TO：	文件编号	HXA-L01-05(01)
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承 认 规 格 书

种　　类：High Current Ferrite Chip Bead

系 列 号：SFB2012HG-Series

客户料号：

客 户 承 认 栏	
承认日期	年　　月　　日

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厦门华信安电子科技有限公司技术质量部

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Http：www.xmisnd.com

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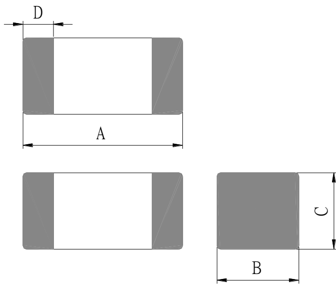
High Current Ferrite Chip Bead(Lead Free) SFB2012HG-Sreies

Halogen-free Pb-free

1.Features

1.Monolithic inorganic material construction.
2.Low DC resistance structure of electrode to prevent wasteful electric power consumption.
3.Closed magnetic circuit avoids crosstalk.
4.Suitable for flow and reflow soldering.
5.Shapes and dimensions follow E.I.A. spec.
6.Available in various sizes.
7.Excellent solderability and heat resistance.
8.High reliability.
9.This component is compliant with RoHS legislation and also support lead-free soldering.

2.Dimensions



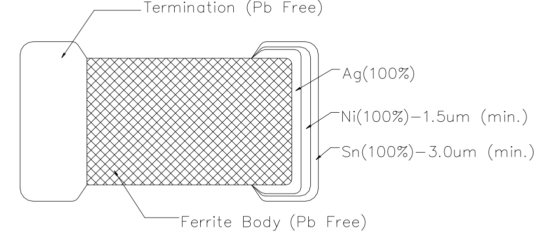
Chip Size	
A	2.00±0.20
B	1.25±0.20
C	0.85±0.20
D	0.50±0.30

Units: mm

3.Part Numbering

A B C D E F

A: Series
B: Dimension L x W
C: Material Lead Free Material
D: Impedance 121=120Ω
E: Packaging T=Taping and Reel, B=Bulk(Bags)
F: Rated Current 30=3000mA



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4.Specification

ISND Part Number	Impedance (Ω)	Test Frequency (Hz)	DC Resistance (Ω) max.	Rated Current (mA) max.
SFB2012HG-100T30	10±25%	60mV/100M	0.01	3000
SFB2012HG-100T60	10±25%	60mV/100M	0.01	3000
SFB2012HG-300T50	30±25%	60mV/100M	0.03	5000
SFB2012HG-420T40	42±25%	60mV/100M	0.03	4000
SFB2012HG-500T30	50±25%	60mV/100M	0.03	3000
SFB2012HG-600T30	60±25%	60mV/100M	0.04	3000
SFB2012HG-700T30	70±25%	60mV/100M	0.04	3000
SFB2012HG-800T30	80±25%	60mV/100M	0.04	3000
SFB2012HG-800T60	80±25%	60mV/100M	0.04	6000
SFB2012HG-101T30	100±25%	60mV/100M	0.04	3000
SFB2012HG-121T30	120±25%	60mV/100M	0.04	3000
SFB2012HG-121T60	120±25%	60mV/100M	0.1	6000
SFB2012HG-221T20	220±25%	60mV/100M	0.1	2000
SFB2012HG-301T20	300±25%	60mV/100M	0.2	2000
SFB2012HG-301T40	300±25%	60mV/100M	0.2	4000
SFB2012HG-331T20	330±25%	60mV/100M	0.2	2000
SFB2012HG-471T10	470±25%	60mV/100M	0.2	1000
SFB2012HG-601T20	600±25%	60mV/100M	0.2	2000
SFB2012HG-102T15	1000±25%	60mV/100M	0.2	1500

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5. Reliability and Test Condition

Item	Performance		Test Condition
Series No.	SFB	HXCI	--
Operating Temperature	-55~+125℃ (Including self-temperature rise)	-40~+85℃ (Including self-temperaturerise)	--
Storage Temperature	-55~+125℃	-40~+85℃	--
Impedance (Z)	Refer to standard electrical characteristics list		HP4291A, HP4287A+16092A
Inductance (Ls)			
Q Factor			
DC Resistance			HP4338B
Rated Current			**
Temperature Rise Test	30℃ max. (ΔT)		1. Applied the allowed DC current. 2. Temperature measured by digital surface thermometer.
Solder heat Resistance	Appearance: No significant abnormality. Impedance change: Within ± 30%.	No mechanical damage. Remaining terminal electrode:70% min.	Preheat: 150℃,60sec. Solder: Sn-Ag3.0-Cu0.5 Solder tamperature: 260±5℃ Flux for lead free: rosin Dip time: 10±0.5sec. Preheating Dipping Natural cooling 260 C 150 C 60 second 10 ±0.5 second
Solderability	More than 90% of the terminal electrode should be covered with solder.	Preheating Dipping Natural cooling 245 C 150 C 60 second 4 ±1 second	Preheat: 150℃,60sec. Solder: Sn-Ag3.0-Cu0.5 Solder tamperature: 245±5℃ Flux for lead free: rosin Dip time: 4±1sec.
Terminal strength	The terminal electrode and the dielectric must not be damaged by the forces applied on the right conditions.	W W	For SFB HXCI : Size / Force (Kgf) / Time(sec) 1005 / 0.2 1608 / 0.5 2012 / 0.6 3216 / 1.0 / >25 3225 / 1.0 4516 / 1.0 4532 / 1.5 5750 / 2.0 For HXCA: Size / Force (Kgf) / Time(sec) 3216 / 0.5 / >25
Flexture strength	The terminal electrode and the dielectric must not be damaged by the forces applied on the right conditions.	20(.787) Bending 45(1.772) 45(1.772) 40(1.575) 100(3.937)	Solder a chip on a test substrate, bend the substrate by 2mm (0.079in)and return.
Bending Strength	The ferrite should not be damaged by Forces applied on the right condition.	1.0(0.039) R 0.5(0.02) chip A	See table below
Random Vibration Test	Appearance: Cracking, shipping and any other defects harmful to the characteristics should not be allowed. Impedance: within±30%		Frequency: 10-55-10Hz for 1 min. Amplitude: 1.52mm Directions and times: X, Y, Z directions for 2 hours. A period of 2 hours in each of 3 mutually perpendicular directions (Total 6 hours).

Bending Strength test condition:

Size	mm(inches)	P-Kgf
1608	0.80(0.033)	0.3
2012	1.40(0.055)	1.0
HXCA3216	2.00(0.079)	1.5
3216 3225	2.00(0.079)	2.5
4516 4532 5750	2.70(0.106)	2.5

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Item	Performance	Test Condition
Loading at High Temperature	Appearance: no damage. Impedance: within±30%of initial value. Inductance: within±10%of initial value. Q: within±30%of initial value. (HXCI)	Temperature: 125±5℃(bead),85±5℃(inductor) Applied current: rated current. Duration: 1008±12hrs. Measured at room temperature after placing for 2 to 3hrs.
Humidity		Humidity: 90~95%RH. Temperature: 40±2℃. Temperature: 60±2℃.(HCI) Duration: 1008±12hrs. Measured at room temperature after placing for 2 to 3hrs.
Thermal shock	Appearance: no damage. Impedance: within±30%of initial value. Inductance: within±10%of initial value. Q: within±30%of initial value. (HXCI)	For SFB HXCA : Condition for 1 cycle Step1: -55±2℃ 30±3 min. Step2: +125±5℃ 30±3 min. Number of cycles: 5 For HXCI : Condition for 1 cycle Step1: -40±2℃ 30±3 min. Step2: +85±5℃ 30±3 min. Number of cycles: 100 Measured at room temperature after placing for 2 to 3 hrs.
Low temperature storage test		Temperature: -55±2℃. Duration: 1008±12hrs. Measured at room temperature after placing for 2 to 3hrs.
Drop	a: No mechanical damage b: Impedance change: ±30%	Drop 10 times on a concrete floor from a height of 75cm

For Bead :

Phase	Temperature(℃)	Time(min.)
1	-55±2℃	30±3
2	+125±5℃	30±3

Measured: 5 times

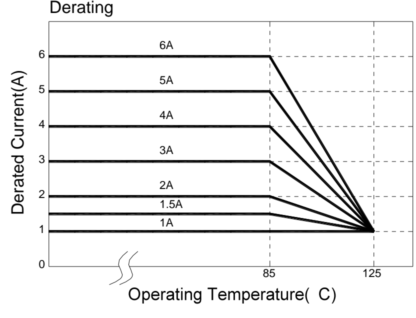
For Inductor :

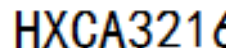
Phase	Temperature(℃)	Time(min.)
1	-40±2℃	30±3
2	+85±5℃	30±3

Measured: 100 times

**Derating Curve

For the ferrite chip bead which withstanding current over 1.5A, as the operating temperature over 85℃, the derating current information is necessary to consider with. For the detail derating of current, please refer to the Derated Current vs. Operating Temperature curve.

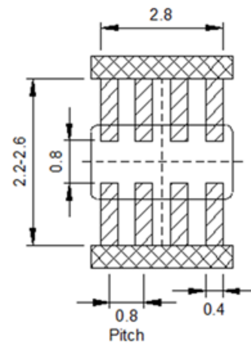


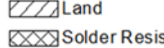


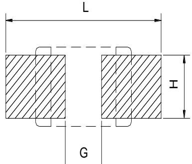
6.Soldering and Mounting

6-1. Recommended PC Board Pattern

Chip Size						Land Patterns For Reflow Soldering		
Series	Type	A(mm)	B(mm)	C(mm)	D(mm)	L(mm)	G(mm)	H(mm)
SFB	1005	1.0±0.10	0.50±0.10	0.50±0.10	0.25±0.10	2.10	0.50	0.55
SFB	1608	1.6±0.15	0.80±0.15	0.80±0.15	0.30±0.20	2.60	0.60	0.80
SFB	2012	2.0±0.20	1.25±0.20	0.85±0.20	0.50±0.30	3.00	1.00	1.00
SFB		2.0±0.20	1.25±0.20	1.25±0.20	0.50±0.30			
SFB	2520	2.5±0.20	2.00±0.20	1.60±0.20	0.50±0.30	3.90	1.50	1.50
SFB	3216	3.2±0.20	1.60±0.20	1.10±0.20	0.50±0.30	4.40	2.20	1.40
SFB	3225	3.2±0.20	2.50±0.20	1.30±0.20	0.50±0.30	4.40	2.20	3.40
SFB	4516	4.5±0.20	1.60±0.20	1.60±0.20	0.50±0.30	5.70	2.70	1.40
SFB	4532	4.5±0.20	3.20±0.20	1.50±0.20	0.50±0.30	5.90	2.57	4.22
SFB	5750	5.7±0.20	5.00±0.30	1.80±0.20	0.50±0.30	8.00	4.00	5.80







PC board should be designed so that products are not sufficient under mechanical stress as warping the board.
Products shall be positioned in the sideway direction against the mechanical stress to prevent failure.

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6-2. Soldering

Mildly activated rosin fluxes are preferred. The terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.
Note.
If wave soldering is used ,there will be some risk.
Re-flow soldering temperatures below 240 degrees, there will be non-wetting risk

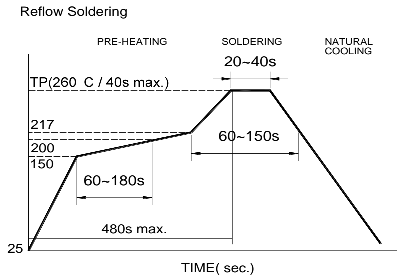
6-2.1 Lead Free Solder re-flow:

Recommended temperature profiles for lead free re-flow soldering in Figure 1.

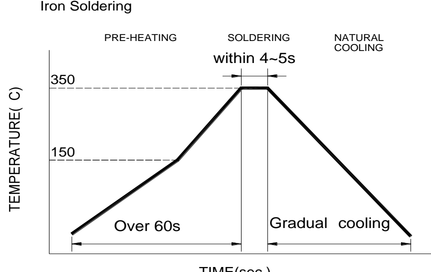
6-2.2 Soldering Iron:

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended. for Iron Soldering in Figure 2.

·Preheat circuit and products to 150℃ ·Never contact the ceramic with the iron tip ·Use a 20 watt soldering iron with tip diameter of 1.0mm
·350℃ tip temperature (max) ·1.0mm tip diameter (max) ·Limit soldering time to 4~5sec.



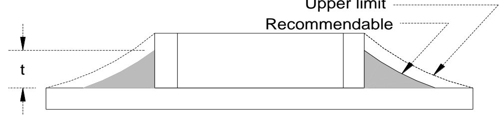
Reflow times: 3 times max
Fig.1



Iron Soldering times：1 times max
Fig.2

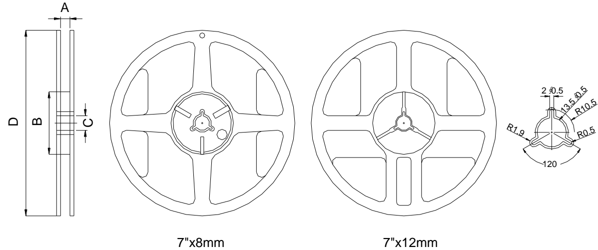
6-2.3 Solder Volume:

Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance. Solder shall be used not to be exceed as shown in right side:
Minimum fillet height = soldering thickness + 25% product height



7.Packaging Information

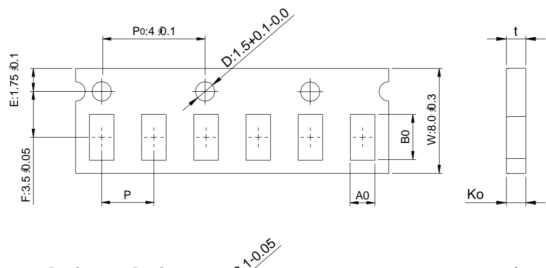
7-1. Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	9.0±0.5	60±2	13.5±0.5	178±2
7"x12mm	13.5±0.5	60±2	13.5±0.5	178±2

7-2.1 Tape Dimension / 8mm

▪Material of taping is paper



Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)	D1(mm)
060303	0.68±0.05	0.38±0.05	0.50max	2.0±0.05	0.50max	none

P2:2 ±0.1 P0:4 ±0.1 D:1.56+0.1-0.05 E:1.75 ±0.1 F:3.5 ±0.1 W:8.0 ±0.1 B0 P A0 t Ko

Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)	D1(mm)
100505	1.12±0.03	0.62±0.03	0.60±0.03	2.0±0.10	0.60±0.03	none
160808	1.85±0.05	1.05±0.05	0.95±0.05	4.0±0.10	0.95±0.05	none
201209	2.30±0.05	1.50±0.05	0.95±0.05	4.0±0.10	0.95±0.05	none

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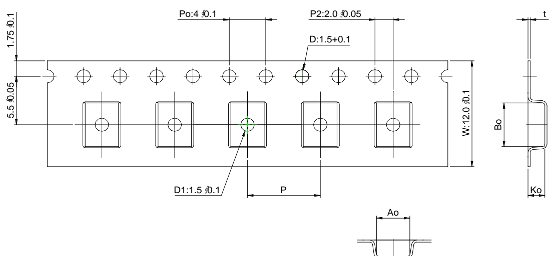
7-2.2 Tape Dimension / 12mm

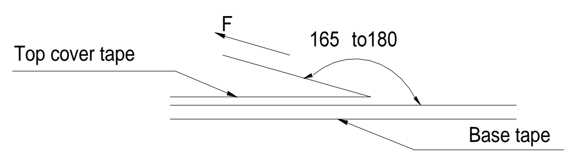


Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)	D1(mm)
SFB,	451616	4.95±0.1	1.93±0.1	1.93±0.1	4.0±0.1	0.24±0.05	1.5±0.1
SFB	453215	4.95±0.1	3.66±0.1	1.85±0.1	8.0±0.1	0.24±0.05	1.5±0.1
HXCI	575018	6.10±0.1	5.40±0.1	2.00±0.1	8.0±0.1	0.30±0.05	1.5±0.1

7-3. Packaging Quantity

Chip Size	575018	453215	451616	322513	321611	201212	201209	160808	100505
Chip / Reel	1000	1000	2000	2500	3000	2000	4000	4000	10000
Inner box	4000	4000	8000	12500	15000	10000	20000	20000	50000
Middle box	20000	20000	40000	62500	75000	50000	100000	100000	250000
Carton	40000	40000	80000	125000	150000	100000	200000	200000	500000
Bulk (Bags)	7000	12000	20000	30000	50000	100000	150000	200000	300000

7-4. Tearing Off Force



The force for tearing off cover tape is 15 to 60 grams in the arrow direction under the following conditions.

Room Temp. (℃)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

Application Notice

·Storage Conditions

To maintain the solderability of terminal electrodes:

1. Temperature and humidity conditions: -10~ 40℃ and 30~70% RH.
2. Recommended products should be used within 6 months from the time of delivery.
3. The packaging material should be kept where no chlorine or sulfur exists in the air.

·Transportation

1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

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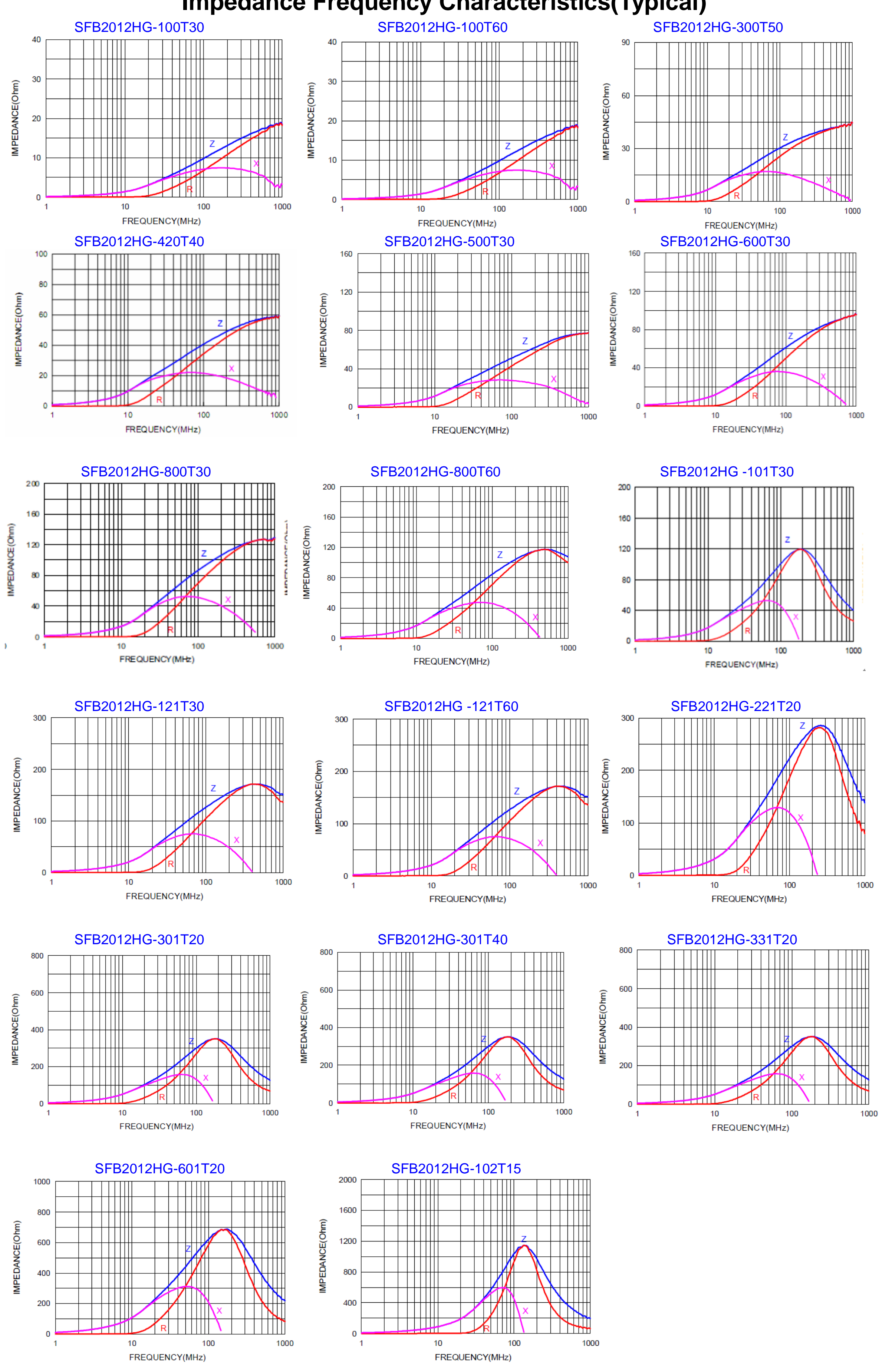
Impedance Frequency Characteristics(Typical)



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