



2SB815/2SD1048

Bipolar Transistor (-)15V, (-)0.7A, Low VCE(sat), (PNP)NPN Single CP

ON Semiconductor®

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Features

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

Specifications () : 2SB815

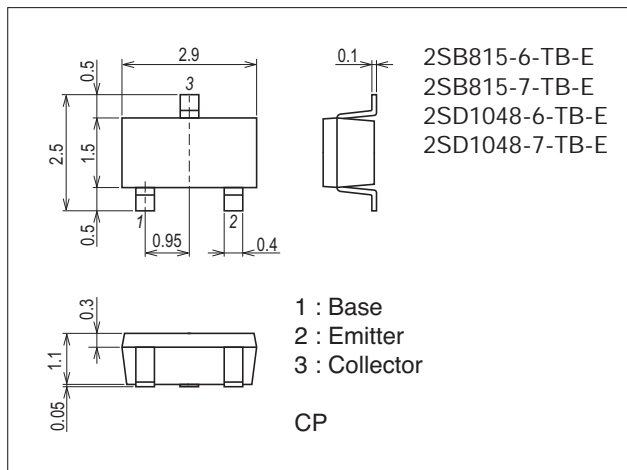
Absolute Maximum Ratings at Ta=25°C

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	T _j		125	°C
Storage Temperature	T _{stg}		-55 to +125	°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.

Package Dimensions

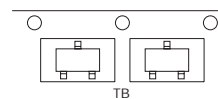
unit : mm (typ)
7013A-009



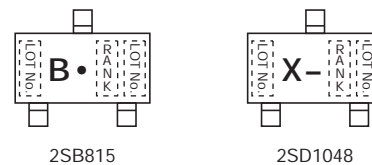
Product & Package Information

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

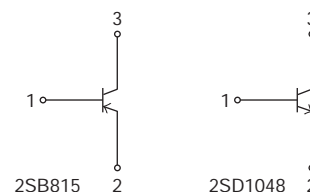
Packing Type: TB



Marking



Electrical Connection



2SB815 / 2SD1048

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V _{CB} =(-)15V, I _E =0A			(-)0.1	μA
Emitter Cutoff Current	IEBO	V _{EB} =(-)4V, I _C =0A			(-)0.1	μA
DC Current Gain	h _{FE1}	V _{CE} =(-)2V, I _C =(-)50mA	(200*)200*		(600*)900*	
	h _{FE2}	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

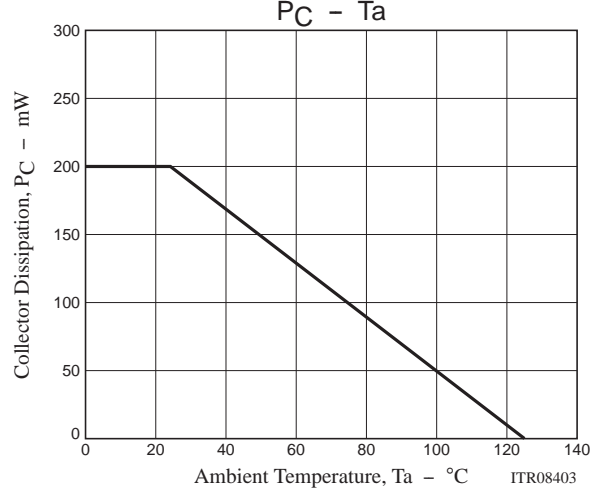
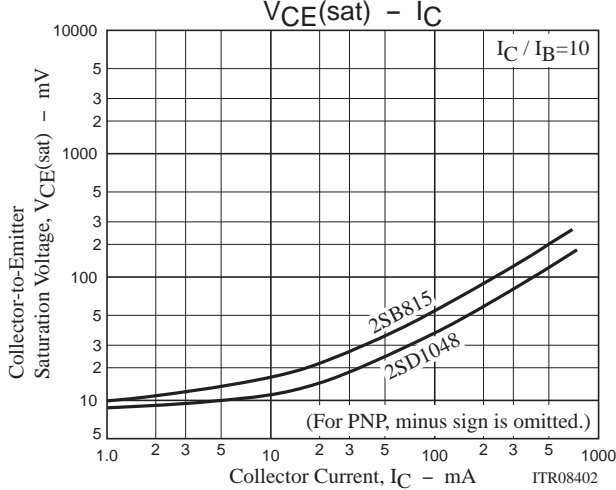
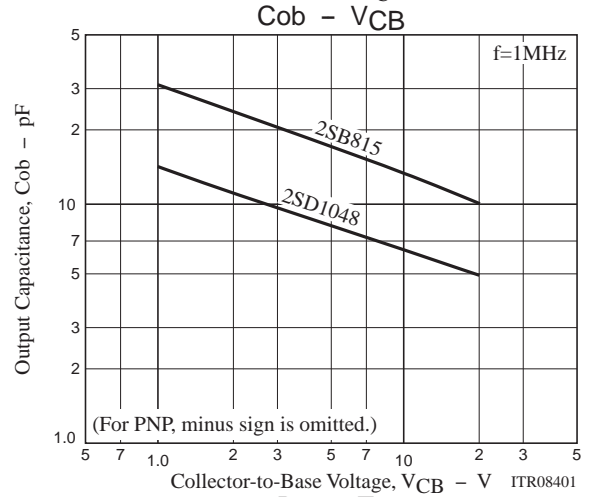
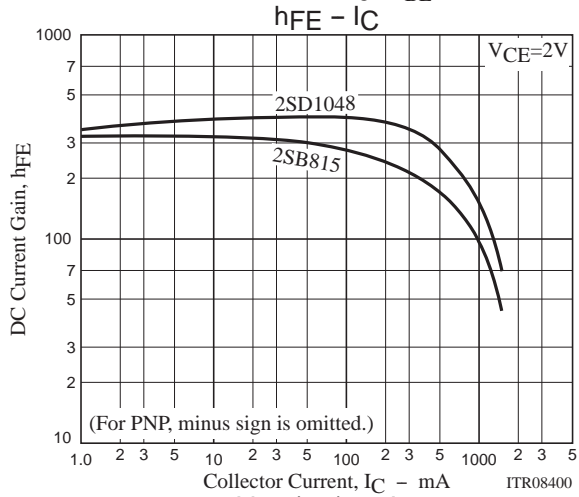
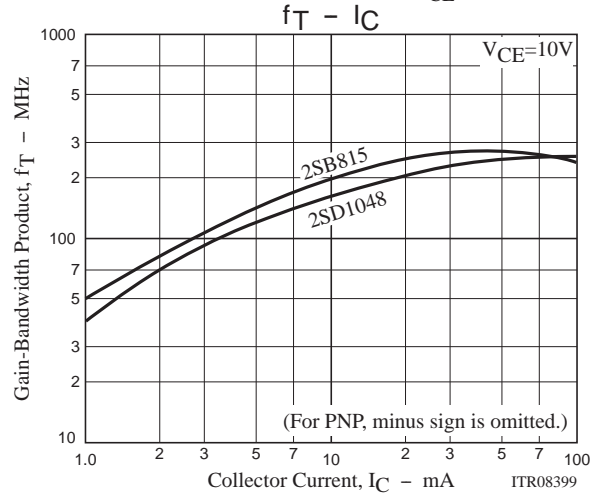
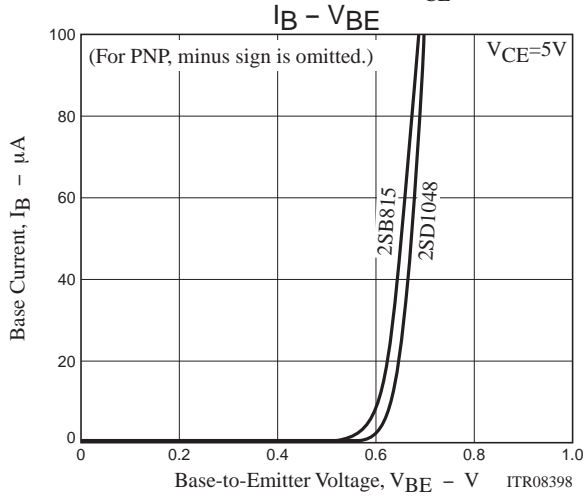
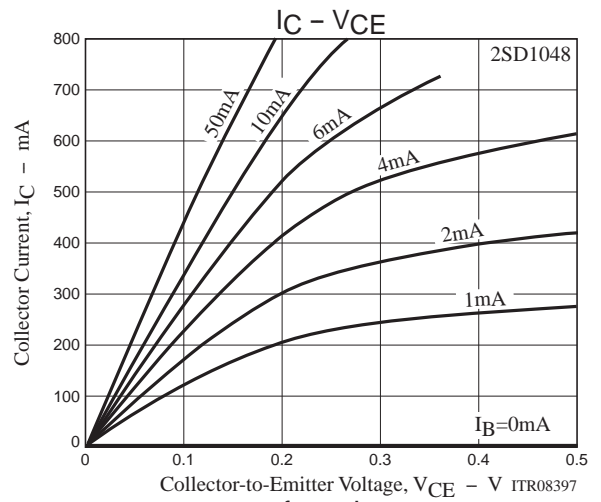
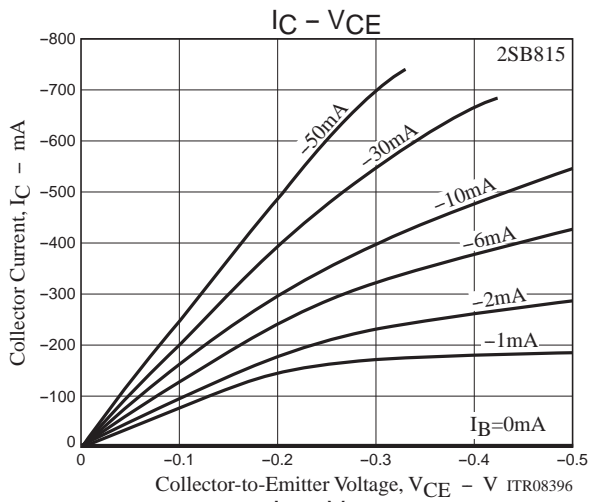
* : The 2SB815/2SD1048 are classified by 50mA h_{FE} as follows :

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	

2SB815 / 2SD1048



Embossed Taping Specification

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

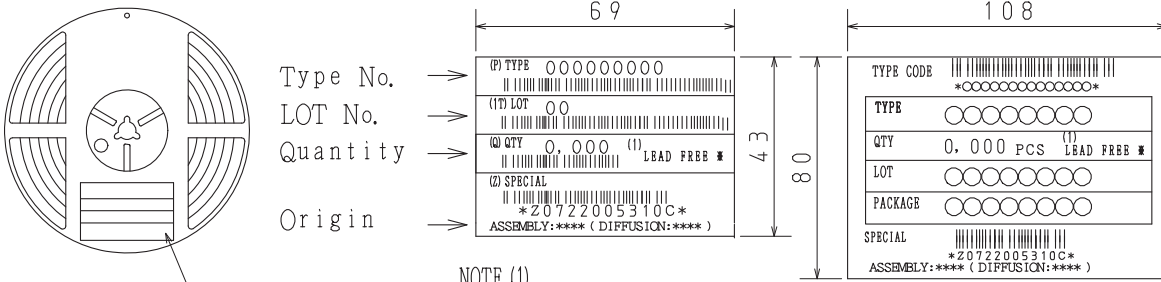
1. Packing Format

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, 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.

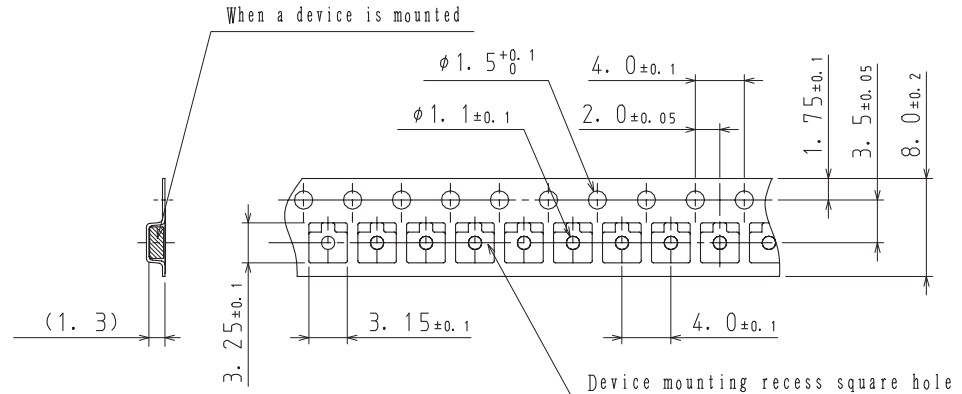


NOTE (1)
The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

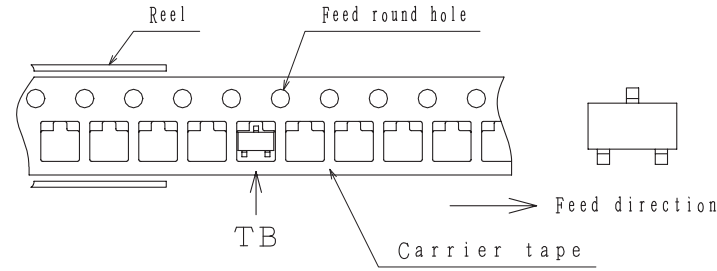
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

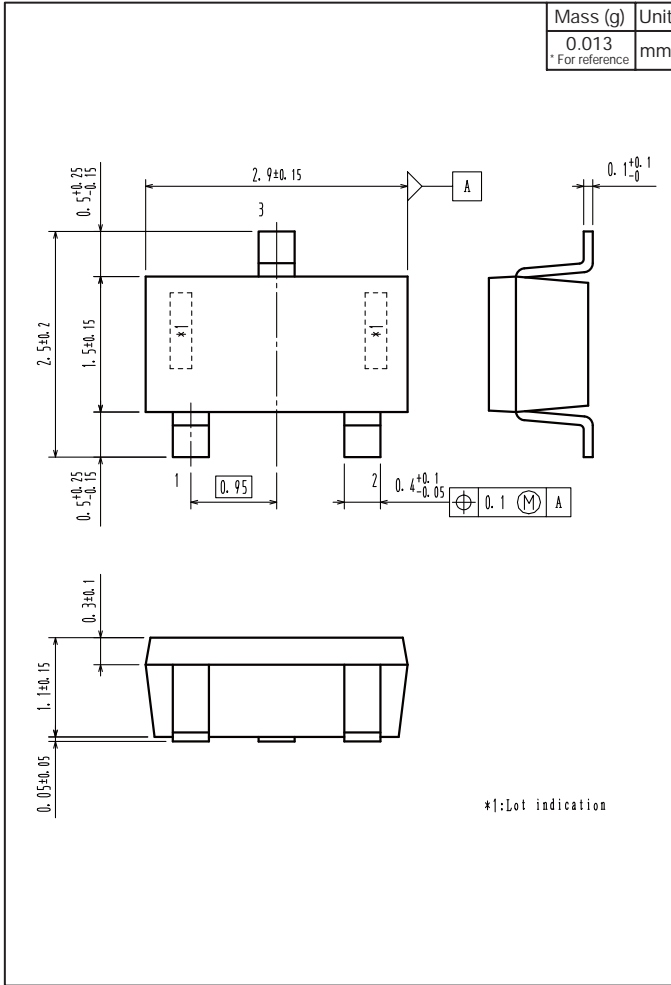


Those with one electrode terminal on the feed hole side.....TB

Outline Drawing

Land Pattern Example

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



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