BC856BW-7-F Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	BC856BW-7-F-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	BC856BW-7-F
Description	TRANS PNP 65V 0.1A SOT323
Detailed Description	Bipolar (BJT) Transistor PNP 65 V 100 mA 200MHz 200 mW Surface Mount SOT-323

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
BC856BW-7-F	Diodes Incorporated
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
PNP	100 mA
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
65 V	650mV @ 5mA, 100mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
15nA (ICBO)	220 @ 2mA, 5V
Power - Max:	Frequency - Transition:
200 mW	200MHz
Operating Temperature:	Mounting Type:
-65°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
SC-70, SOT-323	SOT-323
Base Product Number:	
BC856	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0075	

Features

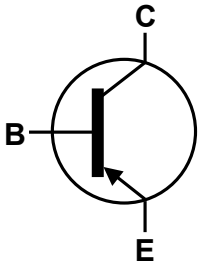
- Ideally Suited for Automatic Insertion
- Complementary NPN Types Available (BC846AW - BC848CW)
- For Switching and AF Amplifier Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring 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

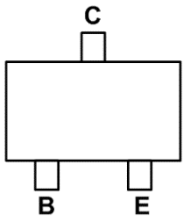
- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish—Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.006 grams (Approximate)

SOT323

Top View



Device Symbol



Top View
Pin-Out

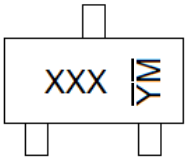
Ordering Information (Note 4)

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

SOT323



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

Date Code Key

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	H	I	J	K	L	M	N	O	P	R	S	T

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	BC856	V_{CBO}	-80	V
	BC857		-50	
	BC858		-30	
Collector-Emitter Voltage	BC856	V_{CEO}	-65	V
	BC857		-45	
	BC858		-30	
Emitter-Base Voltage		V_{EBO}	-5.0	V
Continuous Collector Current		I_C	-100	mA
Peak Pulse Collector Current (single pulse)		I_{CM}	-200	mA
Peak Pulse Emitter Current (single pulse)		I_{EM}	-200	mA

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

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	200	mW
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\Theta JA}$	625	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

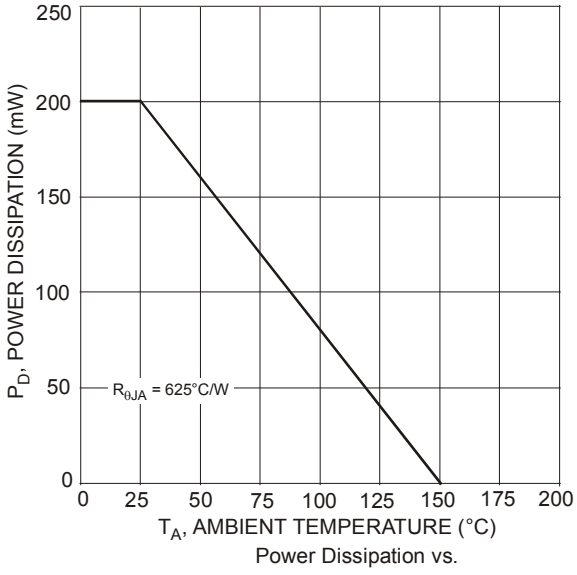
Note: 5. For a device mounted on minimum recommended pad layout 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.

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

Characteristic			Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BC856		BV_{CBO}	-80	—	—	V	I_C = -100µA
	BC857			-50				
	BC858			-30				
Collector-Emitter Breakdown Voltage (Note 6)	BC856		BV_{CEO}	-65	—	—	V	I_C = -10mA
	BC857			-45				
	BC858			-30				
Emitter-Base Breakdown Voltage			BV_{EBO}	-5	—	—	V	I_E = -100µA
DC Current Gain (Note 6)	Current Gain Group	A	h_{FE}	125	180	250	—	V_{CE} = -5.0V, I_C = -2.0mA
		B		220	290	475		
		C		420	520	800		
Collector Cutoff Current			I_{CBO}	—	—	-15	nA	V_{CB} = -30V
						-4	µA	V_{CB} = -30V, T_A = +150°C
Collector-Emitter Saturation Voltage (Note 6)			$V_{CE(sat)}$	—	-75	-300	mV	I_C = -10mA, I_B = -0.5mA
					-250	-650		I_C = -100mA, I_B = -5.0mA
Base-Emitter Turn-On Voltage (Note 6)			$V_{BE(on)}$	-600	-650	-750	mV	I_C = -2mA, V_{CE} = -5V
				—	—	-820		I_C = -10mA, V_{CE} = -5V
Base-Emitter Saturation Voltage (Note 6)			$V_{BE(sat)}$	—	-700	—	mV	I_C = -10mA, I_B = -0.5mA
					-850	-950		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	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

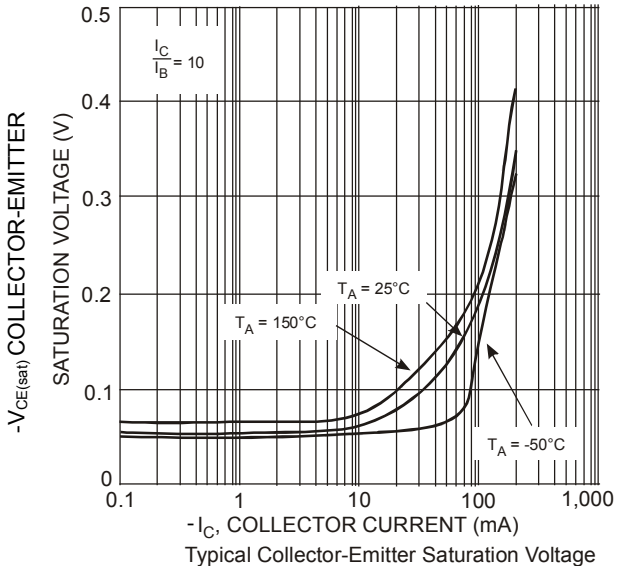
Note: 6. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%

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



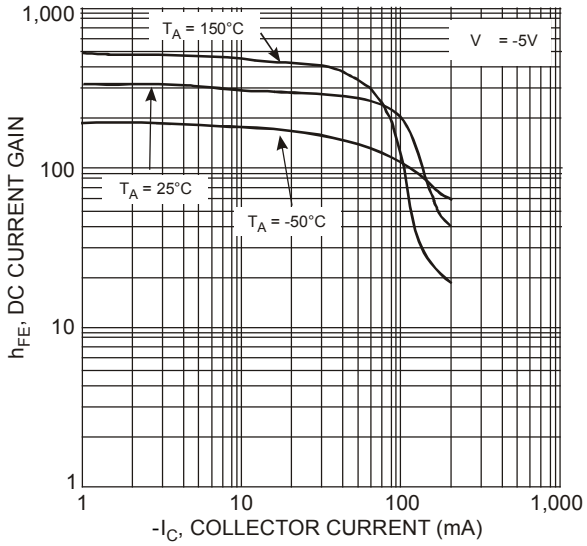
Power Dissipation vs.

P_d v T_A

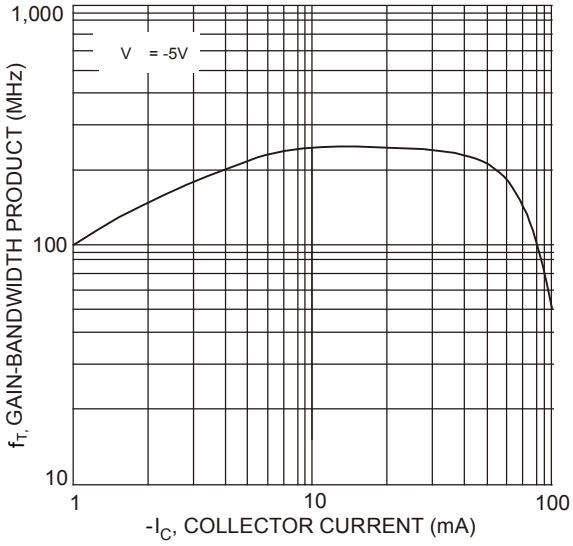


Typical Collector-Emitter Saturation Voltage

$V_{CE(sat)}$ v I_C



h_{FE} v I_C

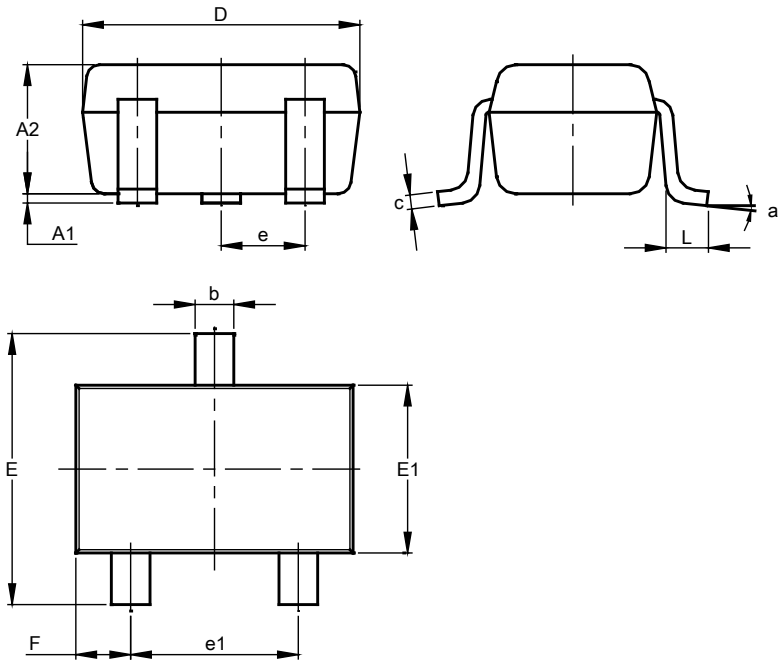


f_T v I_C

Package Outline Dimensions

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

SOT323



SOT323			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

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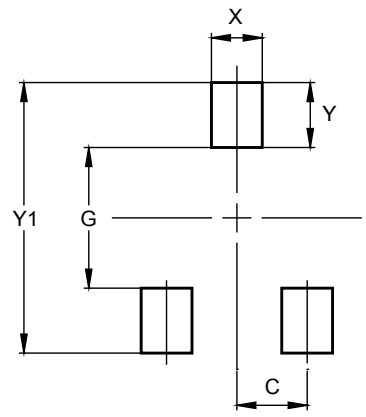

Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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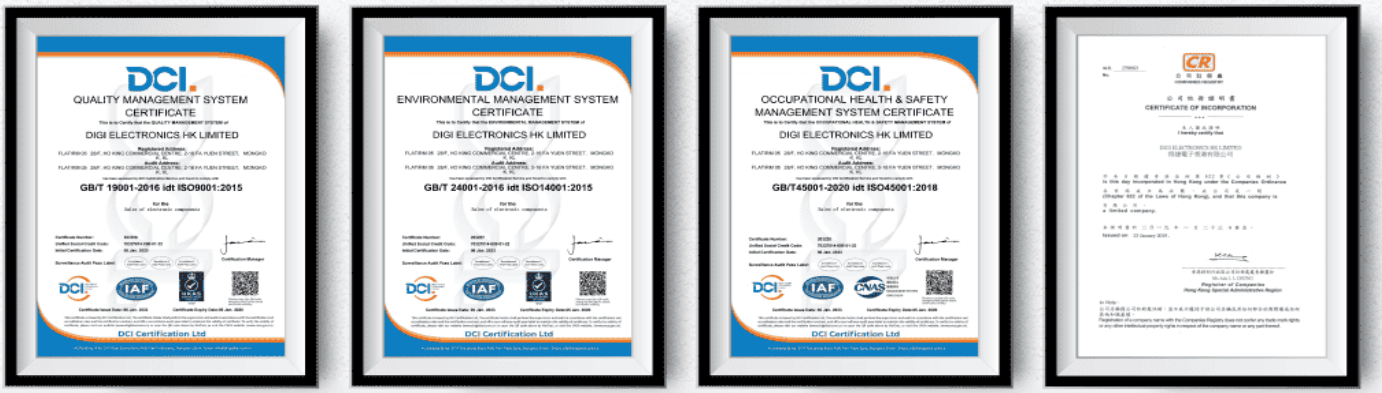

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