



BC856AW - BC858CW

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)
- For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at https://www.diodes.com/products/automotive/automotive-

products/.

This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability.

https://www.diodes.com/quality/product-definitions/

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 3
- Weight: 0.006 grams (Approximate)

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (Inches)	Quantity per Reel
BC856AW-7-F	Standard	K3A	7	3000
BC856BW-7-F	Standard	K3B	7	3000
BC856BW-13-F	Standard	K3B	13	10,000
BC857AW-7-F	Standard	K3A	7	3000
BC857BW-7-F	Standard	K3B	7	3000
BC857BWQ-13-F	Automotive	K3B	13	10,000
BC857CW-7-F	Standard	K3G	7	3000
BC858AW-7-F	Standard	K3A	7	3000
BC858BW-7-F	Standard	K3B	7	3000
BC858CW-7-F	Standard	K3G	7	3000

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.

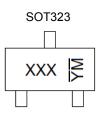
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.

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. Tape width is 8mm. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.



Marking Information



 $\begin{array}{l} XXX = \mbox{Product Type Marking Code (See Ordering Information)} \\ YM = \mbox{Date Code Marking} \\ Y \mbox{ or } \overline{Y} = \mbox{Year (ex: H = 2020)} \\ M \mbox{ or } \overline{M} = \mbox{Month (ex: 9 = September)} \end{array}$

Date Code Kev

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	Н		J	K	L	М	N	0	Р	R	S	Т
Month	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	2	4	5	6	7	8	Q	0	N	П

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

Charact	eristic	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	Ι _C	-100	mA	
Peak Pulse Collector Current (single pul	I _{CM}	-200	mA	
Peak Pulse Emitter Current (single pulse	I _{EM}	-200	mA	

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

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	PD	200	mW
Thermal Resistance, Junction to Ambient (Note 5)		R _{eja}	625	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C	

Note: 5. 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.



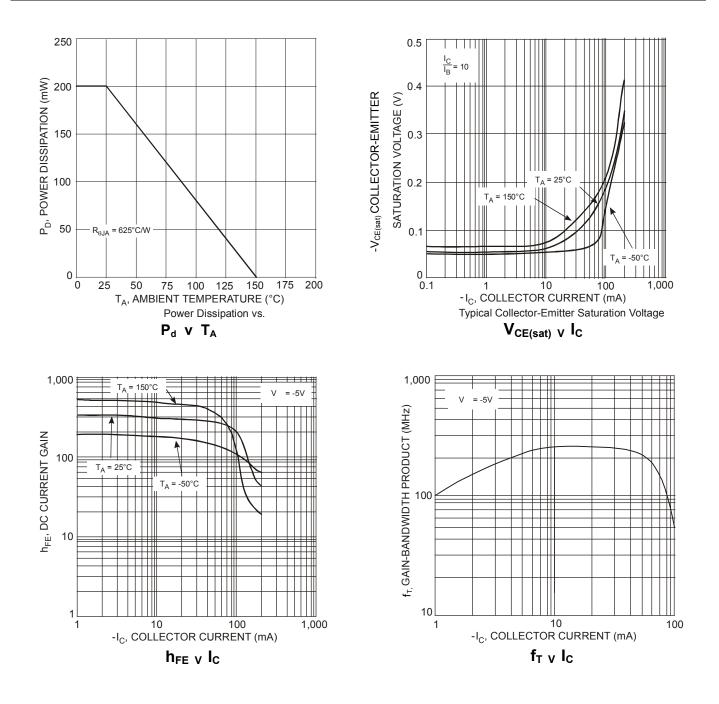
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Chara	Symbol	Min	Тур	Max	Unit	Test Condition		
BC856				-80				
Collector-Base Breakdown Voltage BC857			BV CBO	-50	_	_	V	I _C = -100μA
		-30						
Collector-Emitter Breakdown Voltage (Note 6) BC856 BC857			-65 BV _{CEO} -45					
				-45	—	—	V	I _C = -10mA
		BC858		-30				
Emitter-Base Breakdown Volta	BV_{EBO}	-5	_	_	V	I _E = -100μA		
		А		125	180	250		
DC Current Gain (Note 6)	Current Gain Group	p B	h _{FE}	220	290	475		V_{CE} = -5.0V, I_{C} = -2.0mA
		С		420	520	800		
Collector Cutoff Current			I _{CBO}	_	·	-15	nA	V _{CB} = -30V
						-4	μA	V _{CB} = -30V, T _A = +150°C
			V		-75	-300	mV	I _C = -10mA, I _B = -0.5mA
Collector-Emitter Saturation Vo	ollage (Note 6)		V _{CE(sat)}	_	-250	-650	IIIV	I _C = -100mA, I _B = -5.0mA
			N	-600	-650	-750		I _C = -2mA, V _{CE} = -5V
Base-Emitter Turn-On Voltage	(NOTE 6)		V _{BE(on)}	—	_	-820	mV	I _C = -10mA, V _{CE} = -5V
			V _{BE(sat)}		-700	_		I _C = -10mA, I _B = -0.5mA
Base-Emitter Saturation Voltag	ge (Note 6)			E(sat) —	-850	-950	mV	I _C = -100mA, I _B = -5mA
Output Capacitance			C _{obo}	_	3	4.5	pF	V _{CB} = -10V, f = 1.0MHz
Transition Frequency	f⊤	100	200	_	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		

Note: 6. Measured under pulsed conditions. Pulse width \leqslant 300µs. Duty cycle \leqslant 2%



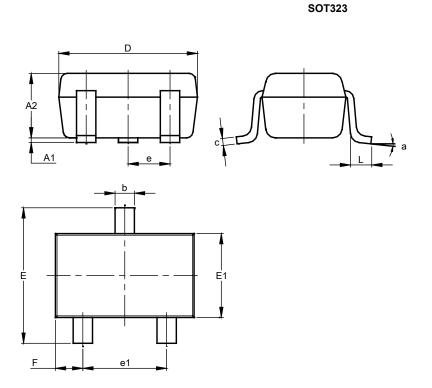
Typical Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)





Package Outline Dimensions

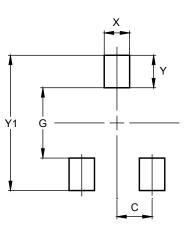
Please see http://www.diodes.com/package-outlines.html for the latest version.



SOT323									
Dim	Min	Max	Тур						
A1	0.00	0.10	0.05						
A2	0.90	0.90 1.00 0.95							
b	0.25	0.40	0.30						
С	0.10	0.18	0.11						
D	1.80	2.20	2.15						
Е	2.00	2.20	2.10						
E1	1.15	1.30							
е	C).650 B	SC						
e1	1.20	1.40	1.30						
F	0.375	0.475	0.425						
L	0.25	0.40	0.30						
а	0°	8°							
All	All Dimensions in mm								

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.



Dimensions	Value (in mm)
С	0.650
G	1.300
Х	0.470
Y	0.600
Y1	2.500

SOT323



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