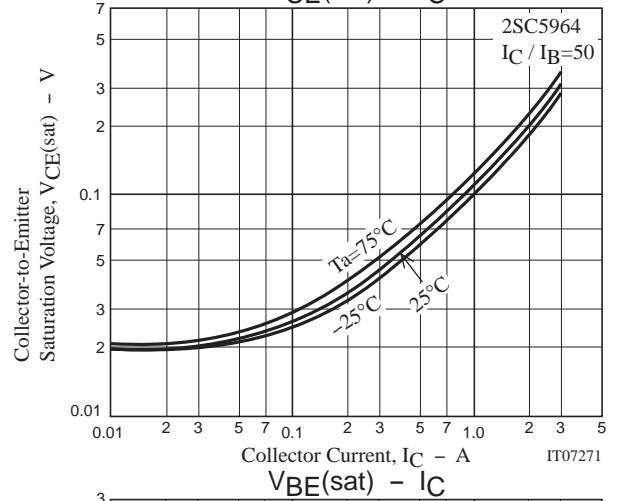
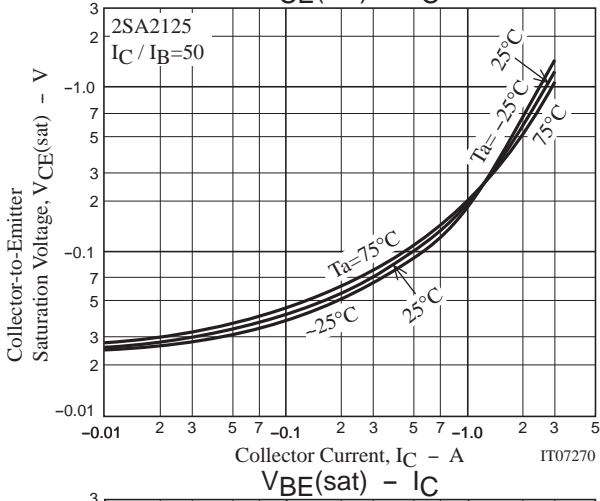
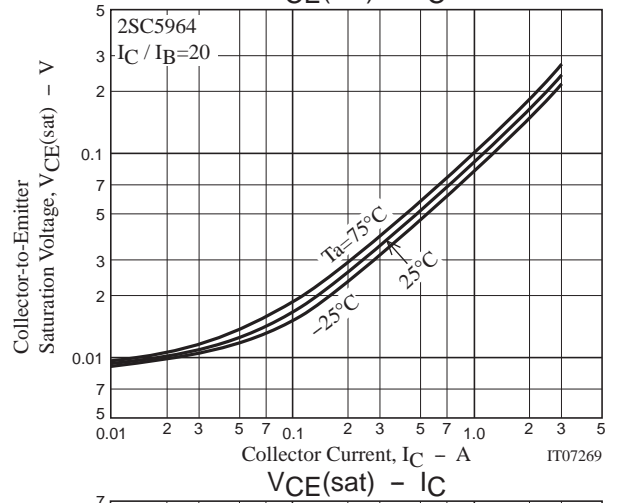
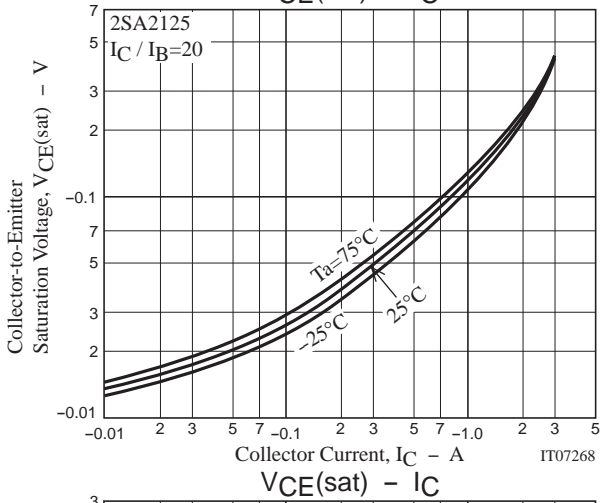
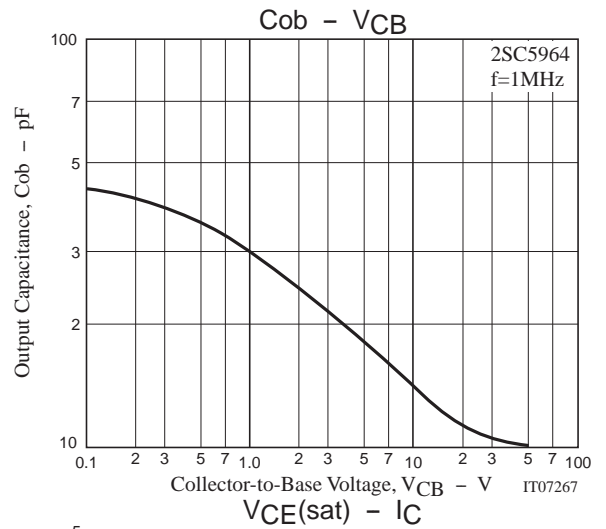
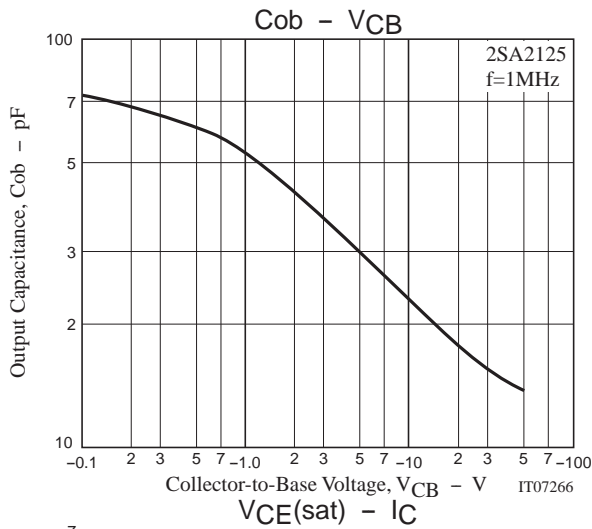
$$I_C = 10I_{B1} = -10I_{B2} = 1\text{A}$$

For PNP, the polarity is reversed.

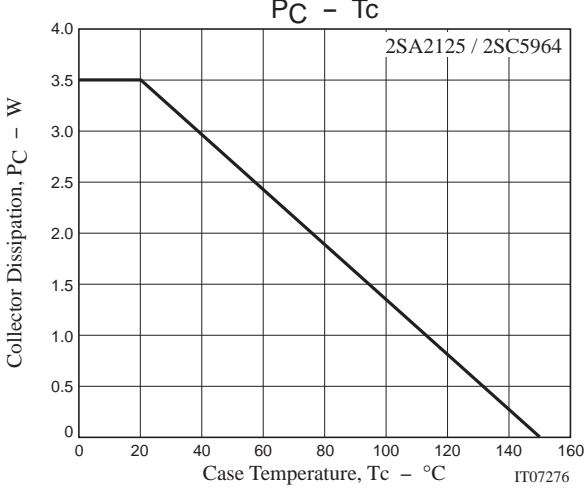
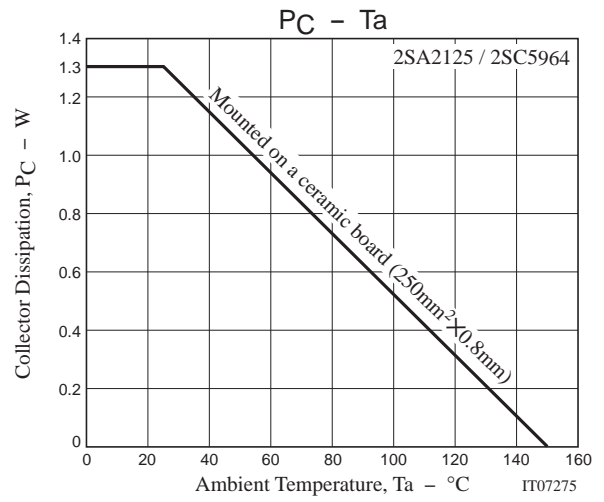
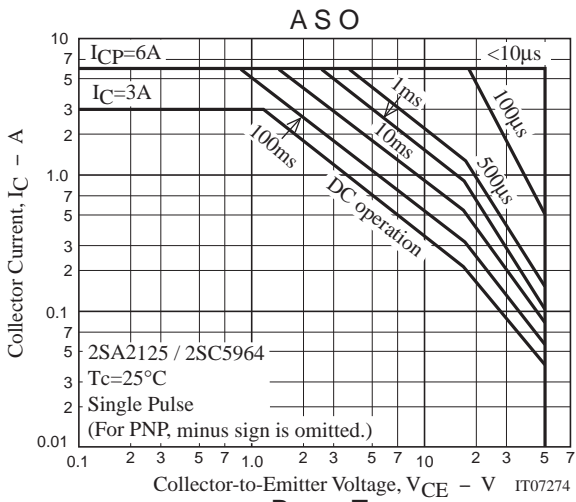
Ordering Information

Device	Package	Shipping	memo
2SA2125-TD-E	PCP	1,000pcs./reel	Pb Free
2SA2125-TD-H	PCP	1,000pcs./reel	Pb Free and Halogen Free
2SC5964-TD-E	PCP	1,000pcs./reel	Pb Free
2SC5964-TD-H	PCP	1,000pcs./reel	Pb Free and Halogen Free





2SA2125 / 2SC5964



Embossed Taping Specification

2SA2125-TD-E, 2SA2125-TD-H, 2SC5964-TD-E, 2SC5964-TD-H

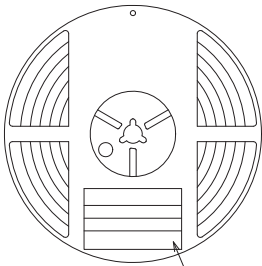
1. Packing Format

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

Reel label, Inner box label
(unit :mm)

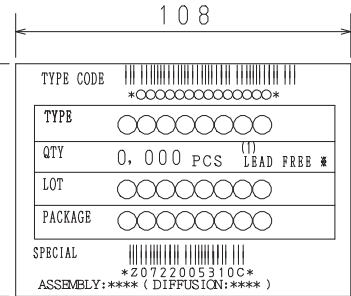
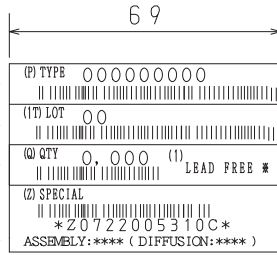
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Type No.
LOT No.
Quantity
Origin

Reel label



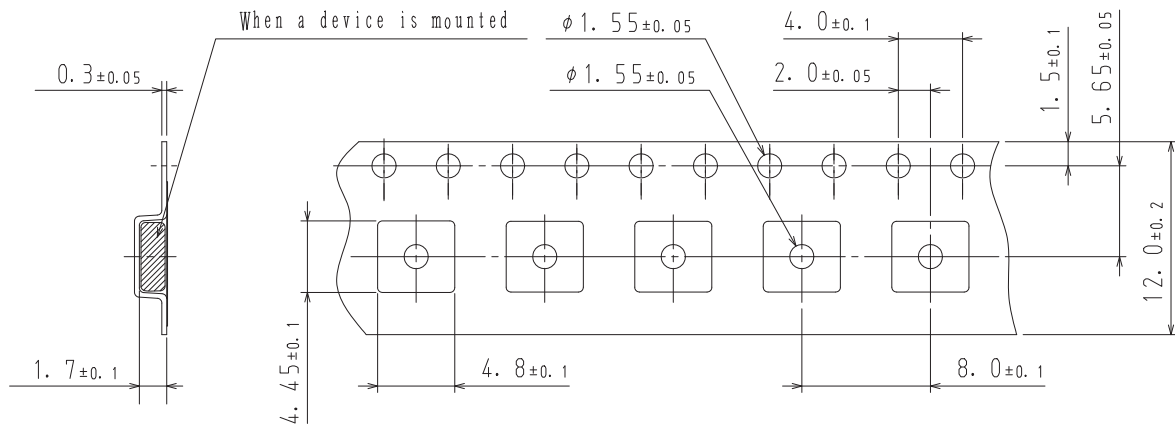
NOTE (1)

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

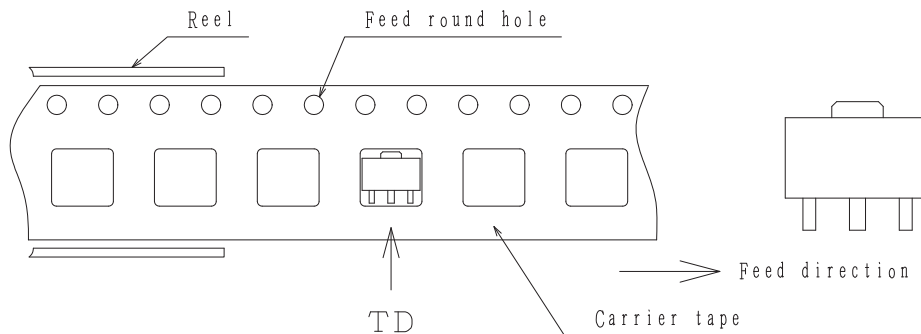
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction



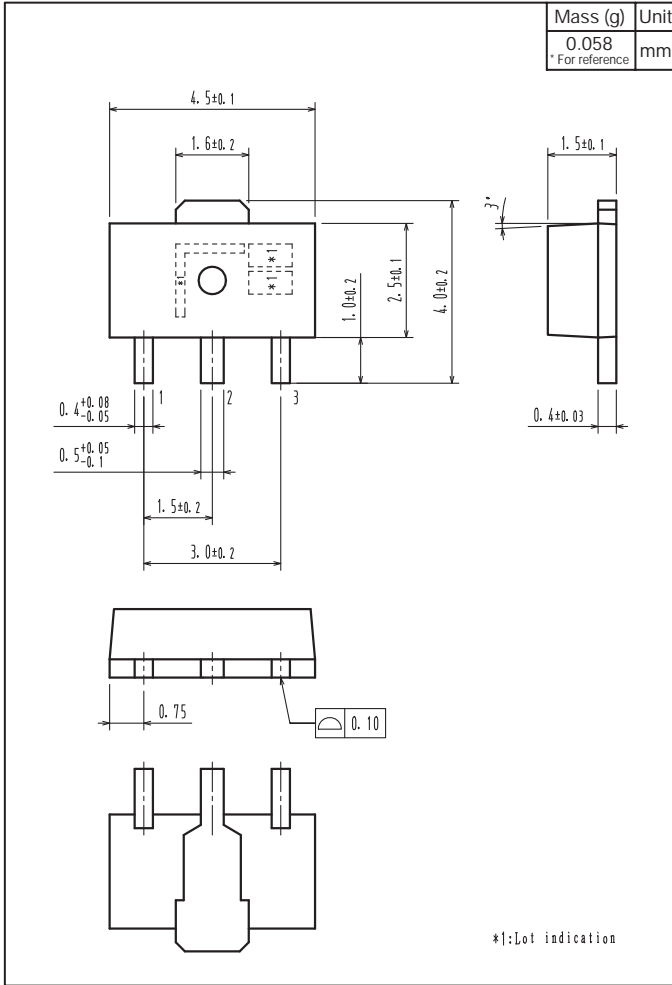
Those with pin 1 index on the feed hole side.....TD

2SA2125 / 2SC5964

Outline Drawing

Land Pattern Example

2SA2125-TD-E, 2SA2125-TD-H, 2SC5964-TD-E, 2SC5964-TD-H



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