



SANYO Semiconductors

DATA SHEET

2SA1552/2SC4027 — High-Voltage Switching Applications

PNP/NPN Epitaxial Planar Silicon Transistor

Applications

- Converters, inverters, color TV audio output

Features

- Adoption of FBET, MBIT processes
- High voltage and large current capacity
- Ultrahigh-speed switching
- Small and slim package permitting 2SA1552 / 2SC4027-applied sets to be made more compact

Specifications () : 2SA1552

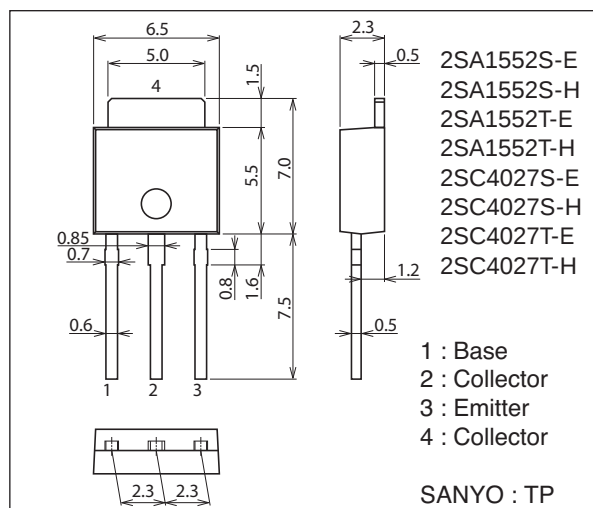
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-)180	V
Collector-to-Emitter Voltage	V _{CE0}		(-)160	V
Emitter-to-Base Voltage	V _{EB0}		(-)6	V
Collector Current	I _C		(-)1.5	A
Collector Current (Pulse)	I _{CP}		(-)2.5	A

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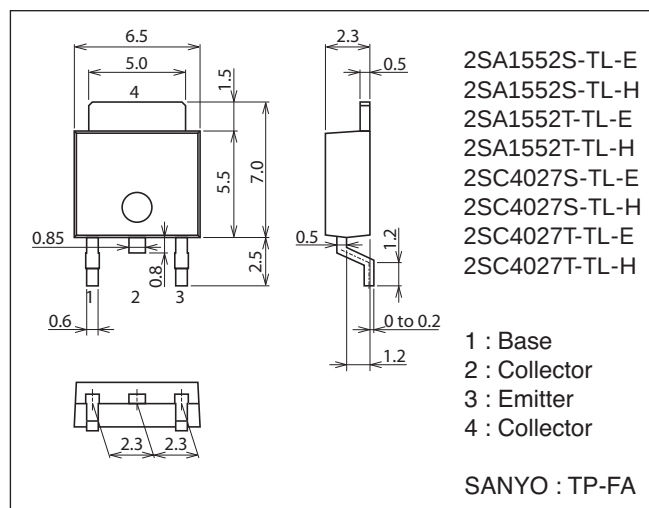
Package Dimensions unit : mm (typ)

7518-003



Package Dimensions unit : mm (typ)

7003-003

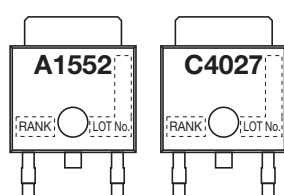


Product & Package Information

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

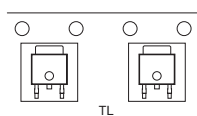
Marking

(TP, TP-FA)

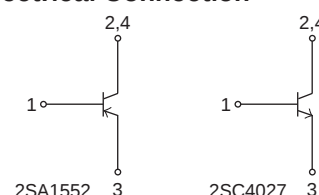


- Package : TP-FA
- JEITA, JEDEC : SC-63, TO-252
- Minimum Packing Quantity : 700 pcs./reel

Packing Type (TP-FA) : TL



Electrical Connection



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2SA1552/2SC4027

Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Collector Dissipation	P _C		1	W
		T _c =25°C	15	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

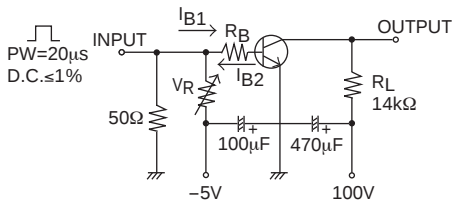
Electrical Characteristics at T_a=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CBO}	V _{CB} =(-)120V, I _E =0A			(-)1.0	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =(-)4V, I _C =0A			(-)1.0	μA
DC Current Gain	h _{FE1}	V _{CE} =(-)5V, I _C =(-)100mA	100*		400*	
	h _{FE2}	V _{CE} =(-)5V, I _C =(-)10mA	80			
Gain-Bandwidth Product	f _T	V _{CE} =(-)10V, I _C =(-)50mA		120		MHz
Output Capacitance	C _{ob}	V _{CB} =(-)10V, f=1MHz		(22)12		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =(-)500mA, I _B =(-)50mA		(-0.2)0.13	(-0.5)0.45	V
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =(-)500mA, I _B =(-)50mA		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =(-)10μA, I _E =0A	(-)180			V
Collector-to-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =(-)1mA, R _{BE} =∞	(-)160			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.		60		ns
Storage Time	t _{stg}			(0.7)1.2		μs
Fall Time	t _f			(50)80		ns

* : The 2SA1552 / 2SC4027 are classified by 100mA h_{FE} as follows : (unit : μA)

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

Switching Time Test Circuit

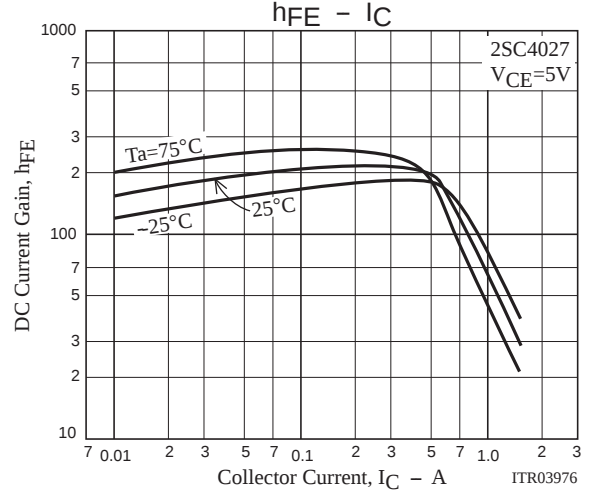
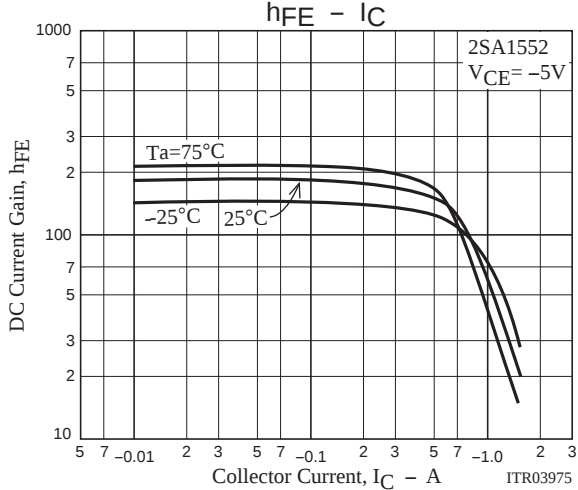
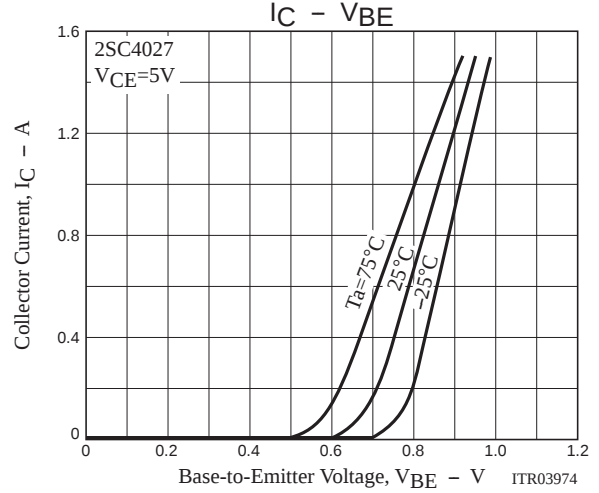
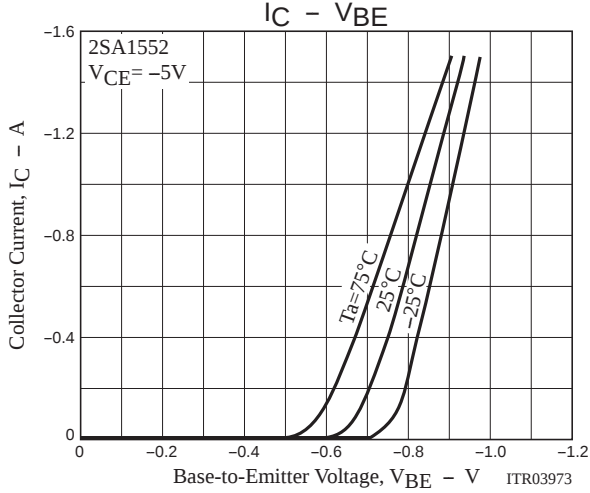
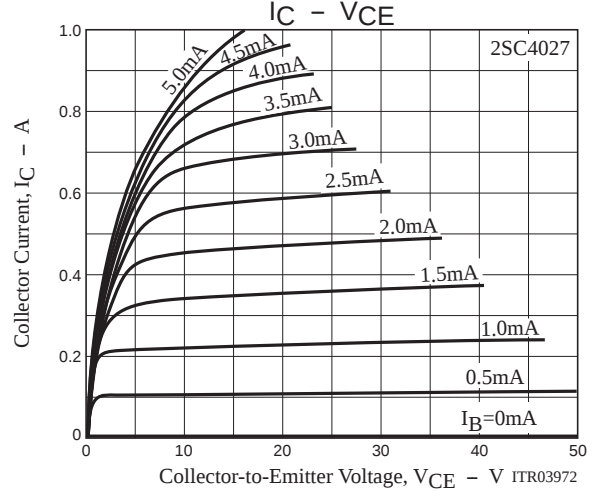
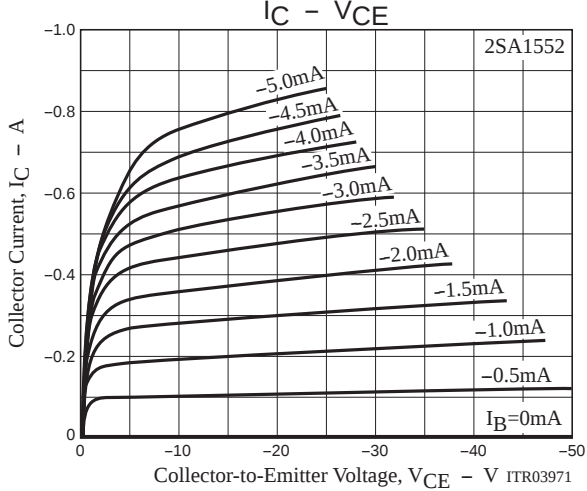
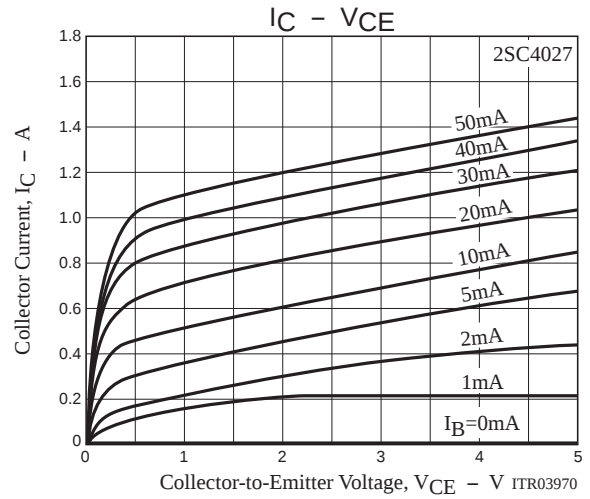
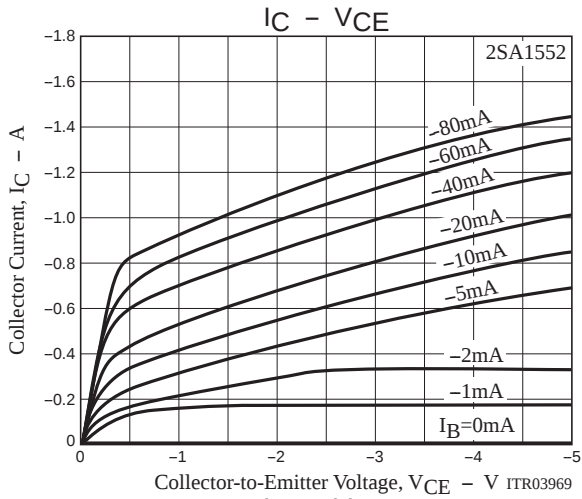


$$10I_{B1} = -10I_{B2} = I_C = 0.7A$$

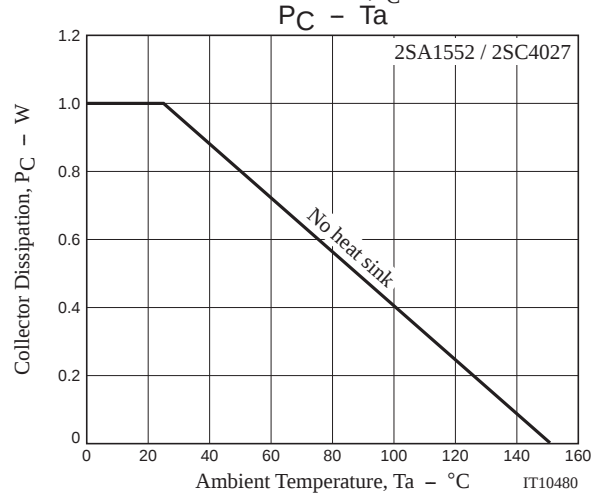
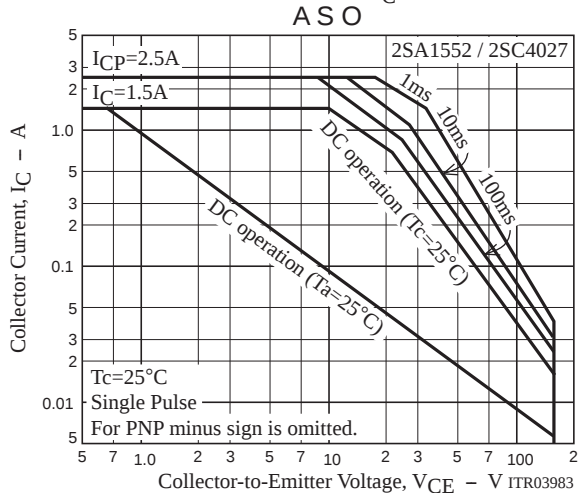
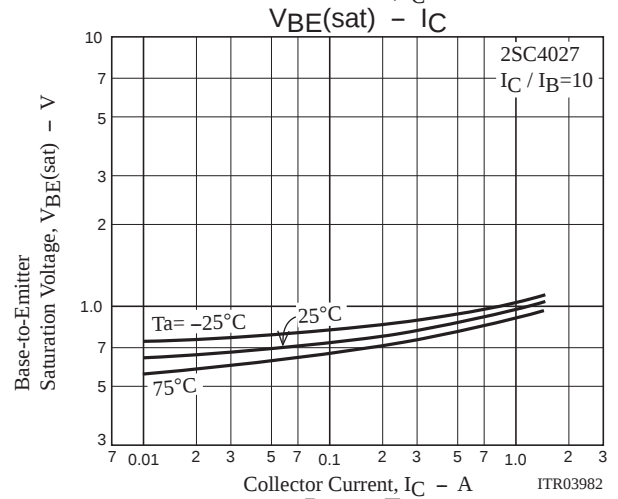
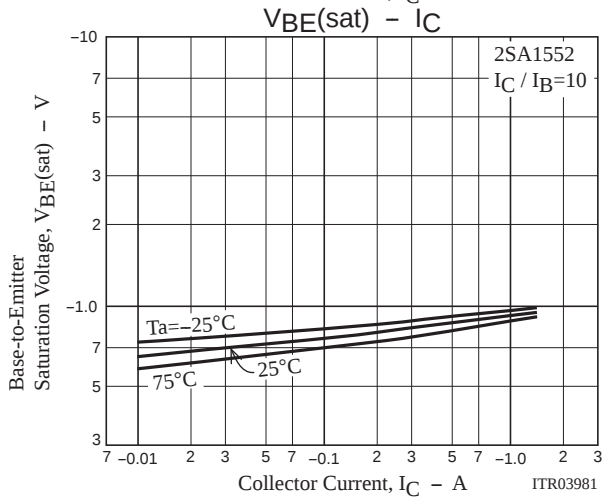
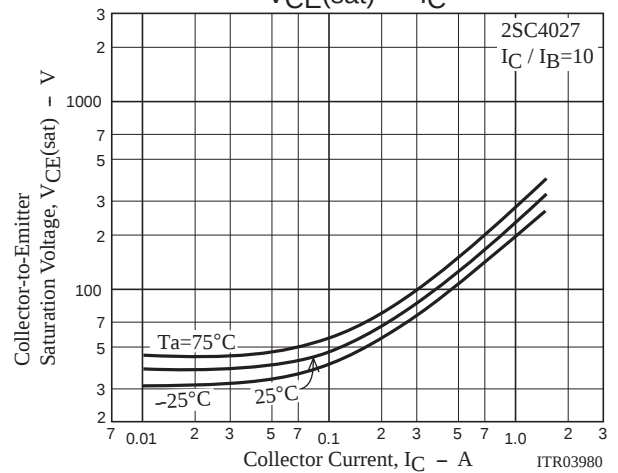
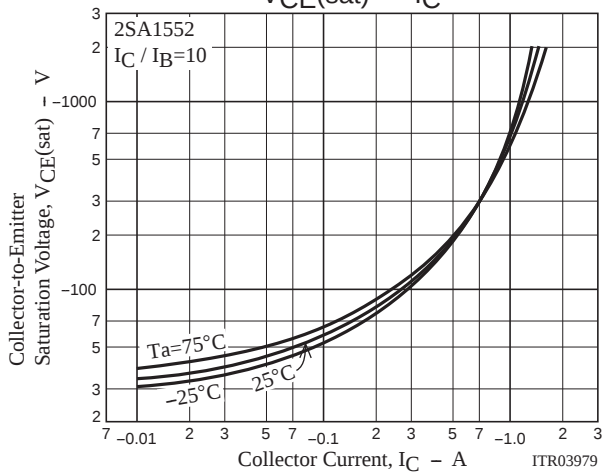
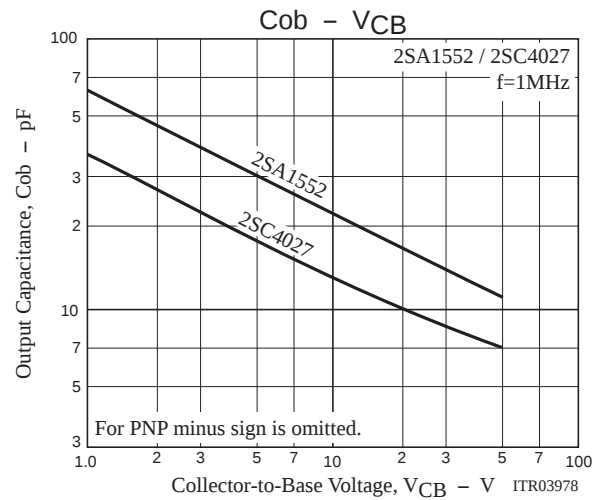
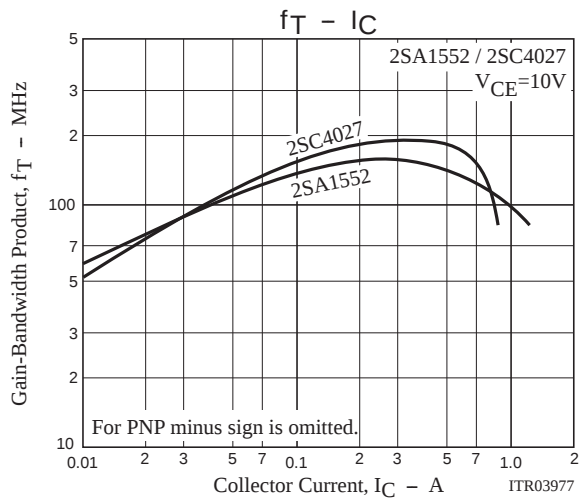
For PNP, the polarity is reversed.

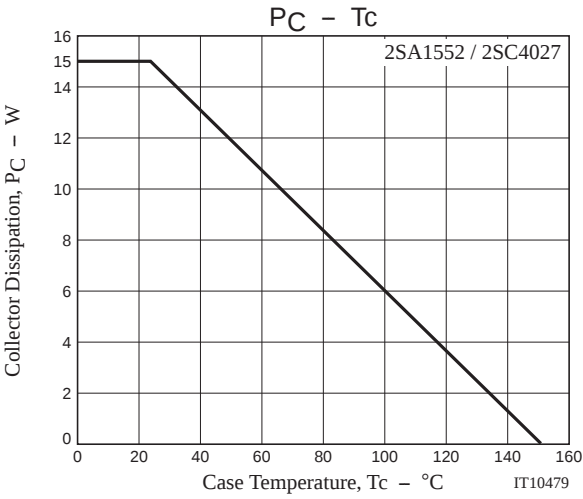
Ordering Information

Device	Package	Shipping	memo
2SA1552S-E	TP	500pcs./bag	Pb Free
2SA1552S-H	TP	500pcs./bag	Pb Free and Halogen Free
2SA1552T-E	TP	500pcs./bag	Pb Free
2SA1552T-H	TP	500pcs./bag	Pb Free and Halogen Free
2SC4027S-E	TP	500pcs./bag	Pb Free
2SC4027S-H	TP	500pcs./bag	Pb Free and Halogen Free
2SC4027T-E	TP	500pcs./bag	Pb Free
2SC4027T-H	TP	500pcs./bag	Pb Free and Halogen Free
2SA1552S-TL-E	TP-FA	700pcs./reel	Pb Free
2SA1552S-TL-H	TP-FA	700pcs./reel	Pb Free and Halogen Free
2SA1552T-TL-E	TP-FA	700pcs./reel	Pb Free
2SA1552T-TL-H	TP-FA	700pcs./reel	Pb Free and Halogen Free
2SC4027S-TL-E	TP-FA	700pcs./reel	Pb Free
2SC4027S-TL-H	TP-FA	700pcs./reel	Pb Free and Halogen Free
2SC4027T-TL-E	TP-FA	700pcs./reel	Pb Free
2SC4027T-TL-H	TP-FA	700pcs./reel	Pb Free and Halogen Free



2SA1552/2SC4027





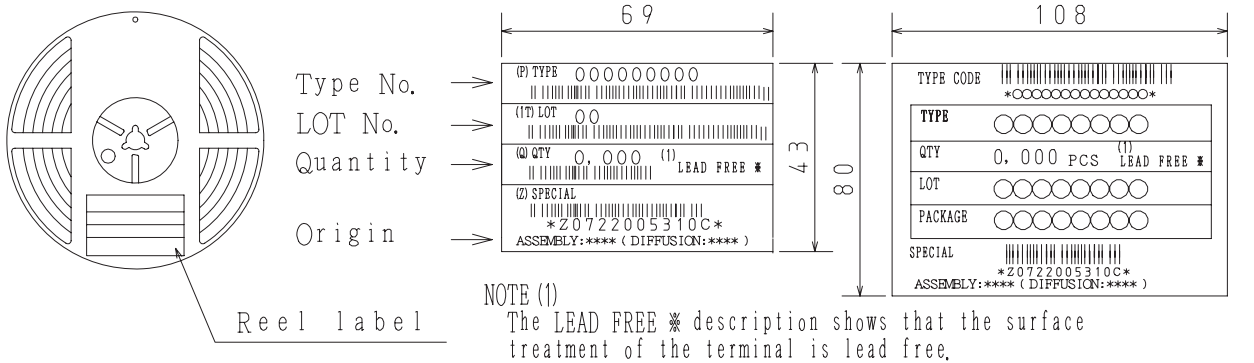
Taping Specification

2SA1552S-TL-E, 2SA1552S-TL-H, 2SA1552T-TL-E, 2SA1552T-TL-H, 2SC4027S-TL-E, 2SC4027S-TL-H, 2SC4027T-TL-E, 2SC4027T-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

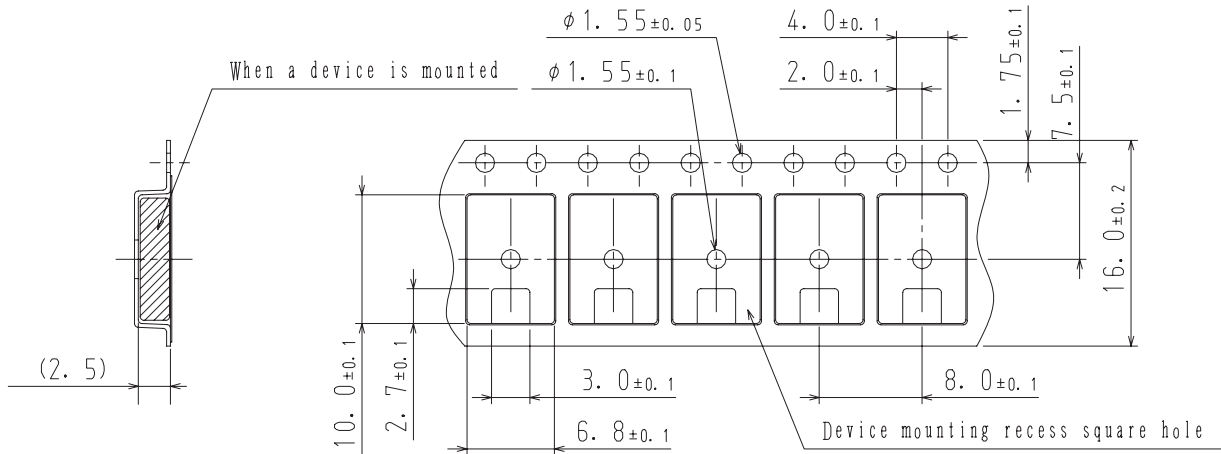
Packing method



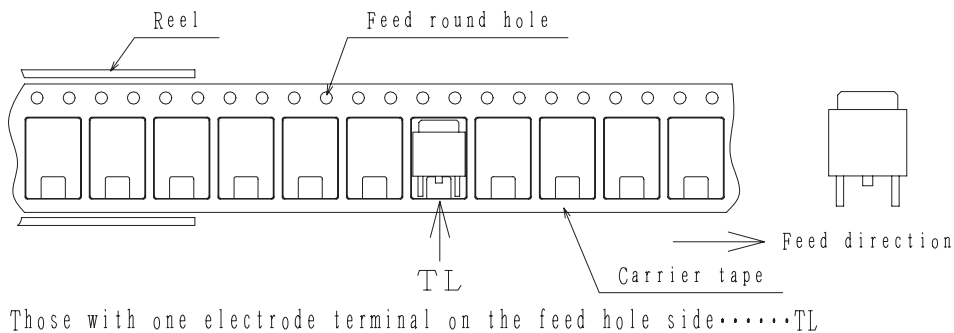
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

1. Carrier tape size (unit:mm)



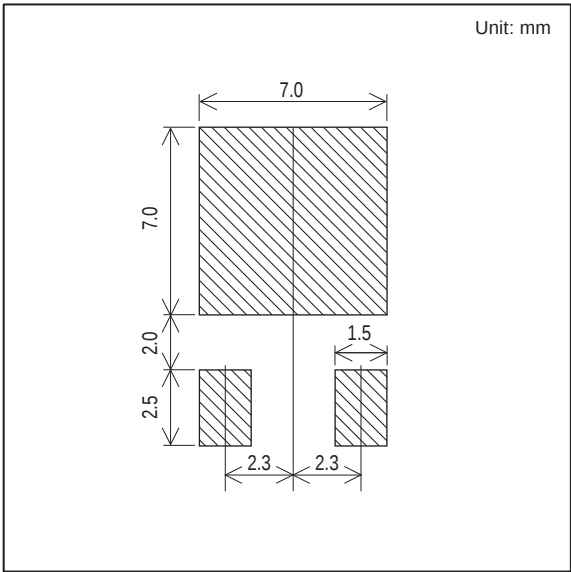
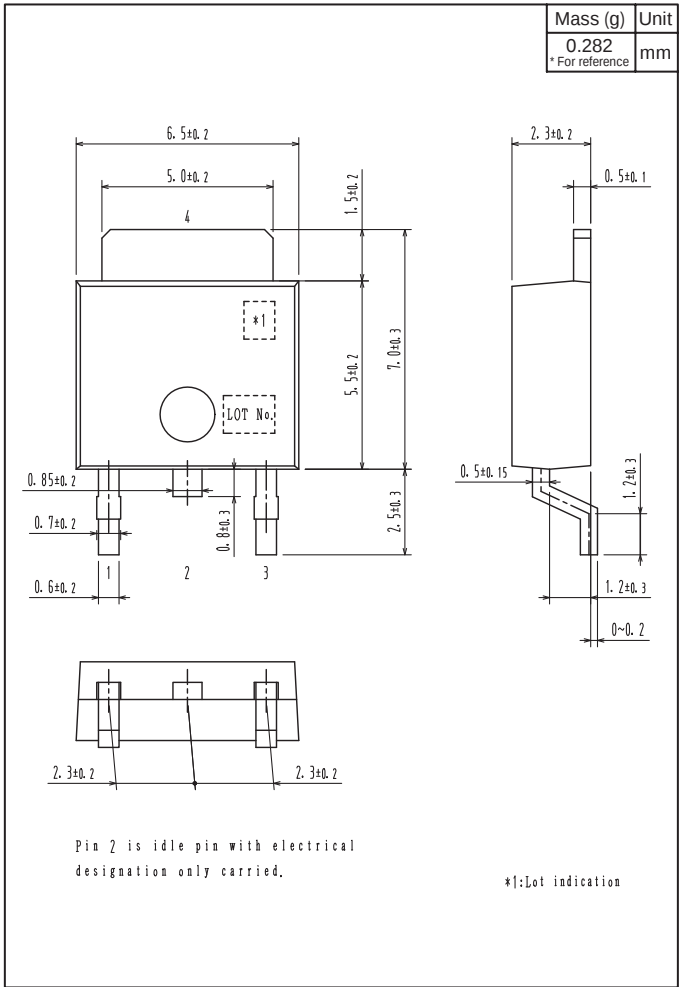
2. Device placement direction



Outline Drawing

Land Pattern Example

2SA1552S-TL-E, 2SA1552S-TL-H, 2SA1552T-TL-E, 2SA1552T-TL-H, 2SC4027S-TL-E, 2SC4027S-TL-H, 2SC4027T-TL-E, 2SC4027T-TL-H

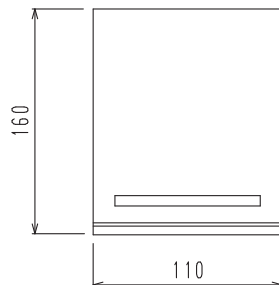


Bag Packing Specification

2SA1552S-E, 2SA1552S-H, 2SA1552T-E, 2SA1552T-H, 2SC4027S-E, 2SC4027S-H, 2SC4027T-E, 2SC4027T-H

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)

Type No. →	(P) TYPE 0000000000	43
LOT No. →	(1) LOT 00	
Quantity →	(Q) QTY 0,000 (1) LEAD FREE *	
Origin →	(2) SPECIAL *20722005310C* ASSEMBLY:**** (DIFFUSION:****)	

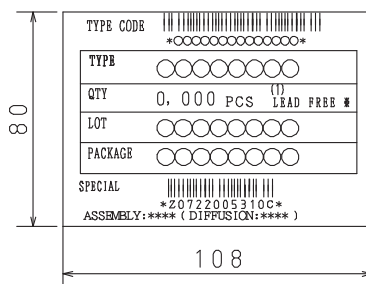
4. Outer box label
(unit:mm)

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

2SA1552S-E, 2SA1552S-H, 2SA1552T-E, 2SA1552T-H, 2SC4027S-E, 2SC4027S-H, 2SC4027T-E, 2SC4027T-H



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