



2SB815/2SD1048

Bipolar Transistor

(-)15V, (-)0.7A, Low $V_{CE(sat)}$, (PNP)NPN Single CP

ON Semiconductor®

<http://onsemi.com>

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 $T_a=25^\circ C$

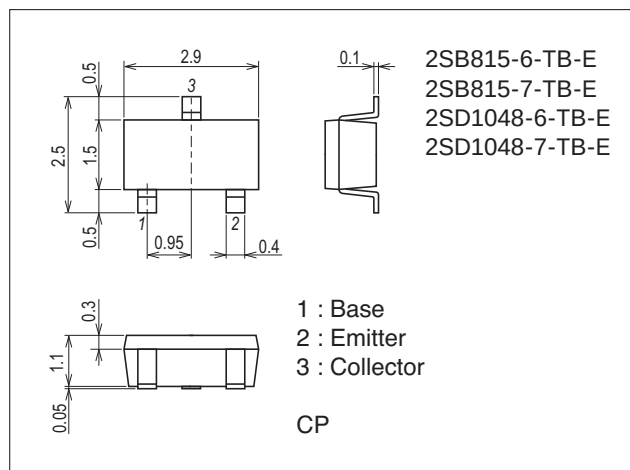
Parameter	Symbol	Conditions	Ratings	Unit
Collector to Base Voltage	V_{CBO}		(-)20	V
Collector to Emitter Voltage	V_{CEO}		(-)15	V
Emitter to Base Voltage	V_{EBO}		(-)5	V
Collector Current	I_C		(-)0.7	A
Collector Current (Pulse)	I_{CP}		(-)1.5	A
Collector Dissipation	P_C		200	mW
Junction Temperature	T_j		125	$^\circ C$
Storage Temperature	T_{stg}		-55 to +125	$^\circ C$

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)

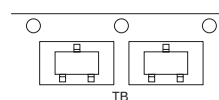
7013A-009



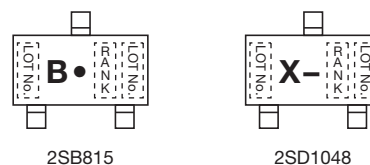
Product & Package Information

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

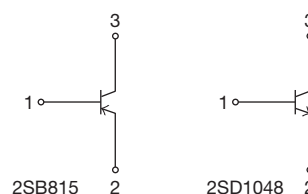
Packing Type: TB



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*		600*	
	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

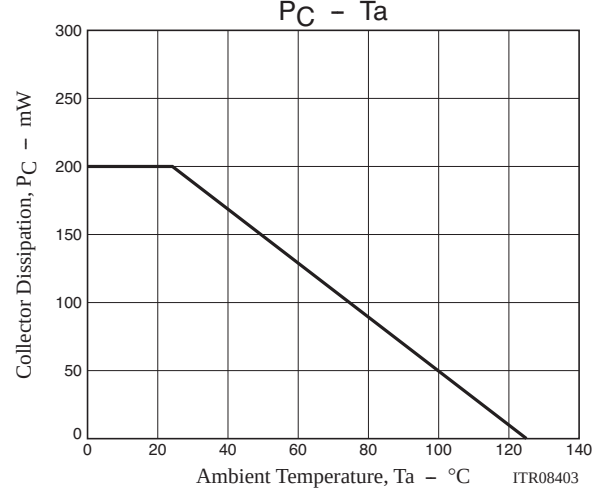
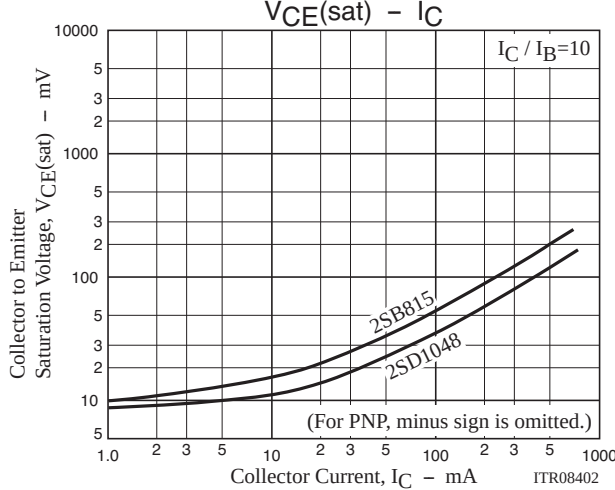
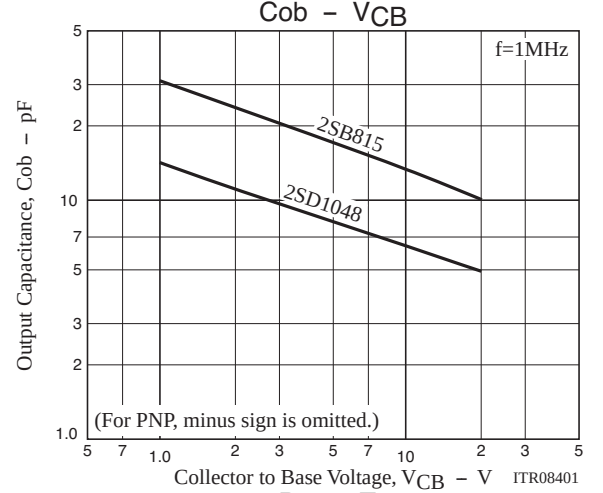
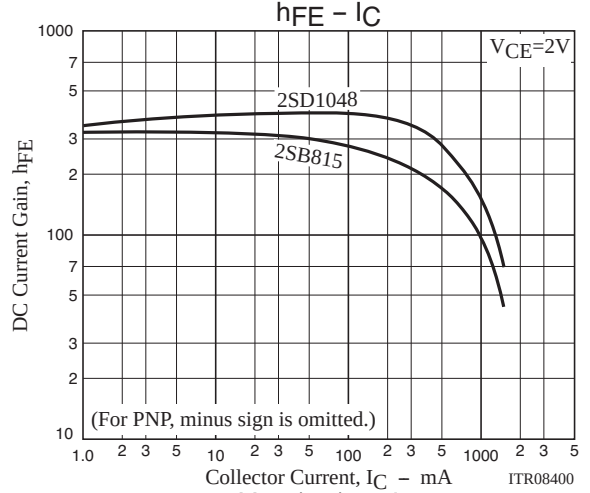
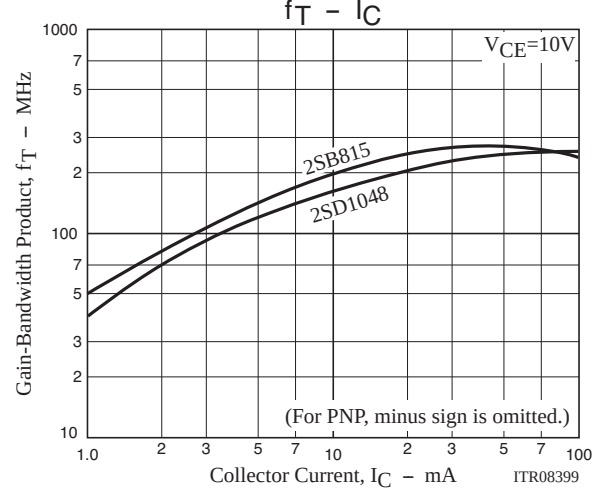
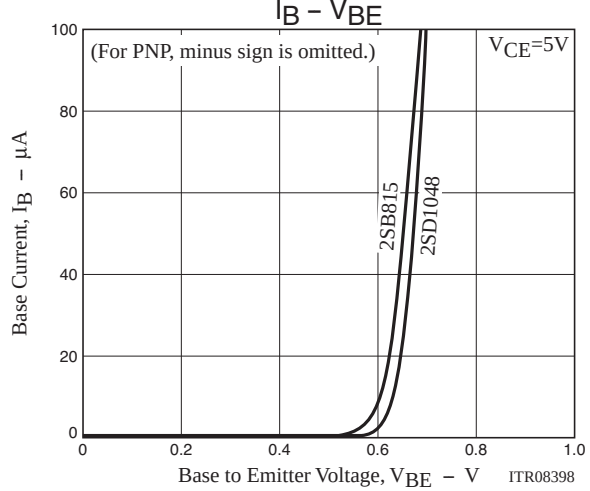
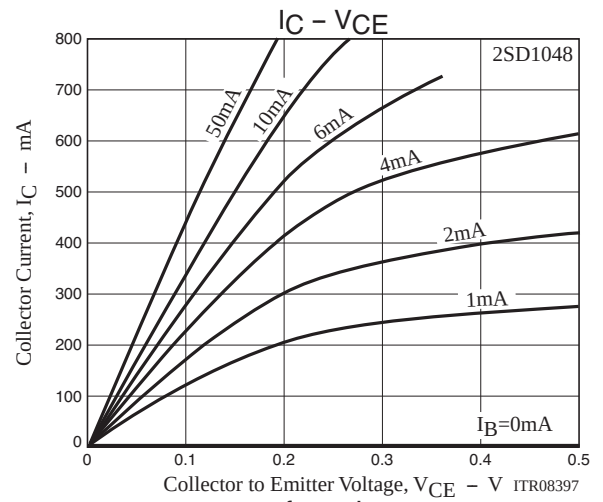
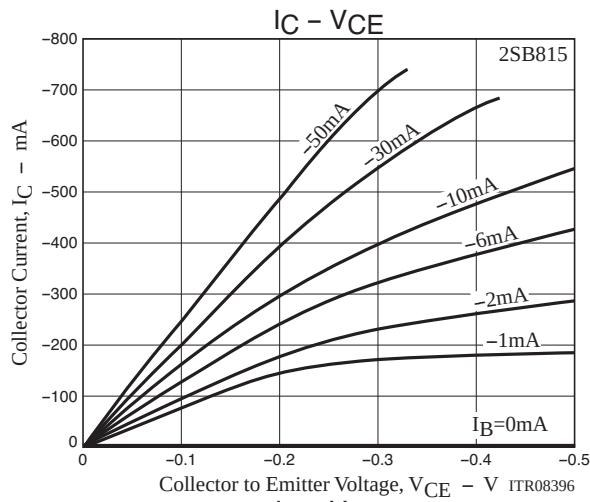
* : The 2SB815/2SD1048 are classified by 50mA h_{FE} as follows :

Rank	6	7
h _{FE}	200 to 400	300 to 600

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	

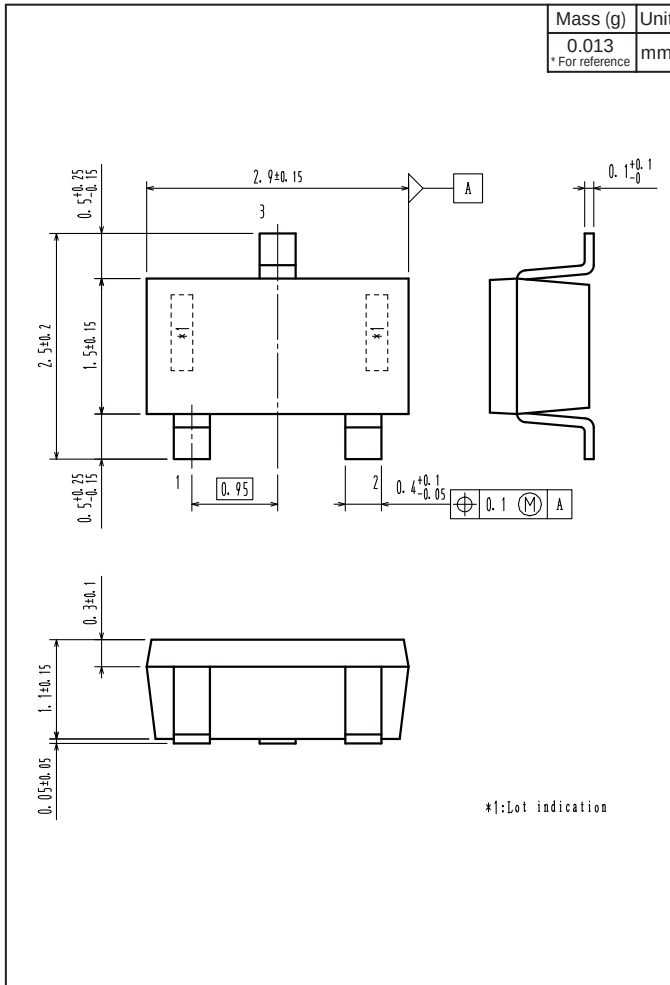
2SB815 / 2SD1048



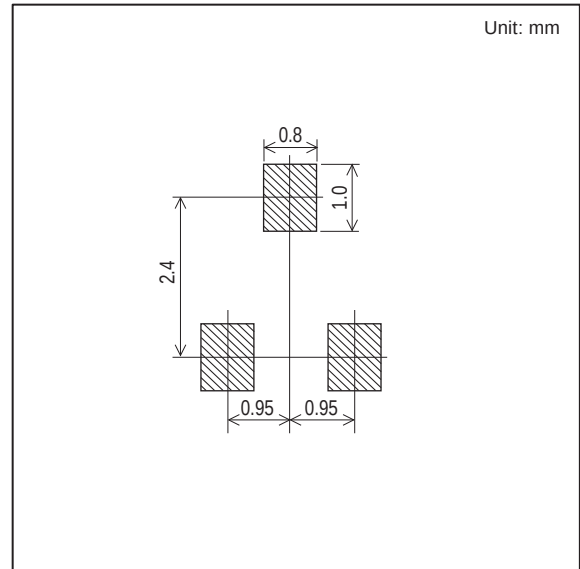
2SB815 / 2SD1048

Outline Drawing

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



Land Pattern Example



ON Semiconductor and the ON logo are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.