Ordering number : EN2007C

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

PNP / NPN Epitaxial Planar Silicon Transistor

2SA1419/2SC3649 — High-Voltage Switching Applications

Features

- Adoption of FBET, MBIT processes
- High breakdown voltage and large current capacity
- Ultrasmall size making it easy to provide high-density, small-sized hybrid IC's

Specifications ( ) : 2SA1419

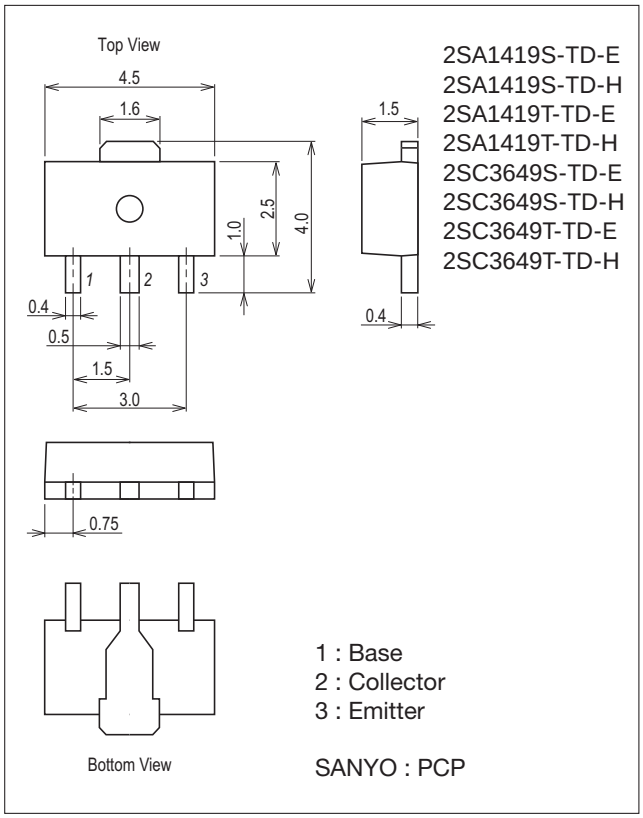
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)180	V
Collector-to-Emitter Voltage	V_{CEO}		(–)160	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)1.5	A
Collector Current (Pulse)	I_{CP}		(–)2.5	A
Collector Dissipation	P_C		500	mW
		When mounted on ceramic substrate (250mm^2×0.8mm)	1.5	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

Package Dimensions

unit : mm (typ)

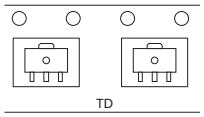
7007B-004



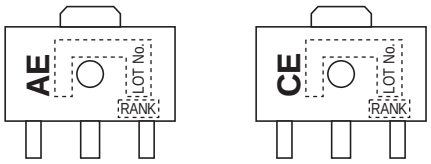
Product & Package Information

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

Packing Type: TD

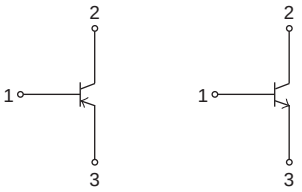


Marking



2SA1419 2SC3649

Electrical Connection



2SA1419 2SC3649

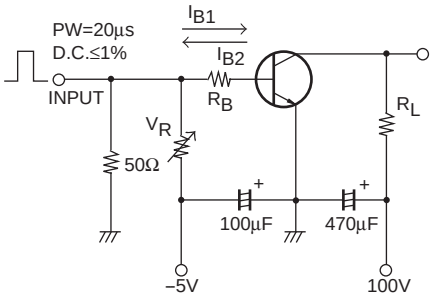
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(−)120V, I_E=0A			(−)1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(−)4V, I_C=0A			(−)1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(−)5V, I_C=(−)100mA	100*		400*	
	$h_{FE}2$	V_{CE}=(−)5V, I_C=(−)10mA	80			
Gain-Bandwidth Product	f_T	V_{CE}=(−)10V, I_C=(−)50mA		120		MHz
Output Capacitance	Cob	V_{CB}=(−)10V, f=1MHz		(22)14		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=(−)500mA, I_B=(−)50mA		(−200)130	(−500)450	mV
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.		(40)40		ns
Storage Time	t_{stg}			(0.7)1.2		μs
Fall Time	t_f			(40)80		ns

* : The 2SA1419 / 2SC3649 are classified by 100mA h_{FE} as follows :

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

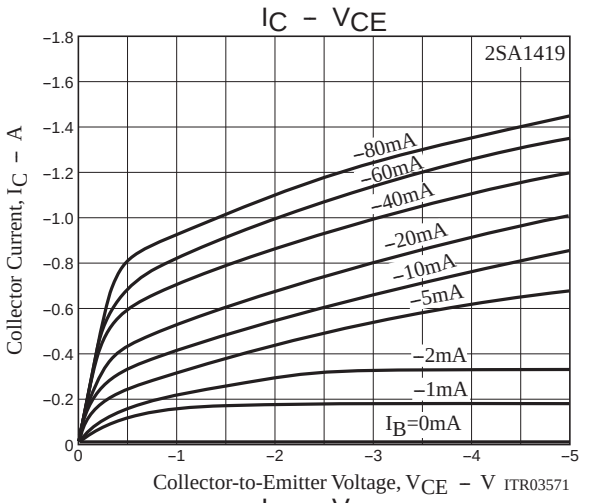
Switching Time Test Circuit

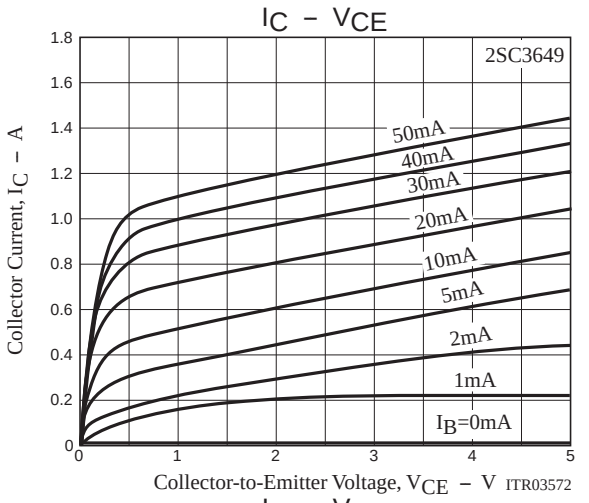


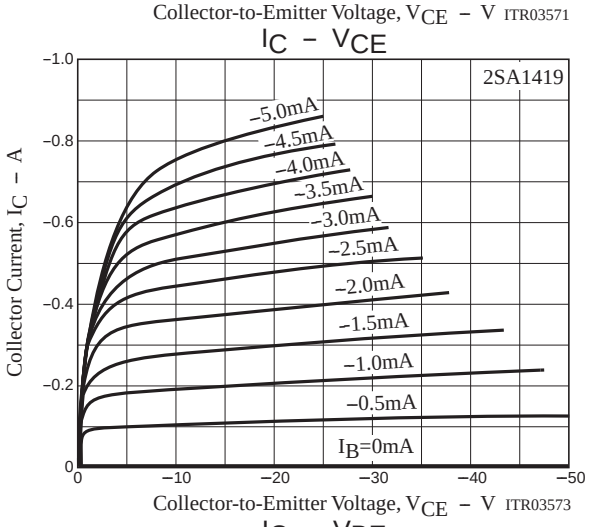
I_C=10I_{B1}=−10I_{B2}=0.7A
(For PNP, the polarity is reversed)

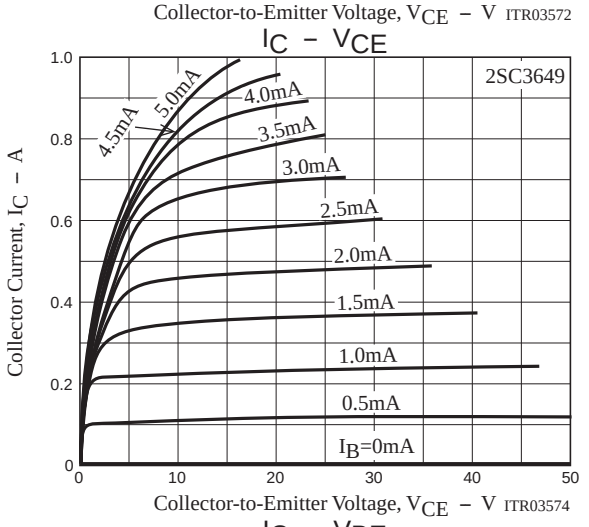
Ordering Information

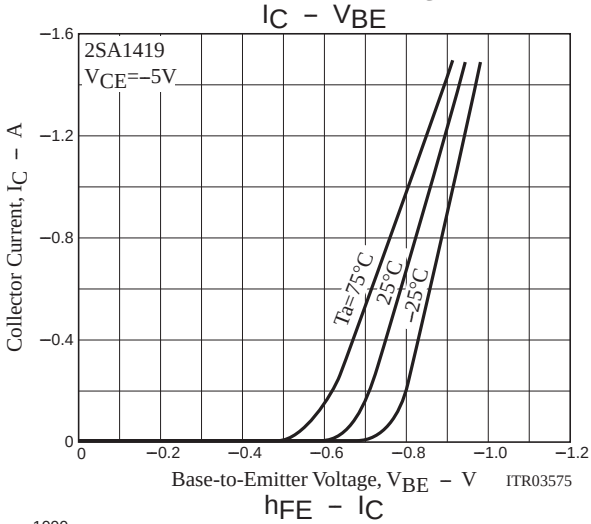
Device	Package	Shipping	memo
2SA1419S-TD-E	PCP	1,000pcs./reel	Pb Free
2SA1419S-TD-H	PCP	1,000pcs./reel	Pb Free and Halogen Free
2SA1419T-TD-E	PCP	1,000pcs./reel	Pb Free
2SA1419T-TD-H	PCP	1,000pcs./reel	Pb Free and Halogen Free
2SC3649S-TD-E	PCP	1,000pcs./reel	Pb Free
2SC3649S-TD-H	PCP	1,000pcs./reel	Pb Free and Halogen Free
2SC3649T-TD-E	PCP	1,000pcs./reel	Pb Free
2SC3649T-TD-H	PCP	1,000pcs./reel	Pb Free and Halogen Free

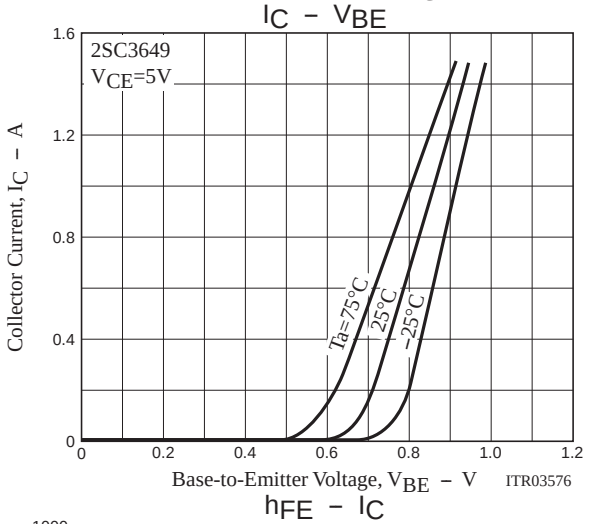

IC – VCE
2SA1419
Collector Current, IC – A
–80mA
–60mA
–40mA
–20mA
–10mA
–5mA
–2mA
–1mA
IB=0mA
Collector-to-Emitter Voltage, VCE – V
ITR03571

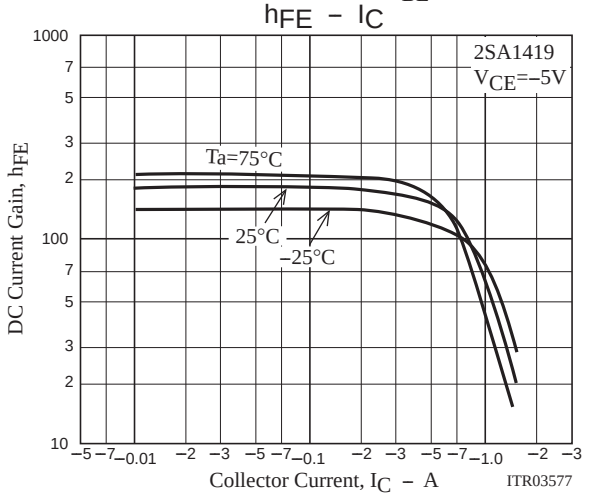

IC – VCE
2SC3649
Collector Current, IC – A
50mA
40mA
30mA
20mA
10mA
5mA
2mA
1mA
IB=0mA
Collector-to-Emitter Voltage, VCE – V
ITR03572

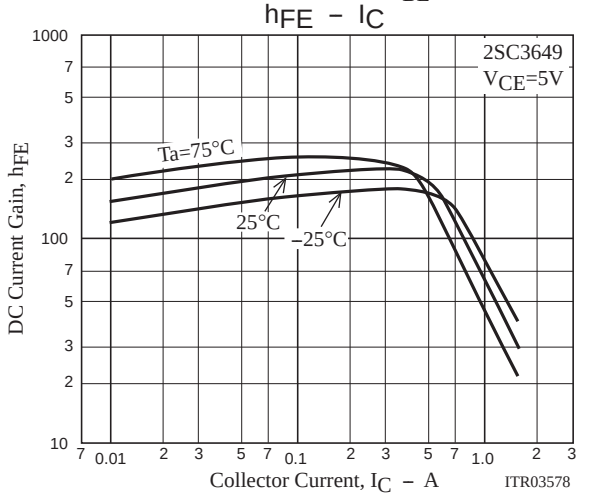

IC – VCE
2SA1419
Collector Current, IC – A
–5.0mA
–4.5mA
–4.0mA
–3.5mA
–3.0mA
–2.5mA
–2.0mA
–1.5mA
–1.0mA
–0.5mA
IB=0mA
Collector-to-Emitter Voltage, VCE – V
ITR03573

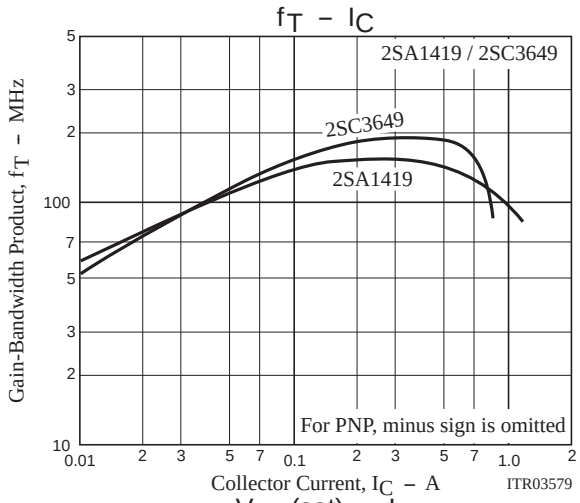

IC – VCE
2SC3649
Collector Current, IC – A
4.5mA
5.0mA
4.0mA
3.5mA
3.0mA
2.5mA
2.0mA
1.5mA
1.0mA
0.5mA
IB=0mA
Collector-to-Emitter Voltage, VCE – V
ITR03574

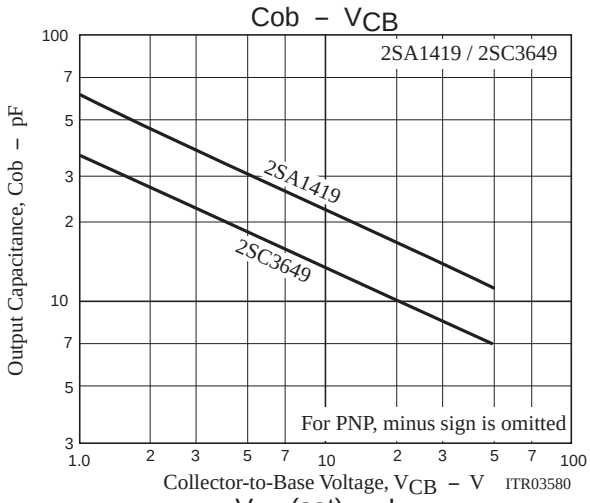

IC – VBE
2SA1419
VCE=–5V
Collector Current, IC – A
Ta=75°C
25°C
–25°C
Base-to-Emitter Voltage, VBE – V
ITR03575

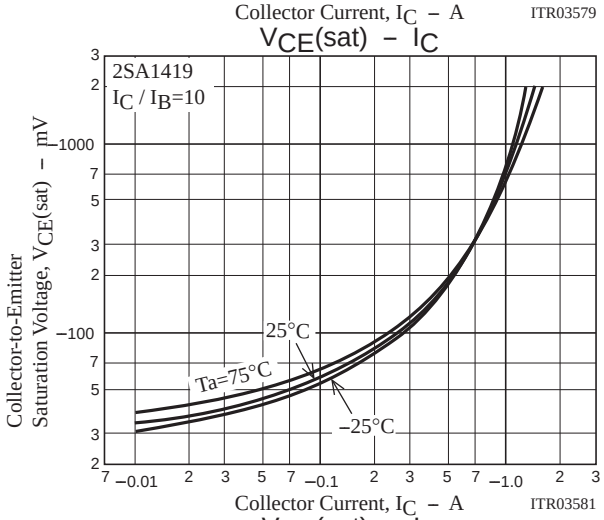

IC – VBE
2SC3649
VCE=5V
Collector Current, IC – A
Ta=75°C
25°C
–25°C
Base-to-Emitter Voltage, VBE – V
ITR03576

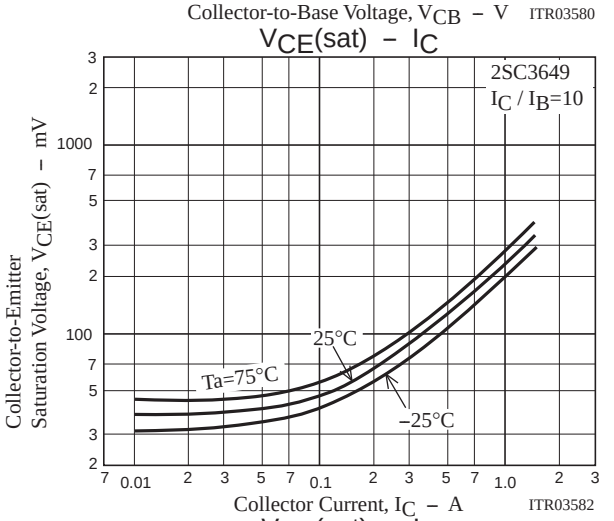

hFE – IC
2SA1419
VCE=–5V
DC Current Gain, hFE
Ta=75°C
25°C
–25°C
Collector Current, IC – A
ITR03577

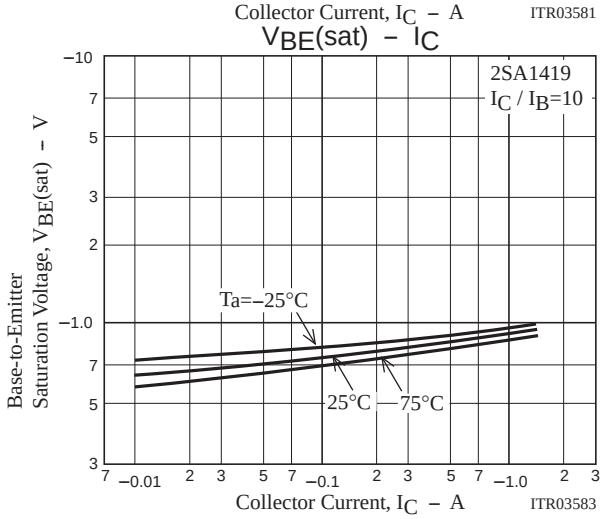

hFE – IC
2SC3649
VCE=5V
DC Current Gain, hFE
Ta=75°C
25°C
–25°C
Collector Current, IC – A
ITR03578

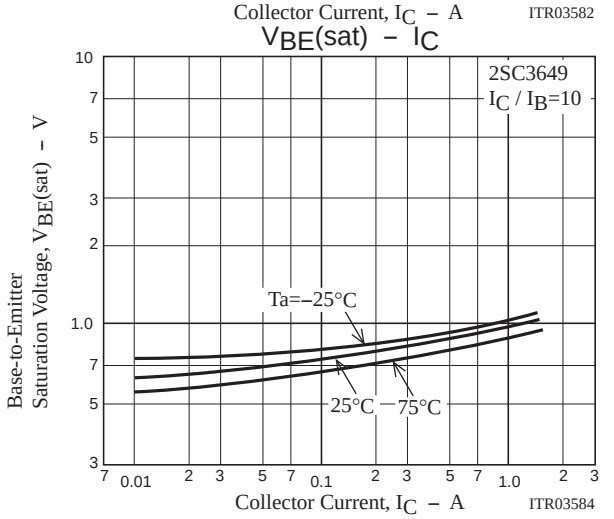

fT – IC
2SA1419 / 2SC3649
2SC3649
2SA1419
For PNP, minus sign is omitted
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
ITR03579

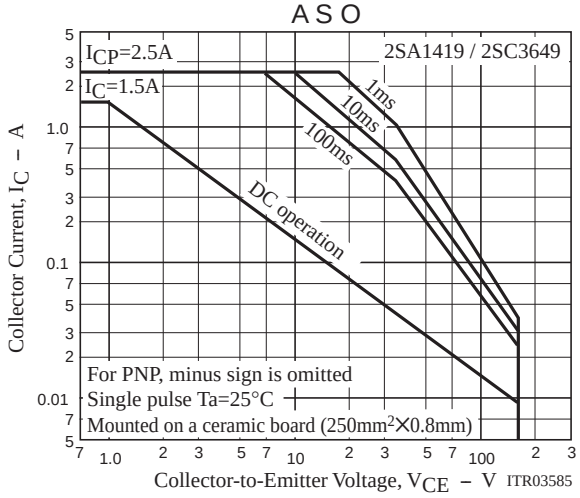

Cob – VCB
2SA1419 / 2SC3649
2SA1419
2SC3649
For PNP, minus sign is omitted
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03580

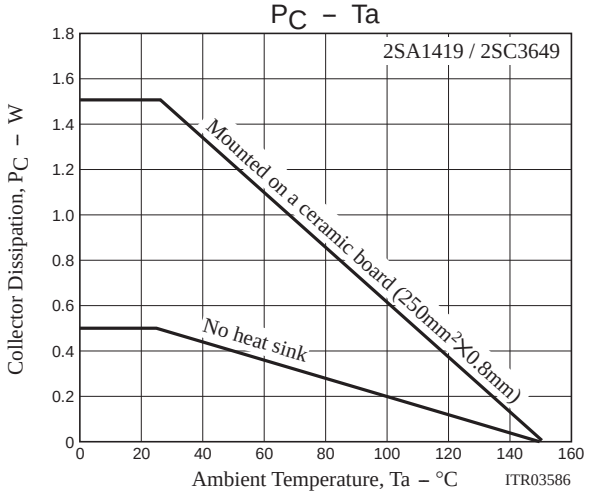

VCE(sat) – IC
2SA1419
IC / IB=10
25°C
Ta=75°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
ITR03581


VCE(sat) – IC
2SC3649
IC / IB=10
25°C
Ta=75°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
ITR03582


VBE(sat) – IC
2SA1419
IC / IB=10
Ta=–25°C
25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
ITR03583


VBE(sat) – IC
2SC3649
IC / IB=10
Ta=–25°C
25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
ITR03584


A S O
ICP=2.5A
IC=1.5A
2SA1419 / 2SC3649
1ms
10ms
100ms
DC operation
For PNP, minus sign is omitted
Single pulse Ta=25°C
Mounted on a ceramic board (250mm²×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR03585


PC – Ta
2SA1419 / 2SC3649
Mounted on a ceramic board (250mm²×0.8mm)
No heat sink
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
ITR03586

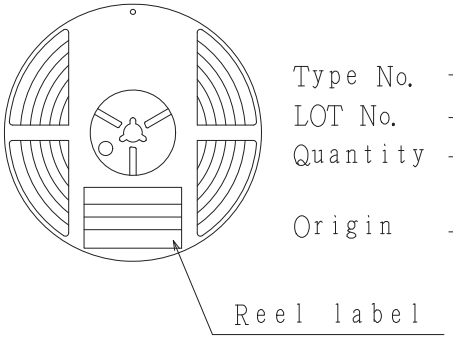
Bag Packing Specification

2SA1419S-TD-E, 2SA1419S-TD-H, 2SA1419T-TD-E, 2SA1419T-TD-H, 2SC3649S-TD-E, 2SC3649S-TD-H, 2SC3649T-TD-E, 2SC3649T-TD-H

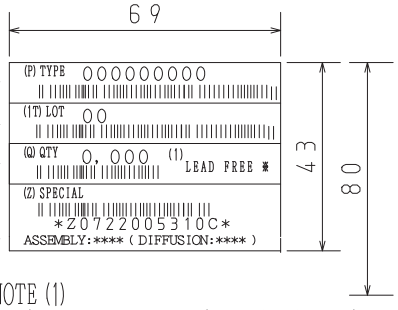
1. Packing Format

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

Packing method

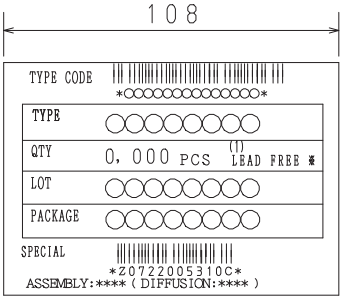


Reel label, Inner box label (unit:mm)



Outer box label

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

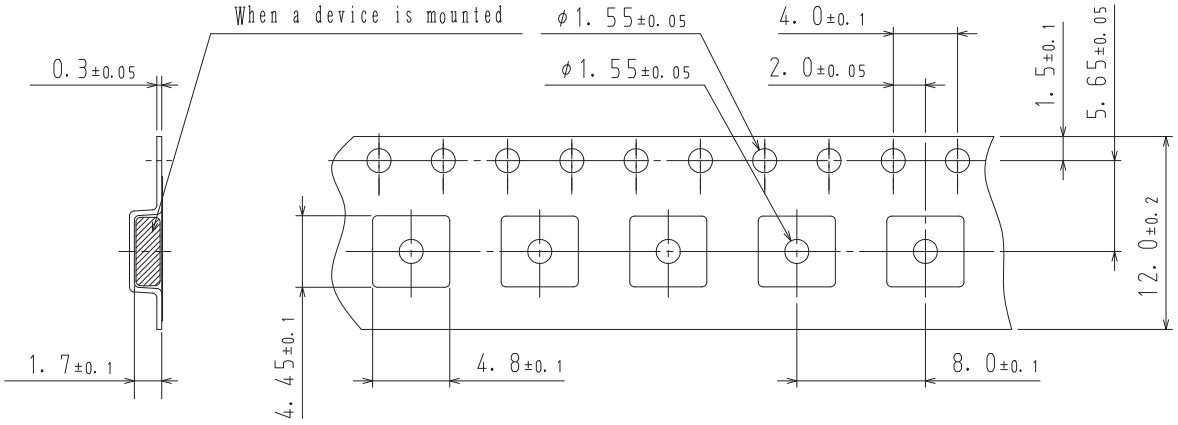


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

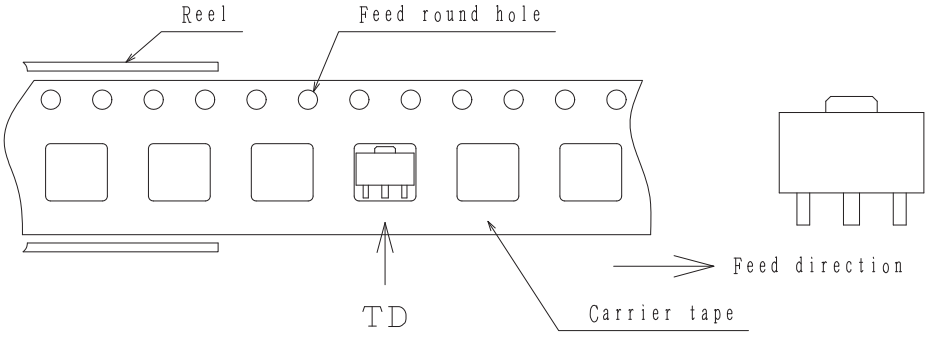
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



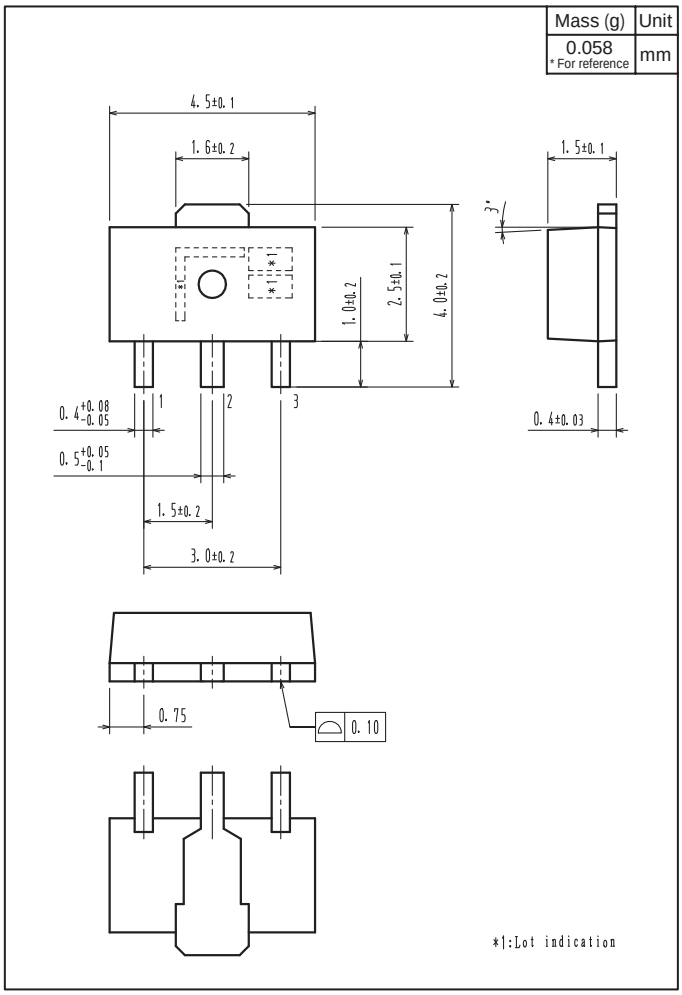
2-2. Device placement direction



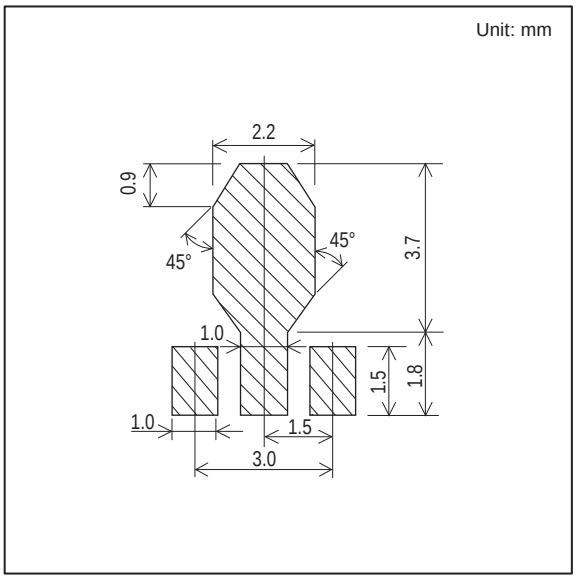
Those with pin 1 index on the feed hole side·····TD

Outline Drawing

2SA1419S-TD-E, 2SA1419S-TD-H, 2SA1419T-TD-E, 2SA1419T-TD-H, 2SC3649S-TD-E, 2SC3649S-TD-H, 2SC3649T-TD-E, 2SC3649T-TD-H



Land Pattern Example



Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург, Промышленная ул, дом № 19, литера Н, помещение 100-Н Офис 331