

## ■ 叠层片式铁氧体超大电流磁珠 Multilayer Chip Ferrite Ultra-High Current Beads



### ◆ 特征

#### Feature

- \* 在同样的尺寸下较插装磁珠可产生较高的阻抗值  
A unique terminal electrode structure ensures permissible current 6.0A(max).
- \* 与传统的磁珠不同，片式磁珠无引线，只要简单的安装到 PCB 板上就可抑制 EMI 和 RFI  
High impedance and EMI suppression effective over a wide frequency range.
- \* 磁珠的形状和尺寸都符合 EIA 标准，可以利用 SMT 设备进行自动贴装  
Suitable reflow and wave soldering.

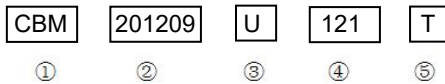
### ◆ 应用

#### Application

- \* 通信设备、计算机、液晶电视等电气设备的电源线或超大电流信号线的噪声抑制。  
Noise suppression in power lines or extra-large current signal lines of electrical equipment such as communication equipment, computers and LCD TVs..

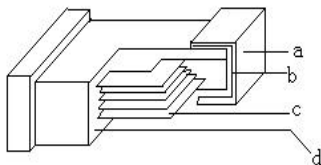
### ◆ 型号表示法

#### Part Number



① 产品代号 Product Code		② 规格尺寸(L×W×T) Dimensions (mm)		③ 材料代号 Material Code	④ 阻抗(Ω) Impedance		⑤ 包装方式 Packaging Style	
CBM	叠层片式铁氧体超大电流磁珠 Multilayer Chip Ferrite Ultra-High Current Beads	060303	0.6×0.3×0.3	U	示例 Example		T	卷带盘装 Tape & Reel
		100505	1.0×0.5×0.5	X	110	11	B	散装 Bulk
		160808	1.6×0.8×0.8		121	120		
		201209	2.0×1.2×0.9		102	1000		
		321609	3.2×1.6×0.9					
		322513	3.2×2.5×1.3					
		451616	4.5×1.6×1.6					
	453215	4.5×3.2×1.5						

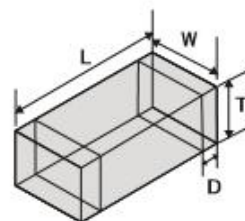
### ◆ 产品结构 Product Structure



- a. 银层 Ag layer
- b. 镀层 Ni/Sn plating
- c. 内电极 Inner electrode
- d. 瓷体 Body

**◆规格尺寸**
**Dimension**

Part No	L(mm)	W(mm)	T(mm)	D(mm)
060303 (0201)	0.6±0.03 (0.020±0.003)	0.3±0.03 (0.010±0.003)	0.3±0.03 (0.010±0.003)	0.15±0.05 (0.010±0.002)
100505 (0402)	1.0±0.15 (0.040±0.006)	0.5±0.15 (0.020±0.006)	0.5±0.15 (0.020±0.006)	0.25±0.1 (0.010±0.004)
160808 (0603)	1.6±0.20 (0.063±0.008)	0.8±0.20 (0.031±0.008)	0.8±0.20 (0.031±0.008)	0.3±0.2 (0.01±0.008)
201209 (0805)	2.0±0.20 (0.079±0.008)	1.2±0.20 (0.047±0.008)	0.9±0.20 (0.035±0.008)	0.5±0.3 (0.020±0.012)
321609 (1206)	3.2±0.20 (0.126±0.008)	1.6±0.20 (0.063±0.008)	0.9±0.20 (0.035±0.008)	0.5±0.3 (0.020±0.012)
322513 (1210)	3.2±0.20 (0.126±0.008)	2.5±0.20 (0.098±0.008)	1.3±0.20 (0.051±0.008)	0.5±0.3 (0.020±0.012)
451616 (1806)	4.5±0.20 (0.186±0.008)	1.6±0.20 (0.063±0.008)	1.6±0.20 (0.063±0.008)	0.5±0.3 (0.020±0.012)
453215 (1812)	4.5±0.20 (0.186±0.008)	3.2±0.20 (0.126±0.008)	1.5±0.20 (0.060±0.008)	0.5±0.3 (0.020±0.012)


**◆电性能参数**
**Electrical Characteristics**
**0603 Type**

型号 Part NO	误差范围 Tolerance	标称阻抗 Impedance(Ω)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	额定电流 I <sub>r</sub> (mA)Max
CBM060303X220T	±25%	22	100	0.040	1800
CBM060303X330T	±25%	33	100	0.055	1500
CBM060303X800T	±25%	80	100	0.130	1000
CBM060303X121T	±25%	120	100	0.160	900

**1005 Type**

型号 Part NO	误差范围 Tolerance	标称阻抗 Impedance(Ω)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	额定电流 I <sub>r</sub> (mA)Max
CBM100505U000T	0~15 Ω	0	100	0.02	2000
CBM100505U050T	0~15 Ω	5	100	0.02	2000
CBM100505U070T	0~11 Ω	7	100	0.02	2000
CBM100505U090T	5~13 Ω	9	100	0.02	2000
CBM100505U110T	7~15 Ω	11	100	0.02	2000
CBM100505U150T	9~21 Ω	15	100	0.02	2000
CBM100505U190T	12~25 Ω	19	100	0.035	1700
CBM100505U260T	±25%	26	100	0.06	1500
CBM100505U300T	±25%	30	100	0.06	1500

CBM100505U600T	±25%	60	100	0.10	1300
CBM100505U101T	±25%	100	100	0.15	1000
CBM100505U121T	±25%	120	100	0.15	1000
CBM100505U151T	±25%	150	100	0.20	700
CBM100505U201T	±25%	200	100	0.25	700
CBM100505U221T	±25%	220	100	0.28	700
CBM100505U301T	±25%	300	100	0.30	600
CBM100505U501T	±25%	500	100	0.40	500
CBM100505U601T	±25%	600	100	0.50	500
CBM100505U801T	±25%	800	100	0.65	300
CBM100505U102T	±25%	1000	100	0.65	300

**1608 Type**

型号 Part NO	误差范围 Tolerance	标称阻抗 Impedance(Ω)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	额定电流 Ir (mA)Max
CBM160808U000T	0~15 Ω	0	100	0.01	6000
CBM160808U050T	0~15 Ω	5	100	0.01	6000
CBM160808U070T	0~11 Ω	7	100	0.01	6000
CBM160808U090T	5~13 Ω	9	100	0.01	6000
CBM160808U110T	7~15 Ω	11	100	0.01	6000
CBM160808U150T	9~21 Ω	15	100	0.01	6000
CBM160808U190T	12~25 Ω	19	100	0.01	6000
CBM160808U260T	±25%	26	100	0.03	5000
CBM160808U300T	±25%	30	100	0.03	4000
CBM160808U500T	±25%	50	100	0.04	3000
CBM160808U600T	±25%	60	100	0.04	3000
CBM160808U700T	±25%	70	100	0.06	2500
CBM160808U750T	±25%	75	100	0.06	2500
CBM160808U800T	±25%	80	100	0.06	2500
CBM160808U101T	±25%	100	100	0.06	2500
CBM160808U121T	±25%	120	100	0.065	2000
CBM160808U151T	±25%	150	100	0.07	1500
CBM160808U181T	±25%	180	100	0.09	1500
CBM160808U221T	±25%	220	100	0.12	1500
CBM160808U301T	±25%	300	100	0.15	1500
CBM160808U331T	±25%	330	100	0.18	1300
CBM160808U501T	±25%	500	100	0.18	1300
CBM160808U601T	±25%	600	100	0.18	1300
CBM160808U801T	±25%	800	100	0.30	800
CBM160808U102T	±25%	1000	100	0.35	700

**2012 Type**

型号	误差范围	标称阻抗	测试频率	直流电阻	额定电流
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Part NO	Tolerance	Impedance( $\Omega$ )	Test frequency(MHz)	DCR ( $\Omega$ )Max	I <sub>r</sub> (mA)Max
CBM201209U000T	0~15 $\Omega$	0	100	0.01	6000
CBM201209U050T	0~15 $\Omega$	5	100	0.01	6000
CBM201209U070T	0~11 $\Omega$	7	100	0.01	6000
CBM201209U090T	5~13 $\Omega$	9	100	0.01	6000
CBM201209U110T	7~15 $\Omega$	11	100	0.01	6000
CBM201209U150T	9~21 $\Omega$	15	100	0.01	6000
CBM201209U190T	12~25 $\Omega$	19	100	0.01	6000
CBM201209U300T	$\pm 25\%$	30	100	0.01	6000
CBM201209U310T	$\pm 25\%$	31	100	0.01	6000
CBM201209U500T	$\pm 25\%$	50	100	0.03	4000
CBM201209U600T	$\pm 25\%$	60	100	0.03	4000
CBM201209U700T	$\pm 25\%$	70	100	0.04	4000
CBM201209U800T	$\pm 25\%$	80	100	0.04	4000
CBM201209U101T	$\pm 25\%$	100	100	0.045	4000
CBM201209U121T	$\pm 25\%$	120	100	0.045	4000
CBM201209U151T	$\pm 25\%$	150	100	0.07	3000
CBM201209U181T	$\pm 25\%$	180	100	0.07	3000
CBM201209U221T	$\pm 25\%$	220	100	0.07	3000
CBM201209U301T	$\pm 25\%$	300	100	0.08	2500
CBM201209U501T	$\pm 25\%$	500	100	0.09	2500
CBM201209U601T	$\pm 25\%$	600	100	0.10	2000
CBM201209U102T	$\pm 25\%$	1000	100	0.12	1500

**3216 Type**

型号 Part NO	误差范围 Tolerance	标称阻抗 Impedance( $\Omega$ )	测试频率 Test frequency(MHz)	直流电阻 DCR ( $\Omega$ )Max	额定电流 I <sub>r</sub> (mA)Max
CBM321609U000T	0~15 $\Omega$	0	100	0.01	6000
CBM321609U050T	0~15 $\Omega$	5	100	0.01	6000
CBM321609U070T	0~11 $\Omega$	7	100	0.01	6000
CBM321609U090T	5~13 $\Omega$	9	100	0.01	6000
CBM321609U110T	7~15 $\Omega$	11	100	0.01	6000
CBM321609U150T	9~21 $\Omega$	15	100	0.015	6000
CBM321609U190T	12~25 $\Omega$	19	100	0.015	6000
CBM321609U260T	$\pm 25\%$	26	100	0.015	6000
CBM321609U280T	$\pm 25\%$	28	100	0.015	6000
CBM321609U300T	$\pm 25\%$	30	100	0.015	6000
CBM321609U310T	$\pm 25\%$	31	100	0.020	5000
CBM321609U500T	$\pm 25\%$	50	100	0.020	5000
CBM321609U600T	$\pm 25\%$	60	100	0.025	5000
CBM321609U700T	$\pm 25\%$	70	100	0.035	4000
CBM321609U800T	$\pm 25\%$	80	100	0.035	4000
CBM321609U101T	$\pm 25\%$	100	100	0.035	4000

CBM321609U121T	±25%	120	100	0.035	4000
CBM321609U151T	±25%	150	100	0.045	3000
CBM321609U181T	±25%	180	100	0.055	3000
CBM321609U221T	±25%	220	100	0.055	3000
CBM321609U301T	±25%	300	100	0.065	2500
CBM321609U501T	±25%	500	100	0.080	2500
CBM321609U601T	±25%	600	100	0.085	2200
CBM321609U801T	±25%	800	100	0.11	2100
CBM321609U102T	±25%	1000	100	0.12	2100

**3225 Type**

型号 Part NO	误差范围 Tolerance	标称阻抗 Impedance(Ω)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	额定电流 Ir (mA)Max
CBM322513U110T	7~15 Ω	11	100	0.02	6000
CBM322513U150T	9~21 Ω	15	100	0.02	6000
CBM322513U190T	12~25 Ω	19	100	0.02	6000
CBM322513U260T	±25%	26	100	0.02	6000
CBM322513U310T	±25%	31	100	0.02	6000
CBM322513U600T	±25%	60	100	0.02	6000
CBM322513U700T	±25%	70	100	0.02	6000
CBM322513U800T	±25%	80	100	0.02	6000
CBM322513U900T	±25%	90	100	0.03	5000
CBM322513U121T	±25%	120	100	0.03	5000
CBM322513U151T	±25%	150	100	0.03	5000
CBM322513U301T	±25%	300	100	0.06	4000
CBM322513U501T	±25%	500	100	0.10	4000
CBM322513U601T	±25%	600	100	0.15	3000
CBM322513U801T	±25%	800	100	0.20	2500
CBM322513U102T	±25%	1000	100	0.23	2500

**4516 Type**

型号 Part NO	误差范围 Tolerance	标称阻抗 Impedance(Ω)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	额定电流 Ir (mA)Max
CBM451616U190T	12~25 Ω	19	100	0.009	6000
CBM451616U260T	±25%	26	100	0.009	6000
CBM451616U310T	±25%	31	100	0.009	6000
CBM451616U600T	±25%	60	100	0.009	6000
CBM451616U750T	±25%	75	100	0.02	4000
CBM451616U800T	±25%	80	100	0.025	3000

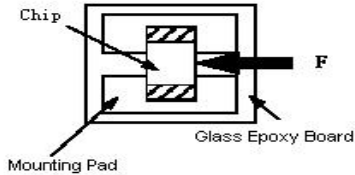
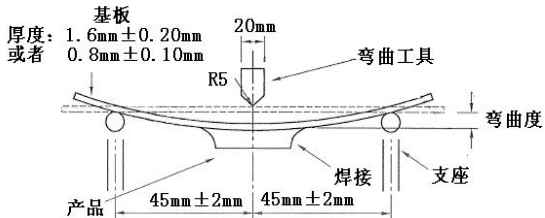
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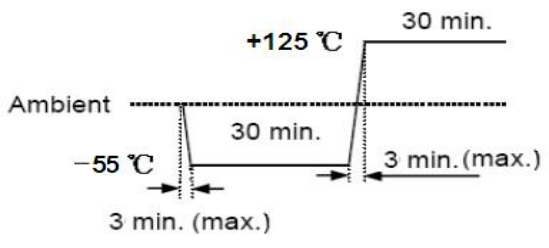
型号 Part NO	误差范围 Tolerance	标称阻抗 Impedance(Ω)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	额定电流 Ir (mA)Max
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CBM453215U190T	12~25Ω	19	100	0.01	6000
CBM453215U260T	±25%	26	100	0.01	6000
CBM453215U280T	±25%	28	100	0.01	6000
CBM453215U300T	±25%	30	100	0.01	6000
CBM453215U310T	±25%	31	100	0.01	6000
CBM453215U380T	±25%	38	100	0.01	6000
CBM453215U400T	±25%	40	100	0.01	6000
CBM453215U500T	±25%	50	100	0.01	6000
CBM453215U600T	±25%	60	100	0.01	6000
CBM453215U700T	±25%	70	100	0.01	6000
CBM453215U101T	±25%	100	100	0.02	6000
CBM453215U181T	±25%	180	100	0.02	6000
CBM453215U221T	±25%	220	100	0.02	6000
CBM453215U501T	±25%	500	100	0.08	4000
CBM453215U601T	±25%	600	100	0.08	4000

**◆可靠性测试方法**
**Reliability Test Method**

序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
1	工作温度范围 Operating Temperature Range	-55℃~+125℃	包含产品表面温升 Includes product surface temperature rise
2	可焊性 Solder ability	无可见损伤; 电极面 95%以上覆盖新的焊料。 95% or more of electrode area shall be coated by new solder.	预热温度:120℃ ~ 150℃ 预热时间: 60s 焊料: (96.5%Sn/3.0%Ag/0.5%Cu) 焊锡 焊锡温度: 245℃±5℃ 浸锡深度:10mm 浸锡时间 : 5±1s 浸渍到助焊剂约:3 ~ 5 s Preheating temperature:120℃ to 150℃ Preheating time: 60s Solder 96.5%Sn/3.0%Ag/0.5%Cu of the Sn solder. Solder temperature: 245±5℃ Immersion tin depth:10mm Duration : 5±1s Dip performance to a flux of about:3 ~ 5 s

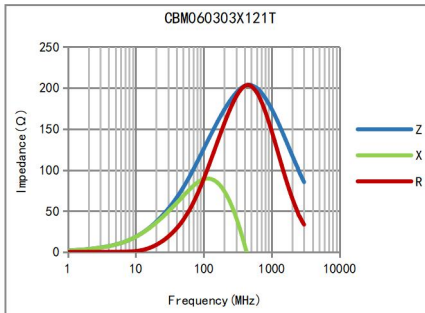
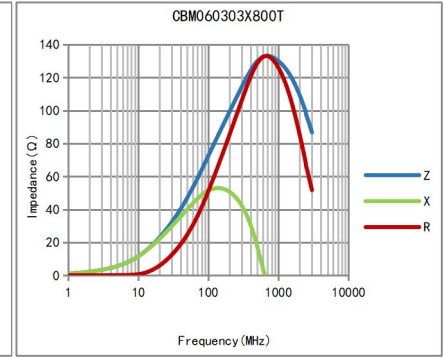
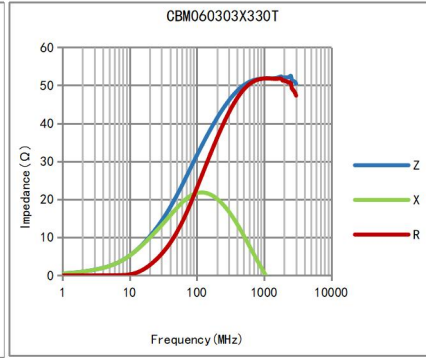
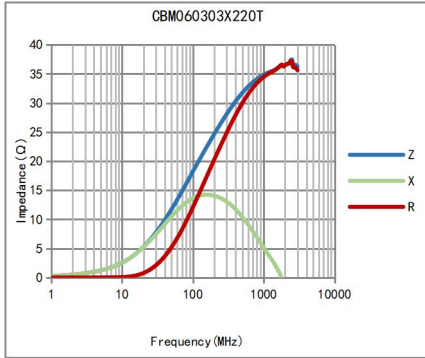
3	<b>耐焊接热</b> <b>Resistance to Soldering Heat</b>	<p>至少 95%的焊锡覆盖在端电极表面，无可见机械损伤。          阻抗变化率小于±30%。          At least 95% of terminal electrode should be covered with solder.          No mechanical damage.          Inductance :          Impedance change: within ±30%</p>	<p>预热温度：120℃~150℃          预热时间：60s          焊料：（96.5%Sn/3.0%Ag/0.5%Cu）焊锡          浸锡温度：260℃±5℃          浸锡深度：10mm          浸锡时间：10±1s          浸渍到助焊剂约：3~5 s          Preheating temperature: 120℃ to 150℃          Preheating time: 60s          Solder 96.5%Sn/3.0%Ag/0.5%Cu of the Sn solder.          Solder temperature: 260℃±5℃          Immersion tin depth:10mm          Duration : 10±1s          Dip performance to a flux of about:3~5 s</p>
4	<b>端电极强度</b> <b>Adhesion of electrode</b>	<p>端电极与磁体不应受损，无可见机械损伤。          The termination and body should be no damage.</p>	<p>施加力：1005 系列为 5N ；1608 系列为 7N ；2012、3216 系列为 10N；3225、4532 系列为 15N。          保持时间：10±1S          Applied force: 5N force for 1005 series; 7N force for 1608 series; 10N force for 2012、3216 series. 15N force for 3225、4532 series.          Keep time : 10±1S</p> 
5	<b>耐低温</b> <b>Low temperature resistance</b>	<p>无可见机械损伤，          阻抗变化率小于±30%。          No mechanical damage.          Impedance change: within ±30%</p>	<p>测试温度：-55±2℃          测试时间：1000<sup>+24</sup><sub>0</sub> h          Temperature:-55±2℃          Testing time: 1000<sup>+24</sup><sub>0</sub> h</p>
6	<b>抗弯强度</b> <b>Bending strength</b>	<p>无可见机械损伤          No mechanical damage</p>	<p>测试基板：玻璃环氧树脂基板          加压速度为 0.5mm/s, 弯度：2mm, 保持时间 20s±1s          Testing board: glass epoxy-resin substrate          For 0.5 mm/s compression speed, curvature: 2mm, hold time 20s±1s .</p> 
7	<b>振动</b> <b>Vibration</b>	<p>无可见机械损伤，          阻抗变化率小于±30%。          No mechanical damage.          Impedance change: within ±30%</p>	<p>振幅：1.5mm          测试时间：沿三个垂直方向各做 2 小时          频率范围：10Hz~55Hz~10Hz （1 分钟）          Amplitude modulation: 1.5mm          Test time: A period of 2h in each of 3 mutually perpendicular directions.          Frequency range: 10Hz to 55Hz to 10Hz for 1min.</p>

8	耐高温 High temperature resistance	无可见机械损伤， 阻抗变化率小于±30%。 No mechanical damage. Impedance change: within ±30%	测试时间: $1000^{+24}_0$ h 测试温度: $125 \pm 2^\circ\text{C}$ Testing time: $1000^{+24}_0$ h Temperature: $125 \pm 2^\circ\text{C}$
9	恒定湿热 Static Humidity	无可见机械损伤， 阻抗变化率小于±30%。 No mechanical damage. Impedance change: within ±30%	湿度: 90%~95% RH, 温度: $60^\circ\text{C} \pm 2^\circ\text{C}$ 测试时间: $1000^{+24}_0$ h Humidity: 90% to 95% RH Temperature: $60^\circ\text{C} \pm 2^\circ\text{C}$ Testing time: $1000^{+24}_0$ h
10	高温负载 High temperature load	无可见机械损伤， 阻抗变化率小于±30%。 No mechanical damage. Impedance change: within ±30%	施加电流: 额定电流 测试时间: $1000^{+24}_0$ h 测试温度: $85^\circ\text{C} \pm 2^\circ\text{C}$ impose current: at room Testing time: $1000^{+24}_0$ h Temperature: $85 \pm 2^\circ\text{C}$
11	温度冲击 Temperature Shock	无可见机械损伤， 阻抗变化率小于±30%。 No mechanical damage. Impedance change: within ±30%	温度: $-55^\circ\text{C}$ , $30 \pm 3$ 分钟 $+125^\circ\text{C}$ , $30 \pm 3$ 分钟 循环次数: 100 Temperature: $-55^\circ\text{C}$ for $30 \pm 3$ min $+125^\circ\text{C}$ for $30 \pm 3$ min Number of cycles: 100 
注: 以上要求测试电性能的项目, 应试验后在标准条件下放置 24 小时后测试。 Note: When there are questions concerning, measurement shall be made after $24 \pm 2$ hrs of recovery under the standard condition.			

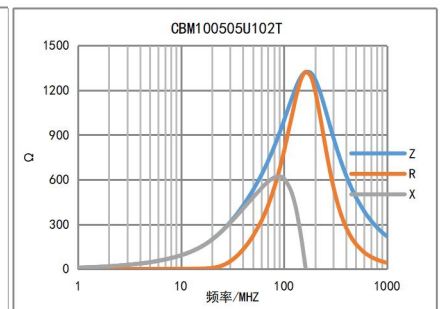
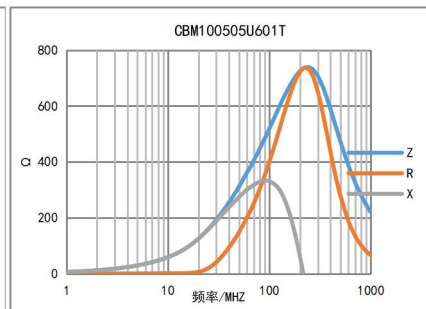
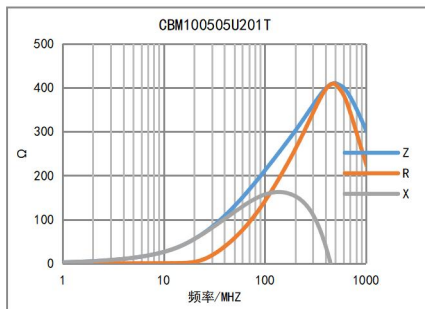
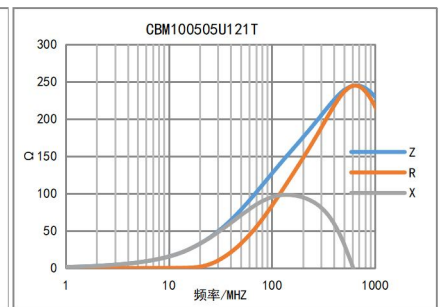
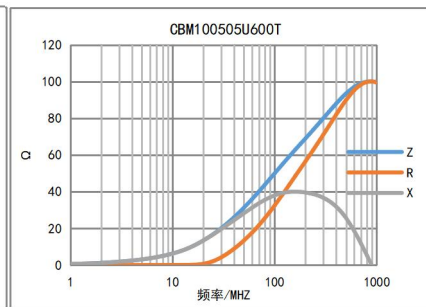
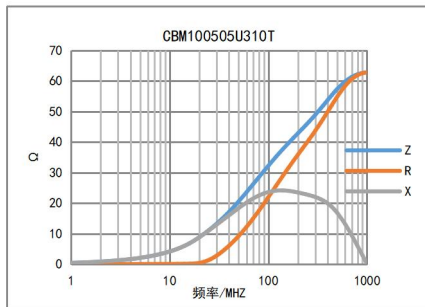
**◆ 产品特性曲线图**
**Product Characteristic Curve**

CBM0603 Type

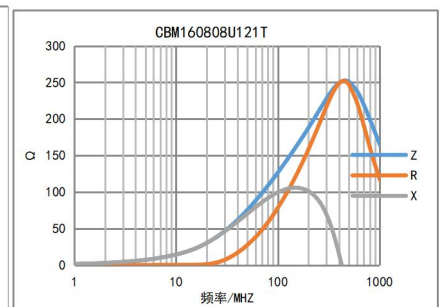
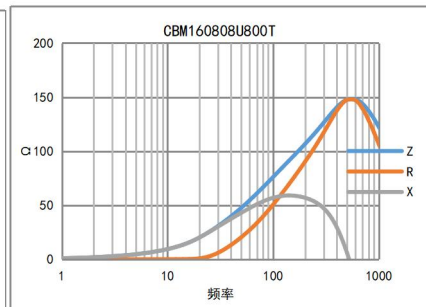
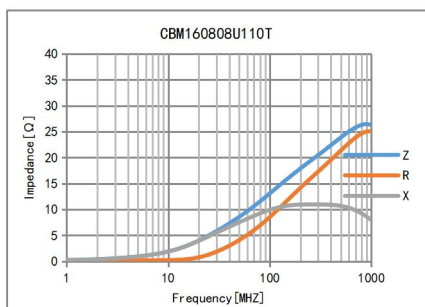


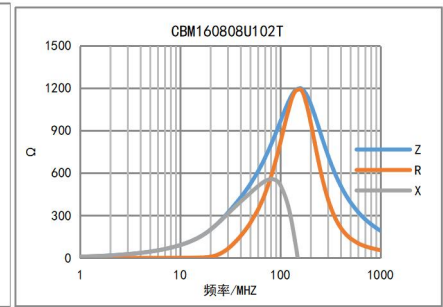
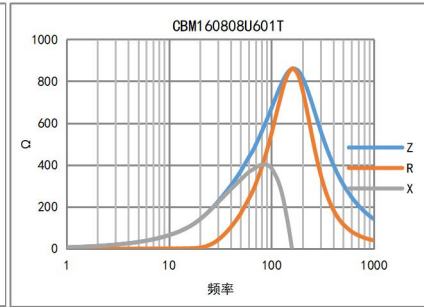
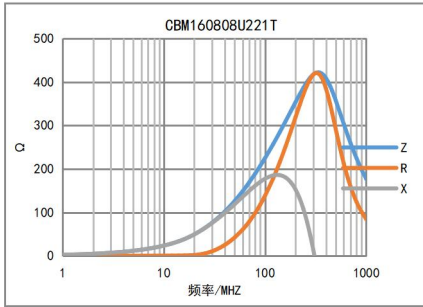


CBM1005 Type

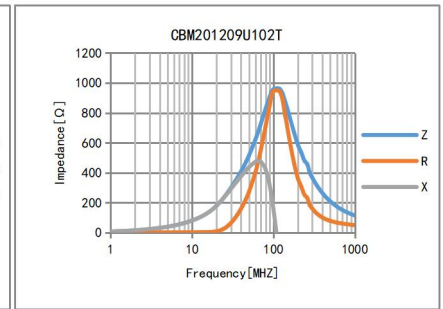
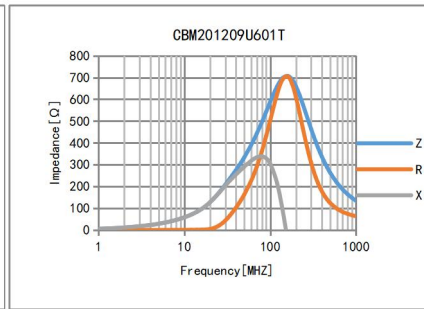
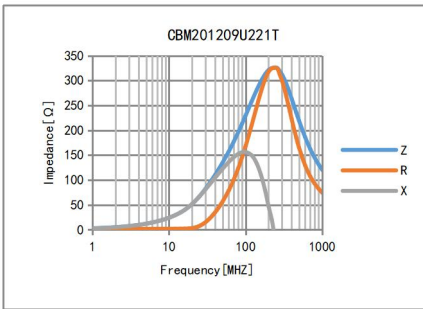
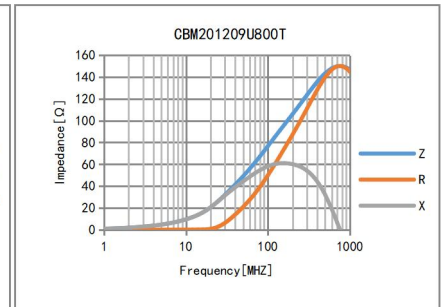
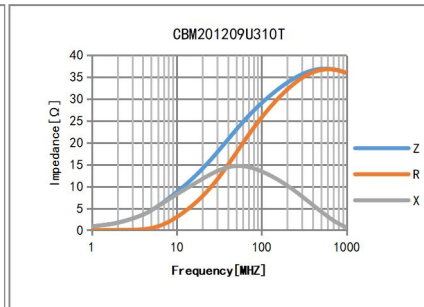
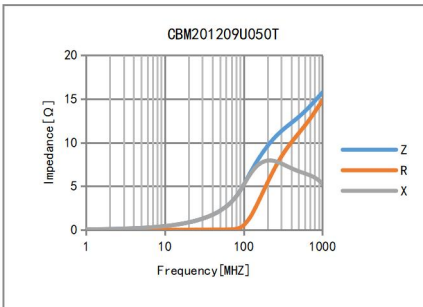


CBM1608 Type

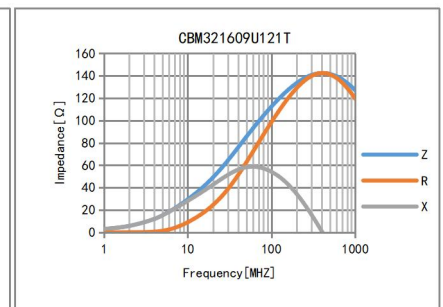
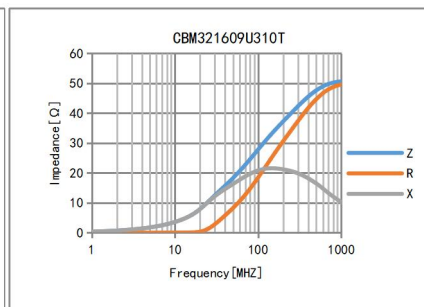
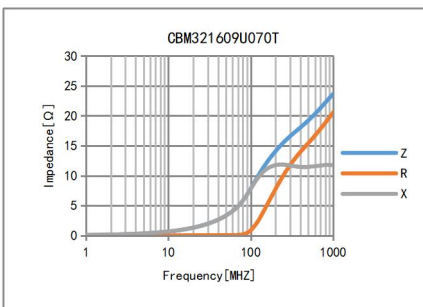


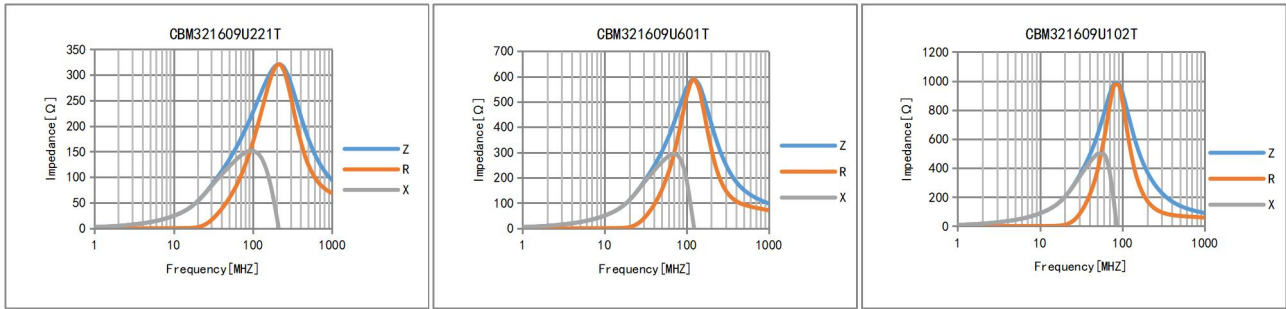


CBM2012 Type



CBM3216 Type

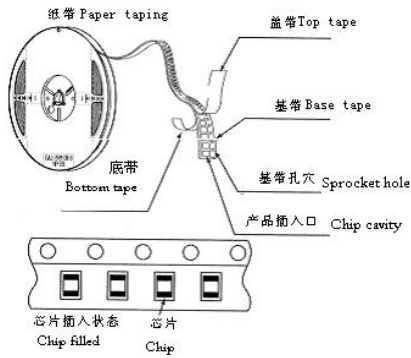




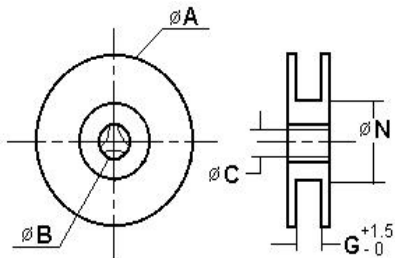
◆ 包装

Packaging

\* 编带图 Taping drawings

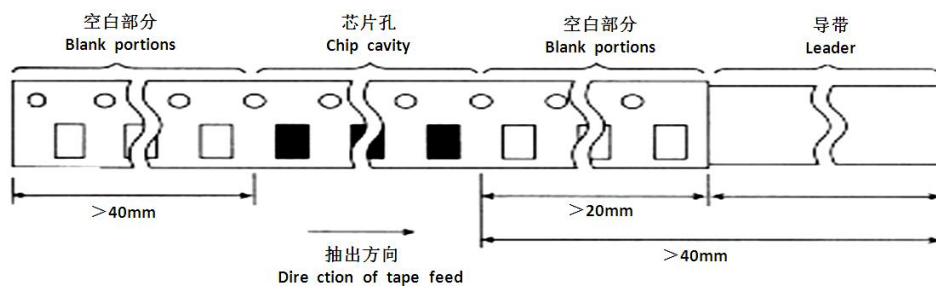


\* 卷盘尺寸 Reel dimensions (Unit: mm)



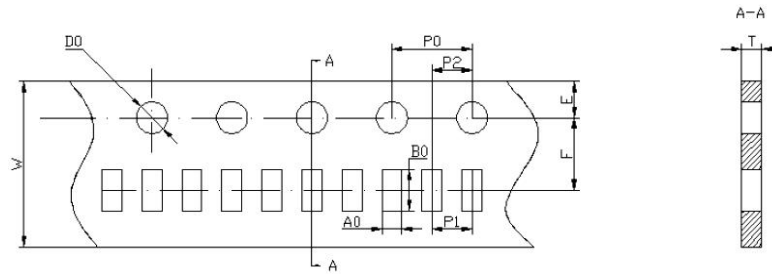
型号 Size	A	B	C	N	G
CF-8	178±2.0	22.0±2.0	12.5±1.5	57±2.0	8
CF-12	330±2.0	22.0±2.0	12.5±1.5	98±2.0	12

\* 导带及空格部分 Leader and blank portion



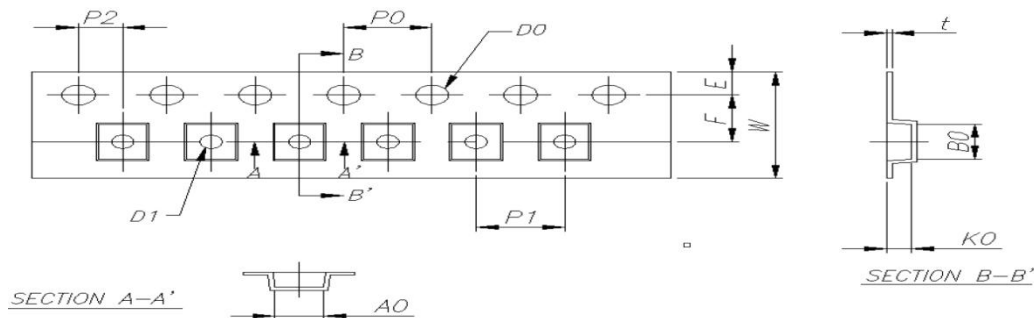
\* 编带尺寸 Taping dimensions (Unit: mm)

纸带 Paper tape



Part NO.	A0	B0	W	F	E	P1	P2	P0	D0	T
100505	0.65±0.1	1.15±0.1	8.0±0.2	3.5±0.1	1.75±0.2	2.0±0.1	2.0±0.1	4.0±0.2	1.55±0.1	0.60±0.1
160808	1.10±0.2	1.90±0.2	8.0±0.2	3.5±0.1	1.75±0.2	4.0±0.2	2.0±0.1	4.0±0.2	1.55±0.1	0.95±0.1
201209	1.50±0.2	2.30±0.2	8.0±0.2	3.5±0.1	1.75±0.2	4.0±0.2	2.0±0.1	4.0±0.2	1.55±0.1	0.95±0.1
321609	1.90±0.2	3.50±0.2	8.0±0.2	3.5±0.1	1.75±0.2	4.0±0.2	2.0±0.1	4.0±0.2	1.55±0.1	0.95±0.1

塑料胶带 Embossed tape



型号 Size	453215	322513	321611	201212
W	12.00+/-0.20	8.00+/-0.20	8.00+/-0.20	8.00+/-0.2
E	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10
F	5.50+/-0.10	3.50+/-0.10	3.50+/-0.10	3.50+/-0.10
D0	1.50+/-0.10	1.50+/-0.10	1.50+/-0.10	1.50+/-0.10
D1	1.50+/-0.10	1.00+/-0.10	1.00+/-0.10	1.00+/-0.10
P0	4.00+/-0.10	4.00+/-0.10	4.00+/-0.10	4.00+/-0.10
P010	40.0+/-0.20	40.0+/-0.20	40.0+/-0.20	40.0+/-0.20
P1	8.00+/-0.10	4.00+/-0.10	4.00+/-0.10	4.00+/-0.10
P2	2.00+/-0.10	2.0+/-0.05	2.0+/-0.05	2.00+/-0.10
A0	3.66+/-0.10	2.77+/-0.10	1.88+/-0.10	1.52+/-0.10
B0	4.95+/-0.10	3.42+/-0.10	3.50+/-0.10	2.41+/-0.10
K0	1.85+/-0.10	1.55+/-0.10	1.27+/-0.10	1.35+/-0.10
t	0.24+/-0.20	0.23+/-0.20	0.23+/-0.20	0.23+/-0.20

\* 包装数量 (单位: 粒) Packaging number (Unit: Pcs )

型号 Size	453215	322513	321611	321609	201212	201209	160808	100505
每卷数量 REEL	3000	3000	3000	4000	3000	4000	4000	10000
每盒数量 BOX	12000	30000	30000	40000	30000	40000	40000	100000
每箱数量 CASE	36000	180000	180000	240000	180000	240000	240000	600000