

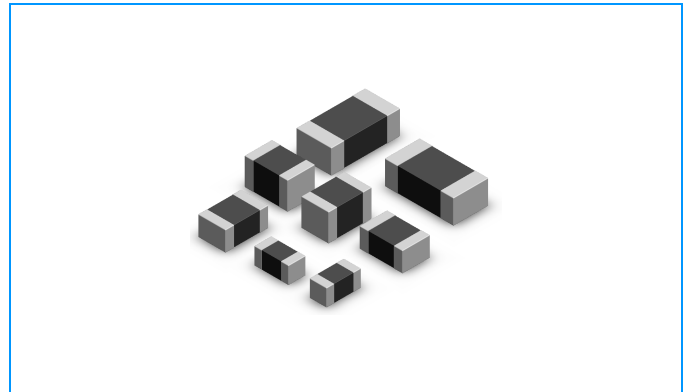
# Chip Ferrite Bead for Automotive Applications

Qualified based on AEC-Q200

## SCGB-W SCHB-W & SCPB-W Series

### Features

- u Monolithic inorganic material construction
- u Closed magnetic circuit avoids crosstalk
- u SMD Type & suitable for reflow and wave soldering
- u Available in various sizes
- u Excellent solderability and heat resistance
- u High reliability
- u Effectively filtering capability over a wide range of frequency



### Applications

- u Automotive etc.

### General Technical Data

Operating temperature range	-40 ~ +125°C
Storage Condition	Less than 40°C and 70% RH
Storage Time	6 months(Size:1005), 12 months(Size:1608 above)
Soldering method	Reflow or Wave Soldering

### Part Numbering

**SCGB**   **1608**   **W**   **12**   **1**   **H**   **P**   **F**   **-**  
 (1)   (2)   (3)   (4)   (5)   (6)   (7)   (8)   (9)

- 1 Series Name
- 2 Size Code: the first two digitals : length(mm), the last two digitals : width(mm)
- 3 W: for Automotive
- 4 Impedance(Ω), ±25%
- 5 Fixed Decimal Point } e.g.: 600=60 Ω, 121=120Ω
- 6 Rated Current Cod

A=50mA	B=80mA	C=100mA	D=150mA	E=200mA	F=300mA	G=400mA
H=500mA	I=600mA	J=700mA	K=800mA	L=1000mA	M=1500mA	N=2000mA
P=2500mA	Q=3000mA	R=4000mA	U=5000mA	W=6000mA		

- 7 Packaging: P - Embossed paper tape, 7" reel  
T - Embossed plastic tape, 7" reel
- 8 Soldering : Green Parts: S- Soldering Lead-Free F-Lead-Free for whole chip
- 9 Material Code

**Chip Ferrite Bead for Automotive Applications**

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**SCGB-W SCHB-W & SCPB-W Series**
**Electrical Characteristics**
**n Chip Ferrite Bead**
**SCGB1005-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCGB1005W121HPF	120	100	0.25	500
SCGB1005W241FPF	240	100	0.35	300
SCGB1005W601EPFB	600	100	0.65	200
SCGB1005W102EPF	1000	100	1.00	200
SCGB1005W102EPFB	1000	100	0.90	200
SCGB1005W182EPFB	1800	100	1.40	200

**SCGB1608-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCGB1608W121HPF	120	100	0.18	500
SCGB1608W221HPF	220	100	0.25	500
SCGB1608W471HPF	470	100	0.35	500
SCGB1608W601HPF	600	100	0.38	500
SCGB1608W102GPF	1000	100	0.50	400
SCGB1608W182APF	1800	100	1.50	50
SCGB1608W222APF	2200	100	1.50	50
SCGB1608W252APF	2500	100	1.50	50

**SCGB2012-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCGB2012W121EPF	120	100	0.15	200
SCGB2012W151EPF	150	100	0.15	200
SCGB2012W221EPF	220	100	0.20	200
SCGB2012W601EPF	600	100	0.30	200
SCGB2012W102EPF	1000	100	0.45	200

**SCGB3216-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCGB3216W601ETF	600	100	0.90	200

**Chip Ferrite Bead for Automotive Applications**

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**SCGB-W SCHB-W & SCPB-W Series**
**Electrical Characteristics (Continue)**
**n Chip Ferrite Bead For High Speed**
**SCHB1005-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCHB1005W750FPF	75	100	0.40	300

**SCHB1608-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCHB1608W750HPF	75	100	0.30	500
SCHB1608W121EPF	120	100	0.40	200
SCHB1608W241EPF	240	100	0.45	200
SCHB1608W601EPF	600	100	0.65	200
SCHB1608W102CPF	1000	100	0.85	100

**SCHB2012-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCHB2012W121EBPF	120	100	0.25	200
SCHB2012W151EBPF	150	100	0.25	200
SCHB2012W221EBPF	220	100	0.25	200
SCHB2012W601EBPF	600	100	0.35	200
SCHB2012W222EBPF	2200	100	0.60	200

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**SCGB-W SCHB-W & SCPB-W Series**
**Electrical Characteristics (Continue)**
**n High Current Chip Ferrite Bead**
**SCPB1005-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCPB1005W100LPF	10	100	0.05	1000

**SCPB1608-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCPB1608W300LPF	30	100	0.05	1000
SCPB1608W600LPF	60	100	0.10	1000
SCPB1608W121NPF	120	100	0.05	2000
SCPB1608W181MPF	180	100	0.09	1500
SCPB1608W221MPF	220	100	0.10	1500
SCPB1608W301MPF	300	100	0.15	1500
SCPB1608W471LPF	470	100	0.20	1000

**SCPB2012-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCPB2012W310QPF	31	100	0.015	3000
SCPB2012W600QPF	60	100	0.026	3000
SCPB2012W221NPF	220	100	0.050	2000
SCPB2012W331MPF	330	100	0.090	1500

**SCPB3216-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCPB3216W500QTF	50	100	0.025	3000
SCPB3216W121QTF	120	100	0.026	3000
SCPB3216W601MTF	600	100	0.090	1500

**SCPB4516-W Series**

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Freq. (MHz)	DCR ( $\Omega$ ) (Max.)	Rated Current (mA)
SCPB4516W600WTF	60	100	0.010	6000

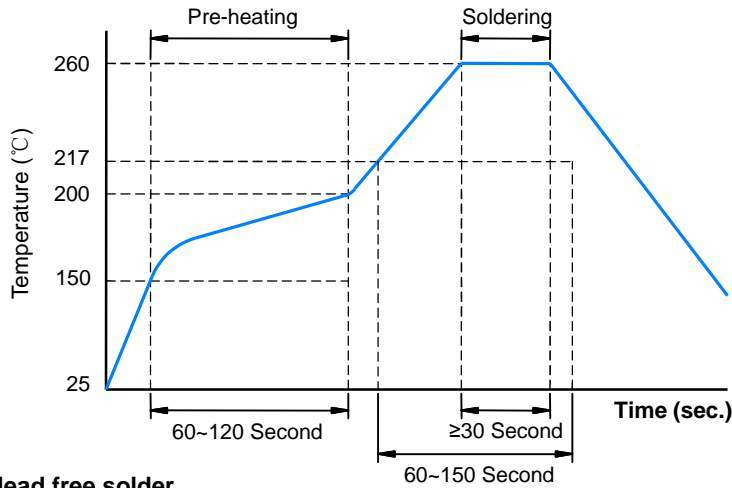
\*\* For special part number which is not shown in the above table, please refer to appendix.

# Chip Ferrite Bead for Automotive Applications

Qualified based on AEC-Q200

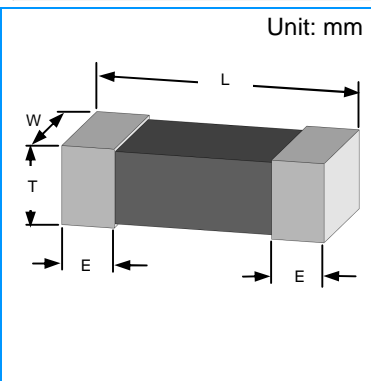
## SCGB-W SCHB-W & SCPB-W Series

### Recommended Soldering Conditions



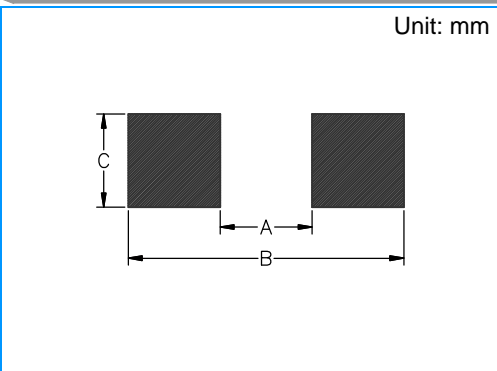
For lead free solder

### Construction & Dimensions



Symbol	1005 (EIA 0402)	1608 (EIA 0603)	2012 (EIA 0805)	3216 (EIA 1206)	3225 (EIA 1210)	4516 (EIA 1806)	4532 (EIA 1812)
L	1.00±0.10	1.60±0.15	2.00±0.20	3.20±0.20	3.20±0.20	4.50±0.25	4.50±0.25
W	0.50±0.10	0.80±0.15	1.25±0.20	1.60±0.20	2.50±0.20	1.60±0.20	3.20±0.25
T	0.50±0.10	0.80±0.15	0.90±0.20	1.10±0.20	1.30±0.20	1.0±0.20	1.50±0.25
E	0.25±0.10	0.30±0.20	0.50±0.30	0.50±0.30	0.50±0.30	0.60±0.40	0.60±0.40

### Recommended Pad Layout



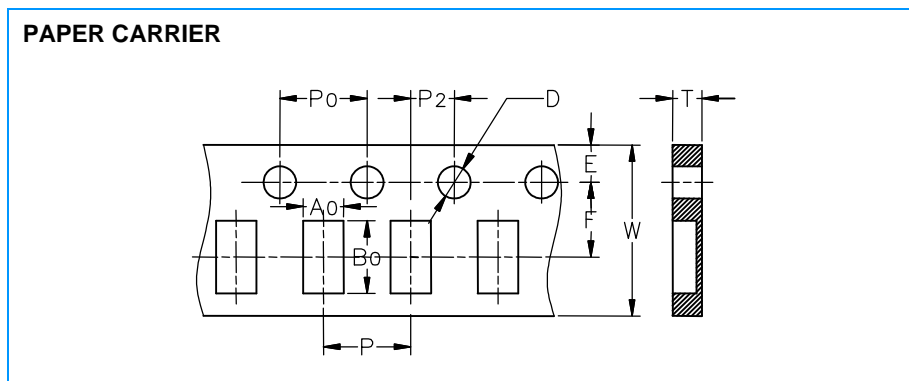
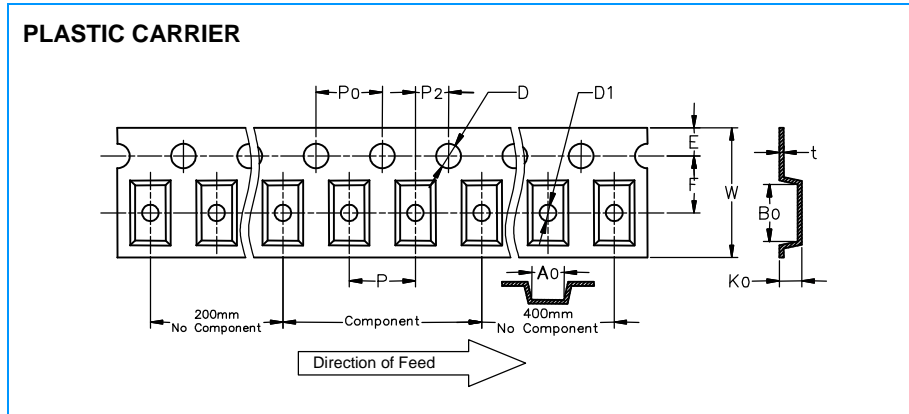
Size	A	B	C
1005	0.40~0.60	1.60~2.60	0.40~0.70
1608	0.50~0.70	2.10~3.10	0.65~0.95
2012	1.00~1.20	3.00~4.00	0.80~1.10
3216	2.00~2.40	4.20~5.20	1.00~1.40
3225	2.10~2.30	4.20~5.20	2.20~2.50
4516	3.40~3.70	6.30~7.30	1.30~1.70
4532	3.40~3.70	6.30~7.30	2.90~3.20

# Chip Ferrite Bead for Automotive Applications

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## SCGB-W SCHB-W & SCPB-W Series

### Tape Specifications



Unit: mm

Symbol	1005	1608	2012	3216	3225	4516	4532
	Paper	Paper	Paper	Plastic	Plastic	Plastic	Plastic
<b>W</b>	8.00±0.10	8.00±0.10	8.00±0.10	7.90~8.30	7.90~8.30	11.7~12.3	12.00±0.10
<b>P</b>	2.00±0.05	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	8.00±0.10
<b>E</b>	1.75±0.05	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10
<b>F</b>	3.50±0.05	3.50±0.10	3.50±0.10	3.50±0.05	3.50±0.05	5.50±0.05	5.50±0.05
<b>D</b>	1.55±0.05	1.56±0.10	1.56±0.10	1.55±0.05	1.55±0.05	1.55±0.05	1.55±0.05
<b>D1</b>	NA	NA	NA	0.95~1.20	0.95~1.20	1.50~1.75	1.50~1.75
<b>P</b>	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
<b>P<sub>0</sub>10</b>	NA	NA	40.0±0.20	40.0±0.20	40.0±0.20	40.0±0.20	40.0±0.20
<b>P2</b>	2.00±0.05	2.00±0.10	2.00±0.10	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05
<b>A0</b>	0.62±0.03	1.05±0.05	1.50±0.05	1.85±0.10	2.57±0.10	1.83±0.10	3.66±0.10
<b>B0</b>	1.12±0.03	1.85±0.05	2.30±0.05	3.43±0.10	3.40±0.10	4.85±0.10	4.95±0.10
<b>K0(T)</b>	0.60±0.03	0.95±0.05	0.95±0.05	1.22±0.10	1.32±0.10	1.83±0.10	1.83±0.10
<b>t</b>	NA	NA	NA	0.25±0.10	0.25±0.10	0.29±0.10	0.23±0.10

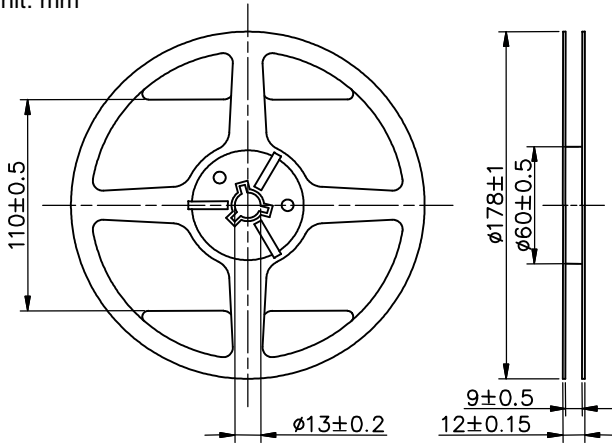
# Chip Ferrite Bead for Automotive Applications

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## SCGB-W SCHB-W & SCPB-W Series

### Reel Specifications & Packaging

Unit: mm



Part Size(EIA Size)	Packaging Option	Quantity
1005 (0402)	7"Reel	10,000
1608 (0603)	7"Reel	4,000
2012 (0805)	7"Reel	4,000
3216 (1206)	7"Reel	3,000
3225 (1210)	7"Reel	2,000
4516 (1806)	7"Reel	2,000
4532 (1812)	7"Reel	1,000

#### The Contents of a box:

1005 (0402): 6 reels / inner box	3225 (1210): 6 reels / inner box
1608 (0603): 6 reels / inner box	4516 (1806): 4 reels / inner box
2012 (0805): 6 reels / inner box	4532 (1812): 4 reels / inner box
3216 (1206): 6 reels / inner box	

### Reliability and Test Condition

Test item	Test condition	Criteria
<b>Temperature Cycle</b>	a. Temperature : $-40 \sim +85^{\circ}\text{C}$ b. Cycle : 100 cycles c. Dwell time : 30minutes Measurement : at ambient temperature 24 hrs after test completion	a. No mechanical damage b. Induction value should be within $\pm 20\%$ of the initial value
<b>Operational Life</b>	a. Temperature : $125^{\circ}\text{C} \pm 5^{\circ}\text{C}$ b. Test time : 1000 hrs c. Apply current : full rated current Measurement : at ambient temperature 24 hrs after test completion	a. No mechanical damage b. Induction value should be within $\pm 20\%$ of the initial value
<b>Biased Humidity</b>	a. Temperature : $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ b. Humidity : 90 ~ 95 % RH c. Test time : 1000 hrs d. Apply current : full rated current Measurement : at ambient temperature 24 hrs after test completion	a. No mechanical damage b. Induction value should be within $\pm 20\%$ of the initial value
<b>Resistance to Solder Heat</b>	a. Solder temperature : $260 \pm 5^{\circ}\text{C}$ b. Flux : Rosin c. DIP time : $10 \pm 1$ sec	a. More than 95 % of terminal electrode should be covered with new solder b. No mechanical damage c. Induction value should be within $\pm 20\%$ of the initial value
<b>Adhesive Test</b>	a. Reflow temperature : $245^{\circ}\text{C}$ It shall be Soldered on the substrate applying direction parallel to the substrate b. Apply force(F) : 5 N Test time : 10 sec	a. No mechanical damage b. Soldering the products on PCB after the pulling test force > 5 N
<b>Rated Current Test</b>	a. Apply current : full rated current / 5min	Temperature rise should be less than $25^{\circ}\text{C}$
<b>Steam Aging Test</b>	a. Temperature : $93^{\circ}\text{C}$ b. Test time : 4hrs Others: 8hrs c. Solder temperature : $235 \pm 5^{\circ}\text{C}$ d. Flux : Rosin e. DIP time : $5 \pm 1$ sec	More than 95 % of terminal electrode should be covered with new solder