AEM
Innovation to Power Your Vision

Central Semiconductor
An AEM Company

RUGGEDIZED

BC847CW-RZ

SURFACE MOUNT SILICON NPN TRANSISTOR RUGGEDIZED PACKAGING

SOT-323 CASE

Complies with directives:
- 2011/65/EU (RoHS2)
- 2015/863/EU (RoHS3)

DESCRIPTION:

The CENTRAL SEMICONDUCTOR BC847CW-RZ is a silicon NPN transistor designed for general purpose switching and amplifier applications. The BC847CW-RZ is a robust design manufactured specifically for operation in harsh environments where temperature and moisture may contribute to degraded performance and reliability.

UNIQUE DEVICE CONSTRUCTION FEATURES:
- Alloy 42 copper plated lead frame
- Eutectic die attach
- 0.8 mil gold wire bond
- Silver free package
- Pb/Sn lead plating available

MARKING: C47

MAXIMUM RATINGS: (T_A=25°C)	**SYMBOL**		**UNITS**
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Continuous Collector Current	I_C	100	mA
Peak Collector Current	I_{CM}	200	mA
Peak Base Current	I_{BM}	200	mA
Power Dissipation	P_D	275	mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	°C
Thermal Resistance	Θ_{JA}	455	°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

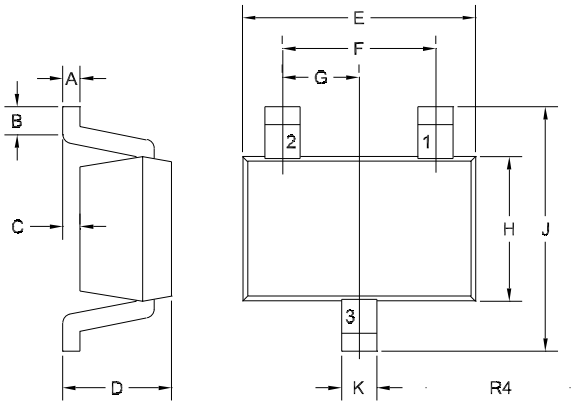
SYMBOL	**TEST CONDITIONS**	**MIN**	**MAX**	**UNITS**
I_{CBO}	V_{CB}=30V		15	nA
I_{CBO}	V_{CB}=30V, T_A=150°C		5.0	µA
I_{EBO}	V_{EB}=5.0V		100	nA
BV_{CBO}	I_C=10µA	50		V
BV_{CEO}	I_C=10mA	45		V
BV_{EBO}	I_E=10µA	6.0		V
$V_{CE(SAT)}$	I_C=10mA, I_B=0.5mA		0.25	V
$V_{CE(SAT)}$	I_C=100mA, I_B=5.0mA		0.60	V
$V_{BE(ON)}$	I_C=2.0mA, V_{CE}=5.0V	0.58	0.70	V
$V_{BE(ON)}$	I_C=10mA, V_{CE}=5.0V		0.77	V
h_{FE}	V_{CE}=5.0V, I_C=2.0mA	420	800	
C_{ob}	V_{CB}=10V, I_E=0, f=1.0MHz		3.0	pF
f_T	V_{CE}=5.0V, I_C=10mA, f=100MHz	100		MHz
NF	V_{CE}=5.0V, I_C=200µA, R_S=2.0KΩ, f=1.0KHz, BW=200Hz		10	dB

R0 (2-December 2025)

BC847CW-RZ

SURFACE MOUNT SILICON
NPN TRANSISTOR
RUGGEDIZED PACKAGING

SOT-323 CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.002	0.008	0.05	0.20
B	0.004	-	0.10	-
C	-	0.004	-	0.10
D	0.031	0.043	0.80	1.10
E	0.071	0.087	1.80	2.20
F	0.051		1.30	
G	0.026		0.65	
H	0.045	0.053	1.15	1.35
J	0.079	0.094	2.00	2.40
K	0.008	0.016	0.20	0.40

SOT-323 (REV: R4)

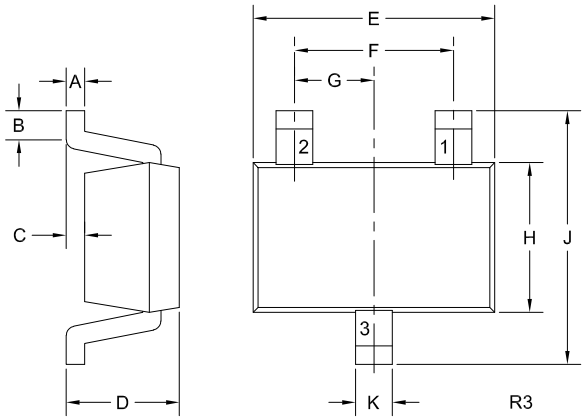
LEAD CODE:
1) Base
2) Emitter
3) Collector

MARKING CODE: C47

R0 (2-December 2025)

Package Details
SOT-323 Case

Mechanical Drawing



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	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
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C	-	0.004	-	0.10
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E	0.071	0.087	1.80	2.20
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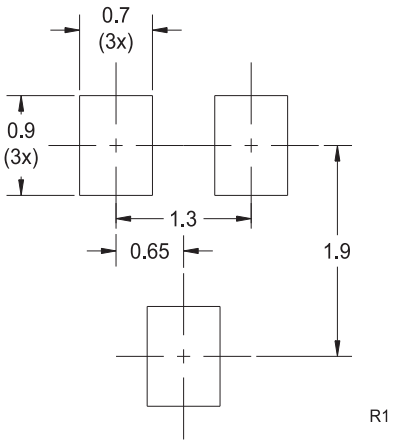
J	0.079	0.087	2.00	2.20
K	0.008	0.016	0.20	0.40

SOT-323 (REV: R3)

Lead Code:
Reference individual device datasheet.

Part Marking: 2-3 Character Alpha/Numeric Code

Mounting Pad Geometry (Dimensions in mm)

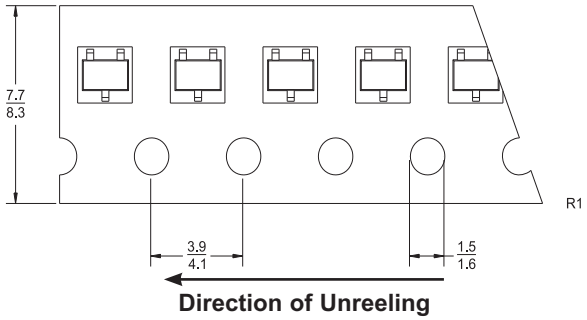


R5 (29-April 2020)

Package Details
SOT-323 Case

Tape Dimensions and Orientation (Dimensions in mm)

Tape Width: 8mm



Devices are taped in accordance with Electronic Industries Association Standard EIA-481-D

Packaging Base

7” Reel = 3,000 pcs.
13” Reel = 10,000 pcs.

Reel Labeling Information

Each reel is labeled with the following information:
Central Part Number, Customer Part Number, Purchase Order Number, Quantity, Lot Number, Date Code and Ship Date.

Reel Packing Information

Reel Size	Reels per Box (Maximum)	Parts per Box (Maximum)	Box Dimensions		Shipping Weight (Max.)	
			INCH	CM	LB	KG
7”	9	27,000	9x9x5	23x23x13	3	2
	18	54,000	9x9x9	23x23x23	6	3
	40	120,000	21x9x9	53x23x23	13	6
	108	324,000	27x9x17	69x23x43	34	16
13”	6	60,000	15x4x15	38x10x38	6	3
	14	140,000	15x15x9	38x38x23	12	6
	26	220,000	15x15x18	38x38x46	22	11

Ordering Information

- For devices taped and reeled on 7” reels, add TR suffix to part number.
- For devices taped and reeled on 13” reels, add TR13 suffix to part number.
- All SMDs are available in small quantities for prototype and manual placement applications.

Material Composition Specification

SOT-323 Case

Device average mass . . . . . **5.47 mg**

Fluctuation margin . . . . . **+/-10%**

Component	Material	Material		Substance	CAS No.	Substance		
		(%wt)	(mg)			(%wt)	(mg)	(ppm)
active device	doped Si	4.2%	0.23	Si	7440-21-3	4.2%	0.23	42,048
bond wire	gold or copper	0.37%	0.02	Au	7440-57-5	0.37%	0.02	3,656
				Cu	7440-50-8			
leadframe	alloy 42 w/ silver plating	23.77%	1.3	Fe	7439-89-6	13.71%	0.75	137,112
				Ni	7440-02-0	9.51%	0.52	95,064
				Ag	7440-22-4	0.55%	0.03	5,484
encapsulation*	EMC	67.46%	3.69	silica	7631-86-9	49.91%	2.73	499,086
				epoxy resin	Proprietary	15.72%	0.86	157,221
				Sb_2O_3	1309-64-4	1.28%	0.07	12,797
				Br	7726-95-6	0.37%	0.02	3,656
				carbon	1333-86-4	0.18%	0.01	1,828
	EMC GREEN	67.46%	3.69	silica (fused)	60676-86-0	51.94%	2.841	519,442
				epoxy resin	29690-82-2	6.75%	0.369	67,456
				phenol resin	9003-35-4	6.54%	0.358	65,433
				carbon black	1333-86-4	0.2%	0.011	2,023
				metal hydroxide	1309-42-8	2.02%	0.111	20,235
plating**	tin/lead process	4.2%	0.23	Sn	7440-31-5	3.29%	0.18	32,907
				Pb	7439-92-1	0.91%	0.05	9,141
	matte tin	4.2%	0.23	Sn	7440-31-5	4.2%	0.23	42,048

*EMC GREEN molding compound is Halogen-Free.

**For Lead Free plating, add suffix “PB FREE” to part number.
For Tin/Lead plating, add suffix “TIN/LEAD” to part number.
No suffix designation allows for the supply of either lead-free or tin/lead plated product depending on availability.

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SOT-323 Case

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OUTSTANDING SUPPORT AND SUPERIOR SERVICES

PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

CONTACT US

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