Ordering number : EN694G

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SB815/2SD1048 — General-Purpose AF Amplifier Applications

PNP / NPN Epitaxial Planar Silicon Transistor

Features

- Ultrasmall package allows miniaturization in end products
- Large current capacity (I_C=0.7A) and low-saturation voltage

Specifications ( ): 2SB815

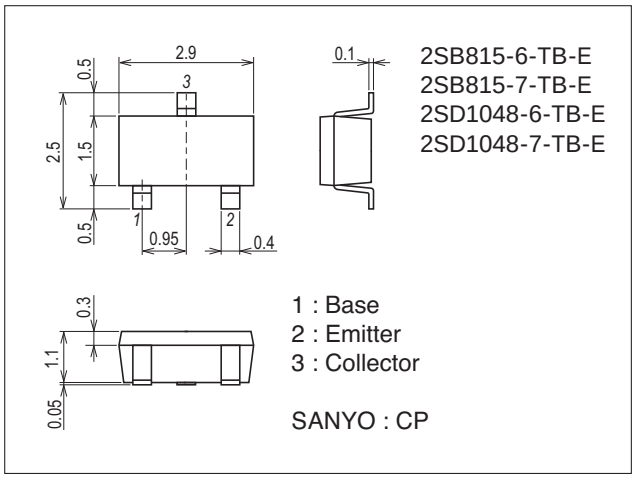
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)20	V
Collector-to-Emitter Voltage	V_{CEO}		(–)15	V
Emitter-to-Base Voltage	V_{EBO}		(–)5	V
Collector Current	I_C		(–)0.7	A
Collector Current (Pulse)	I_{CP}		(–)1.5	A
Collector Dissipation	P_C		200	mW
Junction Temperature	Tj		125	°C
Storage Temperature	Tstg		–55 to +125	°C

Package Dimensions

unit : mm (typ)

7013A-009

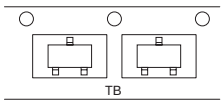


2SB815-6-TB-E
2SB815-7-TB-E
2SD1048-6-TB-E
2SD1048-7-TB-E

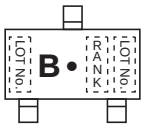
Product & Package Information

- Package : CP
- JEITA, JEDEC : SC-59, TO-236, SOT-23, TO-236AB
- Minimum Packing Quantity : 3,000 pcs./reel

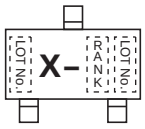
Packing Type: TB



Marking

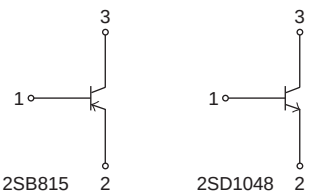


2SB815



2SD1048

Electrical Connection



Electrical Characteristics at Ta=25°C

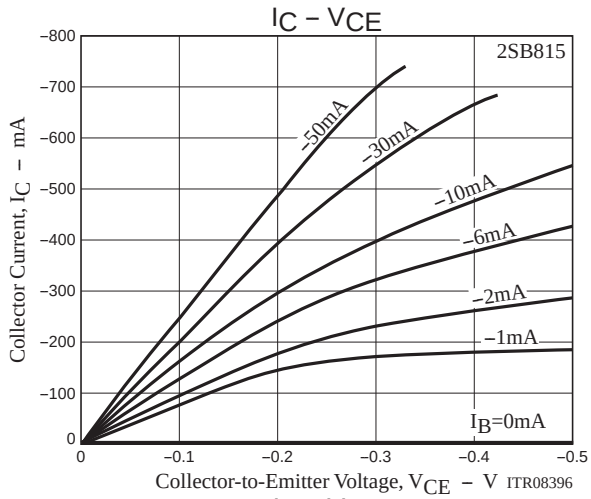
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(−)15V, I_E=0A			(−)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(−)4V, I_C=0A			(−)0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(−)2V, I_C=(−)50mA	(200*)200*		(600*)900*	
	$h_{FE}2$	V_{CE}=(−)2V, I_C=(−)500mA	80			
Gain-Bandwidth Product	f_T	V_{CE}=(−)10V, I_C=(−)50mA		250		MHz
Output Capacitance	Cob	V_{CB}=(−)10V, f=1MHz		(13)8		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)1	I_C=(−)5mA, I_B=(−)0.5mA		(−15)10	(−35)25	mV
	V_{CE}(sat)2	I_C=(−)100mA, I_B=(−)10mA		(−60)30	(−120)80	mV

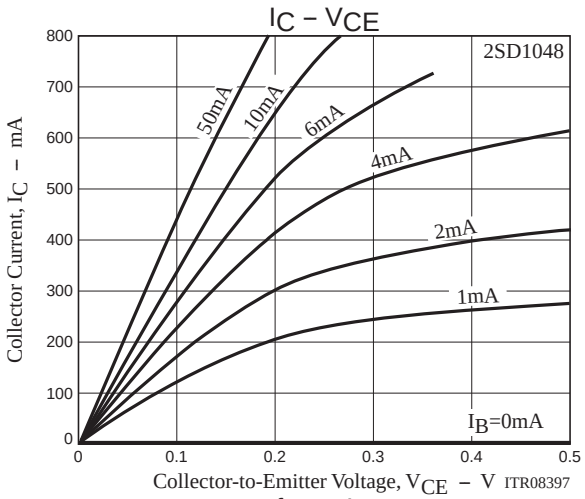
* : The 2SB815/2SD1048 are classified by 50mA h_{FE} as follows :

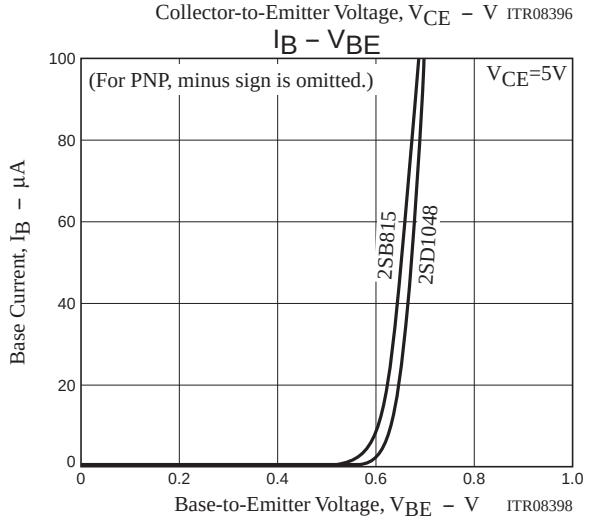
Rank	6	7	8
h_{FE}	200 to 400	300 to 600	450 to 900

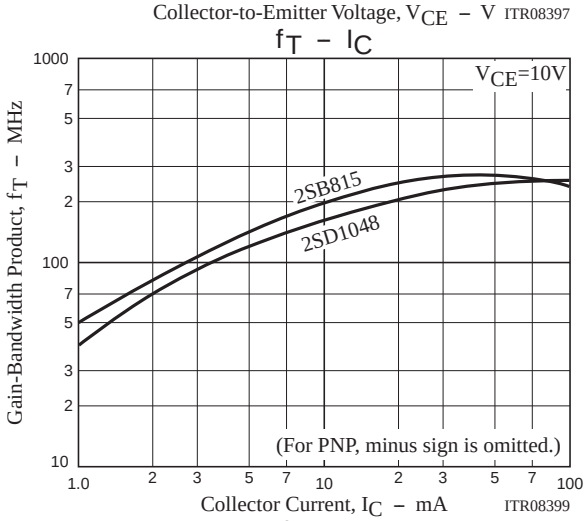
Ordering Information

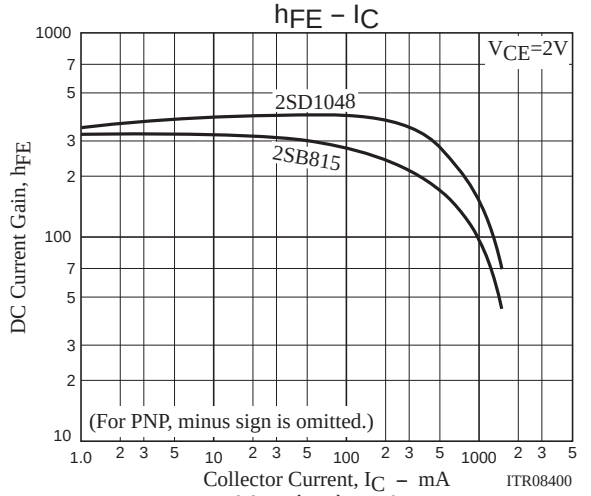
Device	Package	Shipping	memo
2SB815-6-TB-E	CP	3,000pcs./reel	Pb Free
2SB815-7-TB-E	CP	3,000pcs./reel	
2SD1048-6-TB-E	CP	3,000pcs./reel	
2SD1048-7-TB-E	CP	3,000pcs./reel	

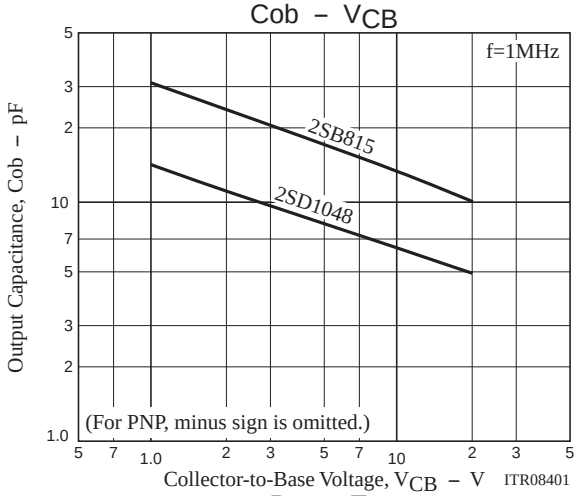

IC – VCE
2SB815
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
–50mA
–30mA
–10mA
–6mA
–2mA
–1mA
IB=0mA
ITR08396

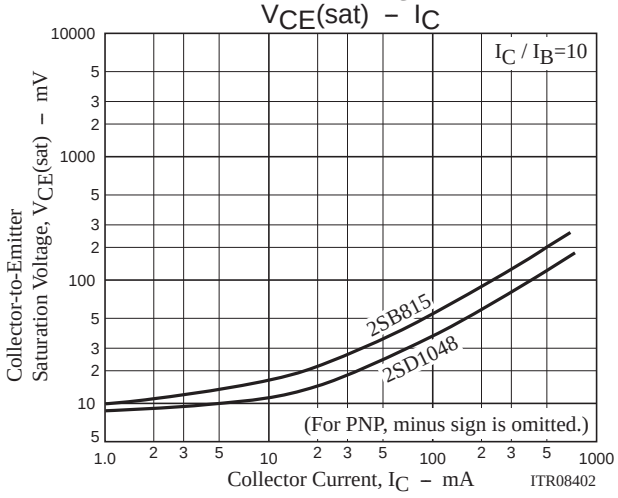

IC – VCE
2SD1048
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
50mA
10mA
6mA
4mA
2mA
1mA
IB=0mA
ITR08397

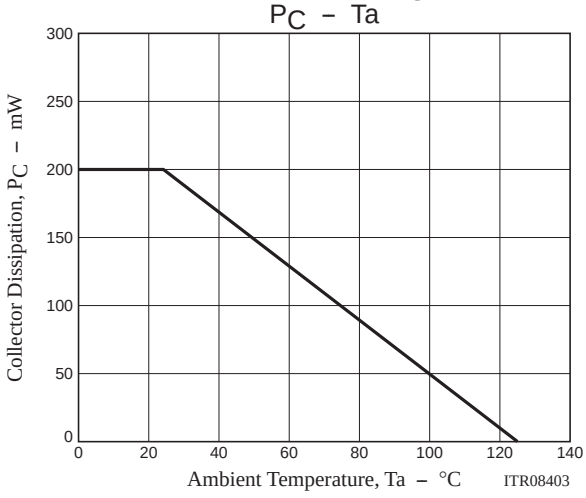

IB – VBE
(For PNP, minus sign is omitted.)
VCE=5V
Base Current, IB – µA
Base-to-Emitter Voltage, VBE – V
2SB815
2SD1048
ITR08398


fT – IC
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
2SB815
2SD1048
(For PNP, minus sign is omitted.)
ITR08399


hFE – IC
VCE=2V
DC Current Gain, hFE
Collector Current, IC – mA
2SD1048
2SB815
(For PNP, minus sign is omitted.)
ITR08400


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
2SB815
2SD1048
(For PNP, minus sign is omitted.)
ITR08401


VCE(sat) – IC
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – mA
2SB815
2SD1048
(For PNP, minus sign is omitted.)
ITR08402


PC – Ta
Collector Dissipation, PC – mW
Ambient Temperature, Ta – °C
ITR08403

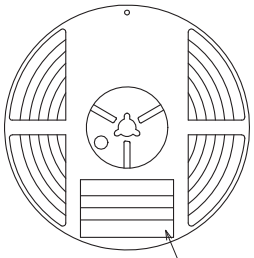
Embossed Taping Specification

2SB815-6-TB-E, 2SB815-7-TB-E, 2SD1048-6-TB-E, 2SD1048-7-TB-E

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)
CP	CP	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

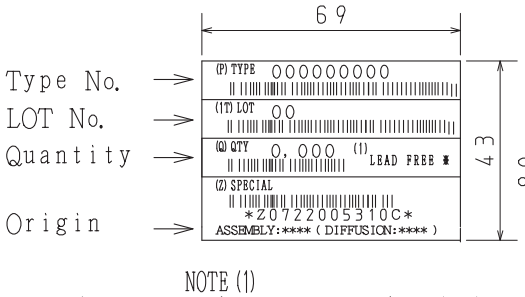
Packing method



Reel label

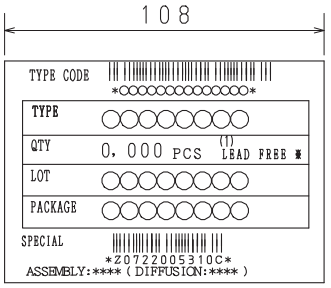
Reel label, Inner box label

(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.

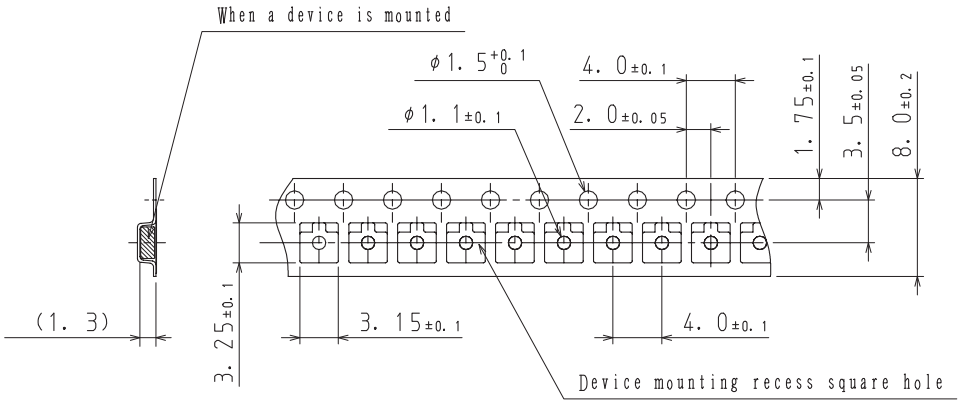


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

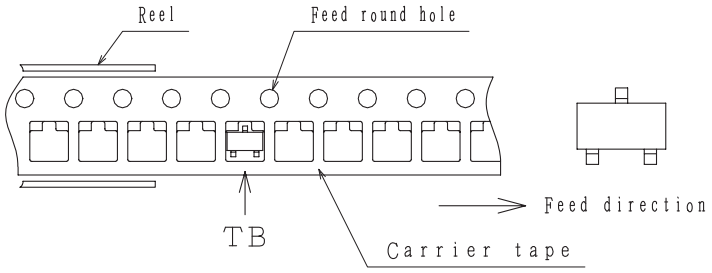
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



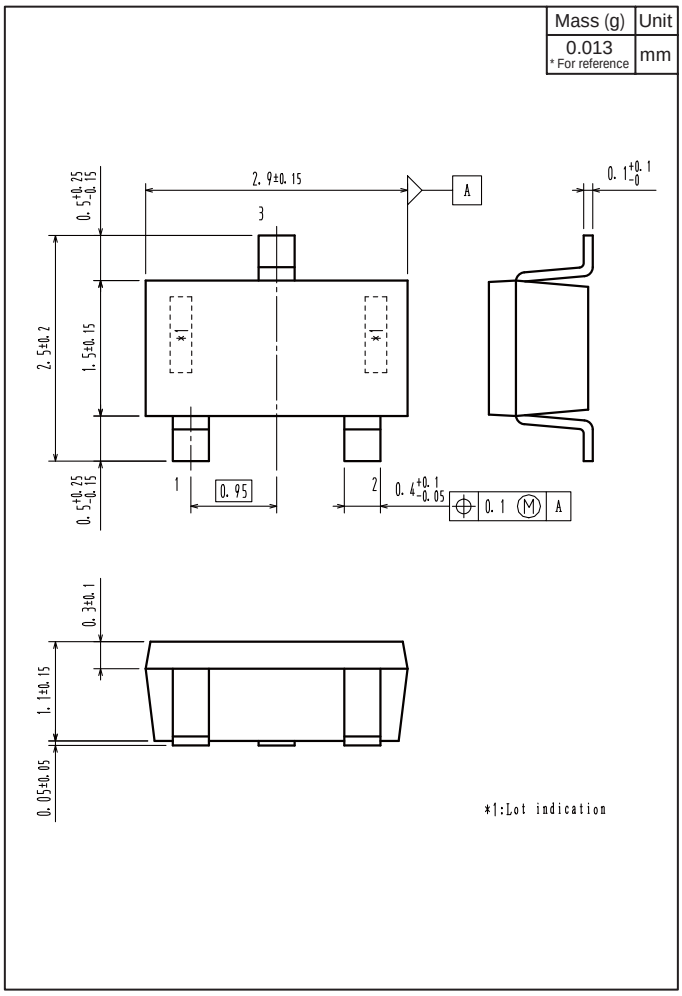
2-2. Device placement direction



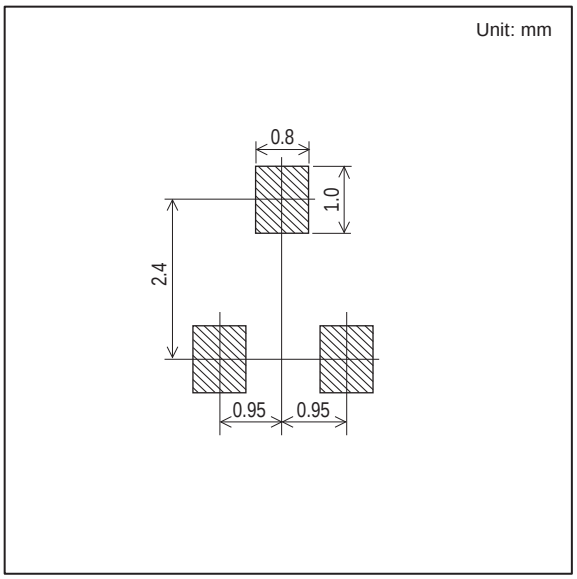
Those with one electrode terminal on the feed hole side·····TB

Outline Drawing

2SB815-6-TB-E, 2SB815-7-TB-E, 2SD1048-6-TB-E, 2SD1048-7-TB-E



Land Pattern Example



Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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http://moschip.ru/get-element

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