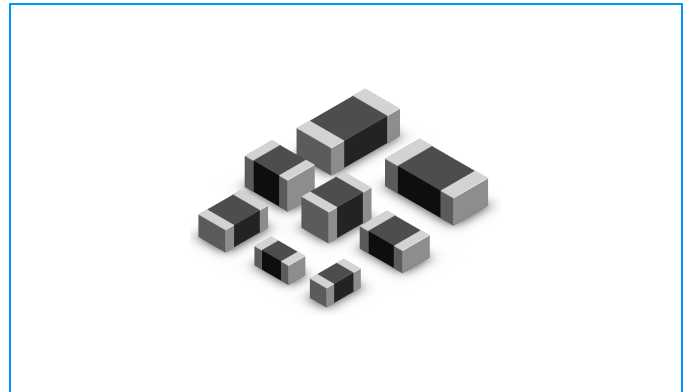


Chip Ferrite Bead

SCGB-S 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

Filtering between analog and digital circuitry, clock generation circuitry, I/O interconnects, isolation between RF noisy circuits and logic devices susceptible to functional degradation, power supply filtering to prevent conducted RF energy from corrupting the power generation circuitry, high frequency EMI prevention of computer, printers, VCRs, TVs and portable telephones.

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** **S** **60** **1** **E** **P** **F**
 (1) (2) (3) (4) (5) (6) (7) (8)

- 1 Series Name
- 2 Size Code: the first two digitals : length(mm), the last two digitals : width(mm)
- 3 Material Code
- 4 Impedance(Ω), $\pm 25\%$
- 5 Fixed Decimal Point } e.g.: 600=60 Ω , 121=120 Ω
- 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 | |

- 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

Chip Ferrite Bead

SCGB-S Series

Electrical Characteristics

SCGB1005-S Series

| Part Number | Impedance (Ω) $\pm 25\%$ | Test Freq. (MHz) | DCR (Ω) (Max.) | Rated Current (mA) |
|-----------------|--------------------------------------|---------------------|----------------------------|-----------------------|
| SCGB1005S100FPF | 10 | 100 | 0.10 | 300 |
| SCGB1005S200FPF | 20 | 100 | 0.20 | 300 |
| SCGB1005S300FPF | 30 | 100 | 0.25 | 300 |
| SCGB1005S400FPF | 40 | 100 | 0.30 | 300 |
| SCGB1005S600FPF | 60 | 100 | 0.35 | 300 |
| SCGB1005S700FPF | 70 | 100 | 0.35 | 300 |
| SCGB1005S121FPF | 120 | 100 | 0.40 | 300 |
| SCGB1005S241EPF | 240 | 100 | 0.70 | 200 |
| SCGB1005S301EPF | 300 | 100 | 0.80 | 200 |
| SCGB1005S471EPF | 470 | 100 | 1.00 | 200 |
| SCGB1005S601EPF | 600 | 100 | 1.00 | 300 |
| SCGB1005S102EPF | 1000 | 100 | 1.50 | 200 |

SCGB1608-S Series

| Part Number | Impedance (Ω) $\pm 25\%$ | Test Freq. (MHz) | DCR (Ω) (Max.) | Rated Current (mA) |
|-----------------|--------------------------------------|---------------------|----------------------------|-----------------------|
| SCGB1608S100IPF | 10 | 100 | 0.05 | 600 |
| SCGB1608S300IPF | 30 | 100 | 0.08 | 600 |
| SCGB1608S600IPF | 60 | 100 | 0.10 | 600 |
| SCGB1608S800IPF | 80 | 100 | 0.10 | 600 |
| SCGB1608S121IPF | 120 | 100 | 0.15 | 600 |
| SCGB1608S181FPF | 180 | 100 | 0.30 | 300 |
| SCGB1608S221FPF | 220 | 100 | 0.30 | 300 |
| SCGB1608S301FPF | 300 | 100 | 0.35 | 300 |
| SCGB1608S471FPF | 470 | 100 | 0.40 | 300 |
| SCGB1608S601EPF | 600 | 100 | 0.45 | 200 |
| SCGB1608S102CPF | 1000 | 100 | 0.60 | 100 |

Chip Ferrite Bead

SCGB-S Series

Electrical Characteristics (Continue)

SCGB2012-S Series

| Part Number | Impedance (Ω) $\pm 25\%$ | Test Freq. (MHz) | DCR (Ω) (Max.) | Rated Current (mA) |
|-----------------|--------------------------------------|---------------------|----------------------------|-----------------------|
| SCGB2012S300KPF | 30 | 100 | 0.05 | 800 |
| SCGB2012S400KPF | 40 | 100 | 0.05 | 800 |
| SCGB2012S600KPF | 60 | 100 | 0.15 | 800 |
| SCGB2012S800KPF | 80 | 100 | 0.15 | 800 |
| SCGB2012S121KPF | 120 | 100 | 0.15 | 800 |
| SCGB2012S221HPF | 220 | 100 | 0.20 | 500 |
| SCGB2012S301HPF | 300 | 100 | 0.20 | 500 |
| SCGB2012S601HPF | 600 | 100 | 0.30 | 500 |
| SCGB2012S102FPF | 1000 | 100 | 0.35 | 300 |
| SCGB2012S202EPF | 2000 | 100 | 0.50 | 200 |

SCGB3216-S Series

| Part Number | Impedance (Ω) $\pm 25\%$ | Test Freq. (MHz) | DCR (Ω) (Max.) | Rated Current (mA) |
|-----------------|--------------------------------------|---------------------|----------------------------|-----------------------|
| SCGB3216S310KTF | 31 | 100 | 0.05 | 800 |
| SCGB3216S500KTF | 50 | 100 | 0.08 | 800 |
| SCGB3216S700KTF | 70 | 100 | 0.10 | 800 |
| SCGB3216S121ITF | 120 | 100 | 0.15 | 600 |
| SCGB3216S601HTF | 600 | 100 | 0.30 | 500 |
| SCGB3216S102HTF | 1000 | 100 | 0.40 | 500 |
| SCGB3216S122HTF | 1200 | 100 | 0.40 | 500 |
| SCGB3216S152ETF | 1500 | 50 | 0.50 | 200 |
| SCGB3216S202ETF | 2000 | 30 | 0.50 | 200 |

SCGB3225-S Series

| Part Number | Impedance (Ω) $\pm 25\%$ | Test Freq. (MHz) | DCR (Ω) (Max.) | Rated Current (mA) |
|-----------------|--------------------------------------|---------------------|----------------------------|-----------------------|
| SCGB3225S600KTF | 60 | 100 | 0.30 | 800 |
| SCGB3225S900KTF | 90 | 100 | 0.30 | 800 |

Chip Ferrite Bead

SCGB-S Series

Electrical Characteristics (Continue)

SCGB4516-S Series

| Part Number | Impedance (Ω) $\pm 25\%$ | Test Freq. (MHz) | DCR (Ω) (Max.) | Rated Current (mA) |
|-----------------|--------------------------------------|---------------------|----------------------------|-----------------------|
| SCGB4516S800KTF | 80 | 100 | 0.10 | 800 |
| SCGB4516S151KTF | 150 | 100 | 0.30 | 800 |

SCGB4532-S Series

| Part Number | Impedance (Ω) $\pm 25\%$ | Test Freq. (MHz) | DCR (Ω) (Max.) | Rated Current (mA) |
|-----------------|--------------------------------------|---------------------|----------------------------|-----------------------|
| SCGB4532S700KTF | 70 | 100 | 0.40 | 800 |
| SCGB4532S800KTF | 80 | 100 | 0.40 | 800 |
| SCGB4532S121KTF | 120 | 100 | 0.40 | 800 |

Test Level : 250 mV

Test Instruments:

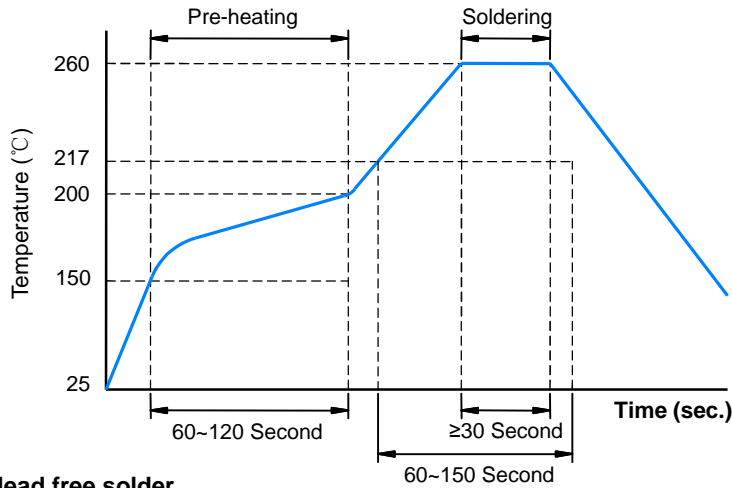
- I HP4291B
RF IMPEDANCE / MATERIAL ANALYZER
- I HP4338A/B MILLIOHM METER
- I Agilent 8720ES S-PARAMETER NETWORK ANALYZER
- I HP6632B SYSTEM DC POWER SUPPLY

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

Chip Ferrite Bead

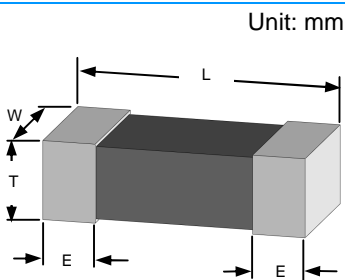
SCGB-S Series

Recommended Soldering Conditions



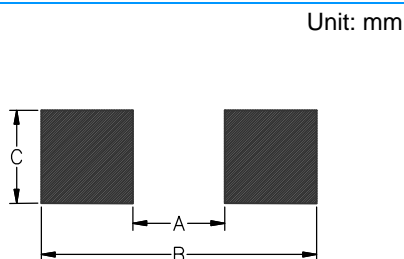
For lead free solder

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

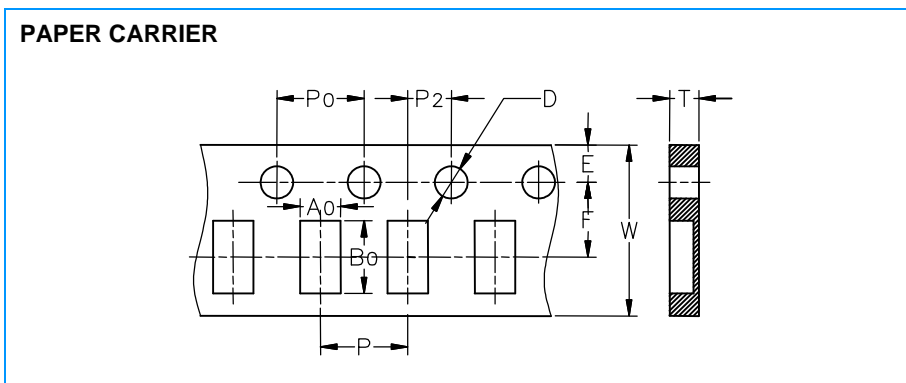
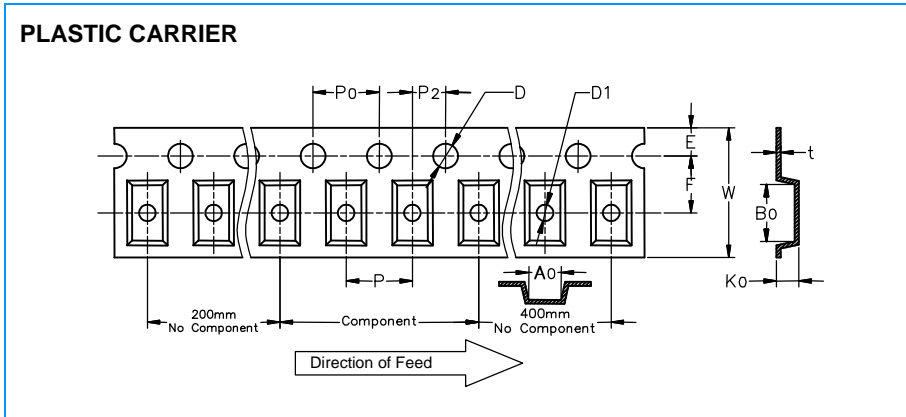


| Size | A | B | C |
|------|-----------|-----------|-----------|
| 1005 | 0.40~0.60 | 1.60~2.60 | 0.40~0.70 |
| 1608 | 0.50~0.70 | 2.10~3.10 | 0.65~0.95 |
| 2012 | 1.00~1.20 | 3.00~4.00 | 0.80~1.10 |
| 3216 | 2.00~2.40 | 4.20~5.20 | 1.00~1.40 |
| 3225 | 2.10~2.30 | 4.20~5.20 | 2.20~2.50 |
| 4516 | 3.40~3.70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

Chip Ferrite Bead

SCGB-S Series

Tape Specifications



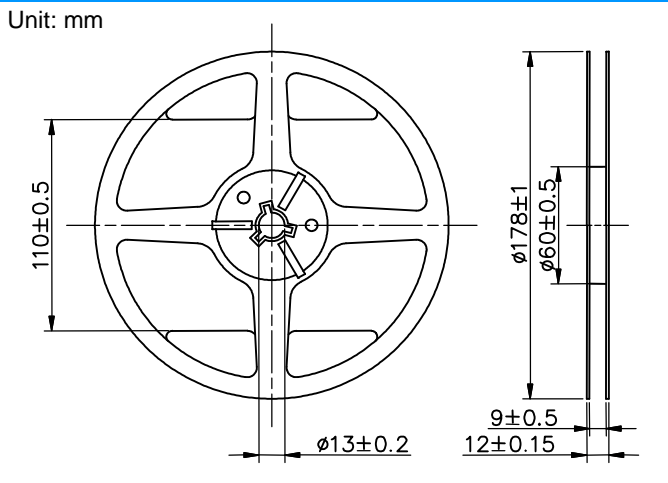
Unit: mm

| Symbol | 1005 | 1608 | 2012 | 3216 | 3225 | 4516 | 4532 |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| | Paper | Paper | Paper | Plastic | Plastic | Plastic | Plastic |
| W | 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 |
| P | 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 |
| E | 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 |
| F | 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 |
| D | 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 |
| D1 | NA | NA | NA | 0.95~1.20 | 0.95~1.20 | 1.50~1.75 | 1.50~1.75 |
| P | 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 |
| P₀10 | NA | NA | 40.0±0.20 | 40.0±0.20 | 40.0±0.20 | 40.0±0.20 | 40.0±0.20 |
| P₂ | 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 |
| A₀ | 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 |
| B₀ | 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 |
| K₀(T) | 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 |
| t | NA | NA | NA | 0.25±0.10 | 0.25±0.10 | 0.29±0.10 | 0.23±0.10 |

Chip Ferrite Bead

SCGB-S Series

Reel Specifications & Packaging



| 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 |
|---------------------------|--|--|
| Temperature Cycle | a. Temperature : -40 ~ +85°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 ±20 % of the initial value |
| Operational Life | a. Temperature : 125°C±5°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 ±20 % of the initial value |
| Biased Humidity | a. Temperature : 40°C±2°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 ±20 % of the initial value |
| Resistance to Solder Heat | a. Solder temperature : 260±5°C b. Flux : Rosin c. DIP time : 10±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 ±20 % of the initial value |
| Adhesive Test | a. Reflow temperature : 245°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 |
| Rated Current Test | a. Apply current : full rated current / 5min | Temperature rise should be less than 25°C |
| Steam Aging Test | a. Temperature : 93°C b. Test time : 4hrs Others: 8hrs c. Solder temperature : 235±5°C d. Flux : Rosin e. DIP time : 5±1 sec | More than 95 % of terminal electrode should be covered with new solder |