



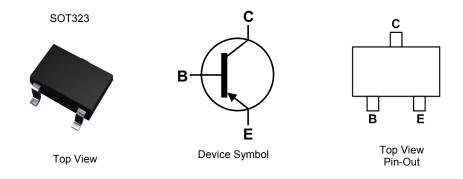
PNP SMALL SIGNAL TRANSISTOR IN SOT323

Features

- Ideally Suited for Automatic Insertion
- Complementary NPN Types Available (BC846AW BC848CW)
- 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 63
- Weight: 0.006 grams (Approximate)



Ordering Information (Notes 4 & 5)

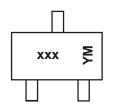
Product	Compliance	Marking	Reel Size (inches)	Quantity per Reel
BC856AW-7-F	AEC-Q101	K3A	7	3,000
BC856BW-7-F	AEC-Q101	K3B	7	3,000
BC856BW-13-F	AEC-Q101	K3B	13	10,000
BC857AW-7-F	AEC-Q101	K3A	7	3,000
BC857BW-7-F	AFC-0101	K3B	7	3 000

Product	Compliance	Marking	Reel Size (inches)	Quantity per Reel
BC857BWQ-13-F	Automotive	K3B	13	10,000
BC857CW-7-F	AEC-Q101	K3G	7	3,000
BC858AW-7-F	AEC-Q101	K3A	7	3,000
BC858BW-7-F	AEC-Q101	K3B	7	3,000
BC858CW-7-F	AEC-Q101	K3G	7	3,000

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 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 (See Ordering Information)

YM = Date Code Marking

Y or \overline{Y} = Year (ex: A = 2013)

M or \overline{M} = Month (ex: 9 = September)

Date Code Key

Date Code Rey												
Year	2010	20	011	2012	2	2013	2014		2015	2016		2017
Code	Х		Υ	Z		Α	В		С	D		Е
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



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

Characteris	tic	Symbol	Value	Unit
	BC856		-80	
Collector-Base Voltage	BC857	V _{CBO}	-50	V
-	BC858		-30	
	BC856		-65	
Collector-Emitter Voltage	BC857	V _{CEO}	-45	V
	BC858		-30	
Emitter-Base Voltage		V_{EBO}	-5.0	V
Continuous Collector Current		Ic	-100	mA
Peak Collector Current		I _{CM}	-200	mA
Peak Emitter Current		I _{EM}	-200	mA

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

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 6)	P_{D}	200	mW
Thermal Resistance, Junction to Ambient (Note 6)		$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C	

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

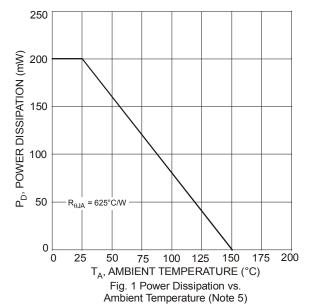
Chai	racteristic		Symbol	Min	Тур	Max	Unit	Test Condition	
BC				-80					
Collector-Base Breakdown Voltage		BC857	BV_CBO	-50	-	-	V	I _C = -100nA	
		BC858		-30					
		BC856		-65					
Collector-Emitter Breakdown \	/oltage (Note 7)	BC857	BV _{CEO}	-45	-	-	V	$I_C = -10mA$	
		BC858		-30					
Emitter-Base Breakdown Volta	age		BV _{EBO}	-5	-	ı	V	I _E = -100nA	
		Α		125	180	250			
DC Current Gain (Note 7)	Current Gain Grou		h_{FE}	220	290	475	-	$V_{CE} = -5.0V, I_{C} = -2.0mA$	
		С		420	520	800		<u> </u>	
Collector Cutoff Current			I _{CBO}	-		-15	nA	V _{CB} = -30V	
Collector Cuton Current						-4	μA	$V_{CB} = -30V, T_A = +150$ °C	
Collector-Emitter Saturation Vo	oltago (Noto 7)		V _{CE(sat)}	-	-75	-300	mV	$I_C = -10mA$, $I_B = -0.5mA$	
Collector-Emitter Saturation vo	onage (Note 7)				-250	-650		$I_C = -100 \text{mA}, I_B = -5.0 \text{mA}$	
Base-Emitter Turn-On Voltage	(Noto 7)		V _{BE(on)}	-600	-650	-750	mV	$I_C = -2mA$, $V_{CE} = -5V$	
Base-Emilier Turri-Ori Voltage	(Note 1)			-	-	-820		$I_C = -10 \text{mA}, V_{CE} = -5 \text{V}$	
Base-Emitter Saturation Voltage	no (Noto 7)		.,		-700	-	mV	$I_C = -10 \text{mA}, I_B = -0.5 \text{mA}$	
Base-Emilier Saturation Voltag	ge (Note 7)		V _{BE(sat)}	-	-850	-950		$I_C = -100 \text{mA}, I_B = -5 \text{mA}$	
Output Capacitance			C_{obo}	-	3	4.5	pF	V _{CB} = -10V, f = 1.0MHz	
Transition Frequency	f _T	100	200	-	MHz	$V_{CE} = -5V, I_{C} = -10mA,$ f = 100MHz			
Noise Figure	NF	-	-	10	dB	V_{CE} = -5V, I_{C} = -200 μ A R_{S} = 2k Ω , f = 1kHz Δf = 200Hz			

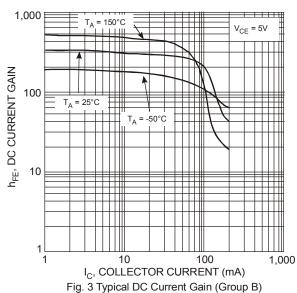
Notes:

 ^{6.} For a device mounted on minimum recommended pad layout 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
7. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%



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





vs. Collector Current

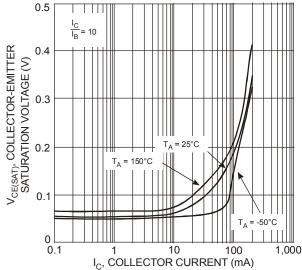


Fig. 2 Typical Collector-Emitter Saturation Voltage vs. Collector Current

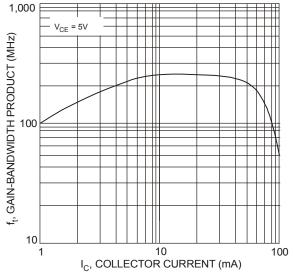
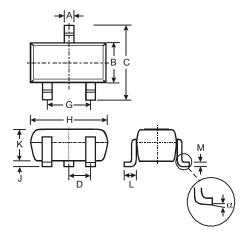


Fig. 4 Typical Gain-Bandwidth Product vs. Collector Current



Package Outline Dimensions

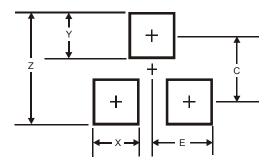
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



	SOT323							
Dim	Min	Max	Тур					
Α	0.25	0.40	0.30					
В	1.15	1.35	1.30					
С	2.00	2.20	2.10					
D	-	-	0.65					
G	1.20	1.40	1.30					
Н	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	α 0° 8°		-					
All	Dimens	ions 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
Х	0.7
Υ	0.9
С	1.9
E	1.0



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