



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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Features

- Ideally Suited for Automatic Insertion
- Complementary PNP Types: BC856W – BC858W
- For Switching and AF Amplifier Applications
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP capable (Note 4)**

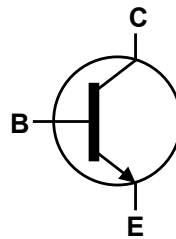
Mechanical Data

- Case: SOT323
- Case material: molded plastic, "Green" molding compound
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per
MIL-STD-202, Method 208 **(e3)**
- Weight: 0.006 grams (Approximate)

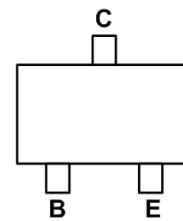
SOT323



Top View



Device Symbol


 Top View
Pin-Out

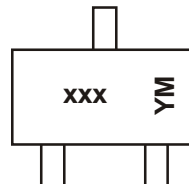
Ordering Information (Notes 4 & 5)

Product	Compliance	Marking	Reel Size (inches)	Quantity per Reel
BC846AW-7-F	AEC-Q101	K1Q	7	3,000
BC846BW-7-F	AEC-Q101	K1R	7	3,000
BC846BWQ-7-F	Automotive	K1R	7	3,000
BC846BW-13-F	AEC-Q101	K1R	13	10,000
BC847AW-7-F	AEC-Q101	K1Q	7	3,000
BC847BW-7-F	AEC-Q101	K1R	7	3,000
BC847BW-13-F	AEC-Q101	K1R	13	10,000

Product	Compliance	Marking	Reel Size (inches)	Quantity per Reel
BC847BWQ-13-F	Automotive	K1R	13	10,000
BC847CW-7-F	AEC-Q101	K1M	7	3,000
BC847CW-13-F	AEC-Q101	K1M	13	10,000
BC847CWQ-7-F	Automotive	K1M	7	3,000
BC848AW-7-F	AEC-Q101	K1Q	7	3,000
BC848BW-7-F	AEC-Q101	K1R	7	3,000
BC848CW-7-F	AEC-Q101	K1M	7	3,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
 5. Tape width is 8mm. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>

Marking Information



xxx = Product Type Marking Code
(Please see Ordering Information)
YM = Date Code Marking
Y or \bar{Y} = Year (ex: A = 2013)
M or \bar{M} = Month (ex: 9 = September)

Date Code Key

Year	2010	2011	2012	2013	2014	2015	2016	2017
Code	X	Y	Z	A	B	C	D	E

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Collector-Base Voltage	BC846	V _{CBO}	80	V
	BC847		50	
	BC848		30	
Collector-Emitter Voltage	BC846	V _{CEO}	65	V
	BC847		45	
	BC848		30	
Emitter-Base Voltage	BC846, BC847	V _{EBO}	6	V
	BC848		5	
Continuous Collector Current		I _C	100	mA
Peak Collector Current		I _{CM}	200	mA
Peak Base Current		I _{BM}	200	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 6)	P _D	200	mW
Thermal Resistance, Junction to Ambient	(Note 6)	R _{θJA}	625	°C/W
Operating and Storage Temperature Range		T _J , T _{STG}	-65 to +150	°C

ESD Ratings (Note 7)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
6. For a device mounted on minimum recommended pad layout 1oz weight copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic			Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BC846	BV _{CBO}	80	—	—	V	I _C = 100μA
		BC847		50				
		BC848		30				
Collector-Emitter Breakdown Voltage (Note 8)		BC846	BV _{CEO}	65	—	—	V	I _C = 10mA
		BC847		45				
		BC848		30				
Emitter-Base Breakdown Voltage		BC846, BC847	BV _{EBO}	6	—	—	V	I _E = 100μA
		BC848		5				
DC Current Gain (Note 8)	Current Gain Group	A	h _{FE}	110	180	220	—	V _{CE} = 5.0V, I _C = 2.0mA
		B		200	290	450		
		C		420	520	800		
Collector Cutoff Current			I _{CBO}	—	—	20	nA	V _{CB} = 30V
						5	μA	V _{CB} = 30V, T _A = +150°C
Collector-Emitter Saturation Voltage (Note 8)			V _{CE(sat)}	—	90	250	mV	I _C = 10mA, I _B = 0.5mA
					200	600		I _C = 100mA, I _B = 5.0mA
Base-Emitter Turn-On Voltage (Note 8)			V _{BE(on)}	580	660	700	mV	I _C = 2mA, V _{CE} = 5V
				—	—	770		I _C = 10mA, V _{CE} = 5V
Base-Emitter Saturation Voltage (Note 8)			V _{BE(sat)}	—	700	—	mV	I _C = 10mA, I _B = 0.5mA
					900			I _C = 100mA, I _B = 5mA
Output Capacitance			C _{obo}	—	3	4.5	pF	V _{CB} = 10V, f = 1.0MHz
Transition Frequency			f _T	100	300	—	MHz	V _{CE} = 5V, I _C = 10mA, f = 100MHz
Noise Figure			NF	—	—	10	dB	V _{CE} = 5V, I _C = 200μA R _S = 2kΩ, f = 1kHz Δf = 200Hz

Notes: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

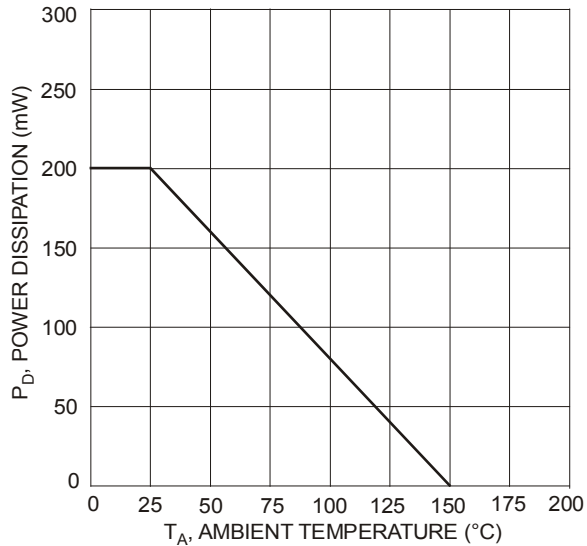


Figure 1 Power Dissipation vs. Ambient Temperature

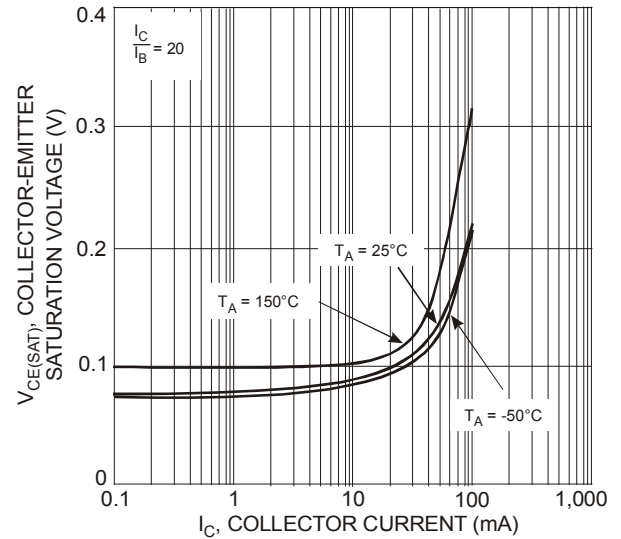


Figure 2 Typical Collector-Emitter Saturation Voltage vs. Collector Current

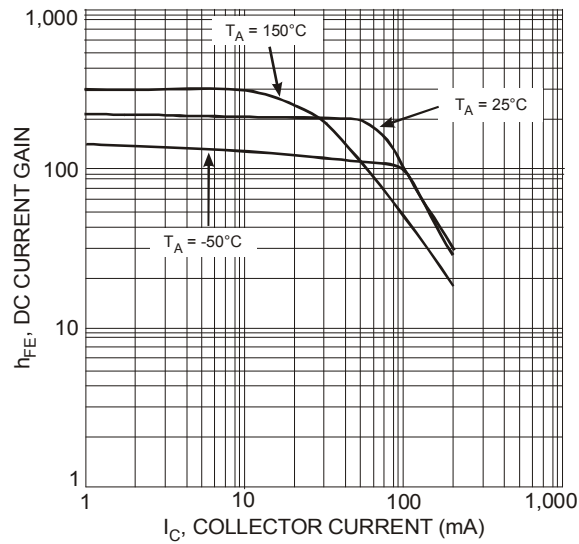


Figure 3 Typical DC Current Gain vs. Collector Current

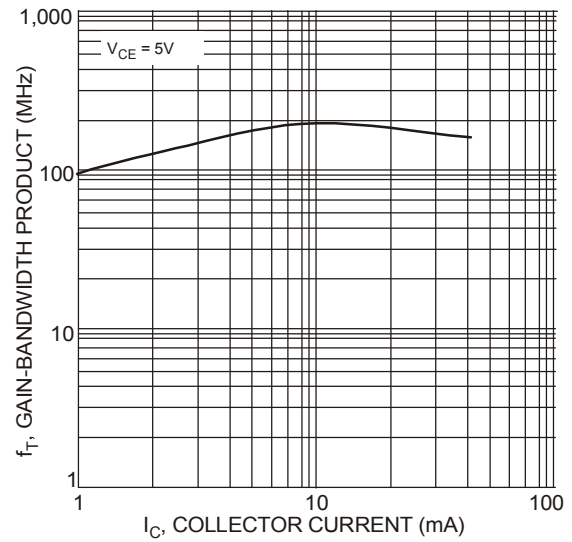
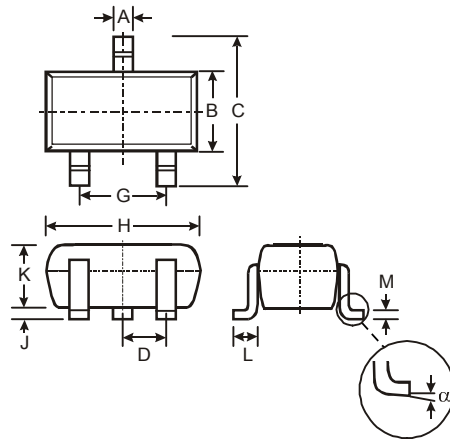


Figure 4 Typical Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions

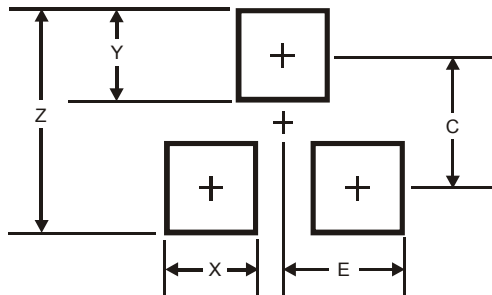
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	—	—	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
α	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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