

## ■叠层片式铁氧体磁珠

### Multilayer Chip Ferrite 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

\*除去智能手机以及平板终端等移动设备及各类组件的噪音，除去 PC、刻录机、 STB 等家电、智能电网以及产业机器的噪音。

To remove noise from mobile devices and various components such as smartphones and tablet terminals, as well as from home appliances such as PCs, recorders, STBs, smart grids and industrial machinery.

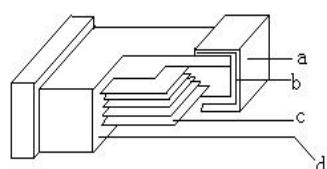
#### ◆型号表示法

##### Part Number

CBG	201209	U	121	T
①	②	③	④	⑤

	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
CBG	叠层片式铁氧体磁珠 Multilayer Chip Ferrite Beads	060303 0.6×0.3×0.3 100505 1.0×0.5×0.5 160808 1.6×0.8×0.8 201209 2.0×1.2×0.9 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	U  X	示例 Example 110 11 121 120 102 1000	T 卷带盘装 Tape & Reel B 散装 Bulk

#### ◆产品结构 Product Structure

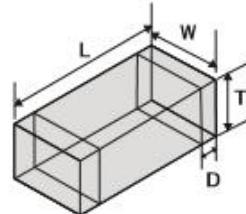


- a. 银层 Ag layer
- b. 镀层 Ni/Sn plating
- c. 内电极 Inner electrode
- d. 瓷体 Body

## ◆ 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 Ir (mA)Max
CBG060303X100T	±5 Ω	10	100	0.10	500
CBG060303X220T	±25%	22	100	0.25	300
CBG060303X330T	±25%	33	100	0.30	300
CBG060303X600T	±25%	60	100	0.40	200
CBG060303X700T	±25%	70	100	0.40	200
CBG060303X800T	±25%	80	100	0.40	200
CBG060303X121T	±25%	120	100	0.50	200
CBG060303X241T	±25%	240	100	0.80	200
CBG060303X601T	±25%	600	100	1.50	100
CBG060303X102T	±25%	1000	100	2.50	100

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 Ir (mA)Max
CBG100505U000T	0~15 Ω	0	100	0.05	500
CBG100505U050T	0~15 Ω	5	100	0.05	500
CBG100505U070T	0~11 Ω	7	100	0.05	500

CBG100505U090T	5~13 Ω	9	100	0.05	500
CBG100505U110T	7~15 Ω	11	100	0.05	500
CBG100505U150T	9~21 Ω	15	100	0.05	500
CBG100505U190T	12~25 Ω	19	100	0.10	300
CBG100505U260T	±25%	26	100	0.13	300
CBG100505U310T	±25%	31	100	0.20	300
CBG100505U360T	±25%	36	100	0.20	300
CBG100505U600T	±25%	60	100	0.30	200
CBG100505U800T	±25%	80	100	0.35	200
CBG100505U101T	±25%	100	100	0.35	200
CBG100505U121T	±25%	120	100	0.40	200
CBG100505U151T	±25%	150	100	0.47	200
CBG100505U181T	±25%	180	100	0.52	150
CBG100505U201T	±25%	200	100	0.52	150
CBG100505U221T	±25%	220	100	0.52	150
CBG100505U301T	±25%	300	100	0.65	100
CBG100505U501T	±25%	500	100	0.90	100
CBG100505U601T	±25%	600	100	1.00	100
CBG100505U801T	±25%	800	100	1.30	100
CBG100505U102T	±25%	1000	100	1.40	100

**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
CBG160808U000T	0~15 Ω	0	100	0.05	2000
CBG160808U050T	0~15 Ω	5	100	0.05	2000
CBG160808U070T	0~11 Ω	7	100	0.05	2000
CBG160808U090T	5~13 Ω	9	100	0.05	2000
CBG160808U110T	7~15 Ω	11	100	0.05	2000
CBG160808U150T	9~21 Ω	15	100	0.05	2000
CBG160808U190T	12~25 Ω	19	100	0.05	2000
CBG160808U260T	±25%	26	100	0.05	2000
CBG160808U310T	±25%	31	100	0.05	1000
CBG160808U600T	±25%	60	100	0.15	400
CBG160808U700T	±25%	70	100	0.15	400
CBG160808U800T	±25%	80	100	0.15	400
CBG160808U101T	±25%	100	100	0.20	300
CBG160808U121T	±25%	120	100	0.20	300
CBG160808U151T	±25%	150	100	0.20	300
CBG160808U181T	±25%	180	100	0.30	300
CBG160808U221T	±25%	220	100	0.30	300
CBG160808U301T	±25%	300	100	0.35	200

CBG160808U501T	±25%	500	100	0.45	200
CBG160808U601T	±25%	600	100	0.45	200
CBG160808U801T	±25%	800	100	0.60	200
CBG160808U102T	±25%	1000	100	0.60	200
CBG160808U122T	±25%	1200	100	0.70	200
CBG160808U152T	±25%	1500	100	0.70	200
CBG160808U182T	±25%	1800	100	0.90	150
CBG160808U202T	±25%	2000	100	1.10	150
CBG160808U222T	±25%	2200	100	1.20	100
CBG160808U252T	±25%	2500	100	1.30	50

**2012 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
CBG201209U000T	0~15 Ω	0	100	0.04	2200
CBG201209U050T	0~15 Ω	5	100	0.04	2200
CBG201209U070T	0~11 Ω	7	100	0.04	2200
CBG201209U090T	5~13 Ω	9	100	0.04	2200
CBG201209U110T	7~15 Ω	11	100	0.04	2200
CBG201209U150T	9~21 Ω	15	100	0.04	2200
CBG201209U190T	12~25 Ω	19	100	0.04	2200
CBG201209U260T	±25%	26	100	0.05	1500
CBG201209U310T	±25%	31	100	0.05	1500
CBG201209U360T	±25%	36	100	0.05	1500
CBG201209U600T	±25%	60	100	0.10	1000
CBG201209U700T	±25%	70	100	0.10	1000
CBG201209U800T	±25%	80	100	0.10	1000
CBG201209U101T	±25%	100	100	0.15	800
CBG201209U121T	±25%	120	100	0.15	800
CBG201209U151T	±25%	150	100	0.18	700
CBG201209U181T	±25%	180	100	0.18	700
CBG201209U221T	±25%	220	100	0.20	600
CBG201209U301T	±25%	300	100	0.20	600
CBG201209U501T	±25%	500	100	0.30	550
CBG201209U601T	±25%	600	100	0.30	550
CBG201209U801T	±25%	800	100	0.35	500
CBG201209U102T	±25%	1000	100	0.35	500
CBG201209U122T	±25%	1200	100	0.40	500
CBG201209U152T	±25%	1500	100	0.40	500
CBG201209U202T	±25%	2000	100	0.45	500
CBG201209U222T	±25%	2200	100	0.45	500
CBG201209U252T	±25%	2500	50	0.50	400
CBG201209U272T	±25%	2700	50	0.60	200

CBG201209U302T	±25%	3000	50	0.60	200
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**3216 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
CBG321609U000T	0~15 Ω	0	100	0.05	2200
CBG321609U050T	0~15 Ω	5	100	0.05	2200
CBG321609U070T	0~11 Ω	7	100	0.05	2200
CBG321609U090T	5~13 Ω	9	100	0.05	2000
CBG321609U110T	7~15 Ω	11	100	0.05	2000
CBG321609U150T	9~21 Ω	15	100	0.05	2000
CBG321609U190T	12~25 Ω	19	100	0.05	2000
CBG321609U260T	±25%	26	100	0.05	2000
CBG321609U310T	±25%	31	100	0.05	2000
CBG321609U600T	±25%	60	100	0.10	1000
CBG321609U700T	±25%	70	100	0.10	1000
CBG321609U800T	±25%	80	100	0.10	1000
CBG321609U101T	±25%	100	100	0.10	1000
CBG321609U121T	±25%	120	100	0.10	1000
CBG321609U151T	±25%	150	100	0.15	1000
CBG321609U181T	±25%	180	100	0.15	1000
CBG321609U221T	±25%	220	100	0.20	800
CBG321609U301T	±25%	300	100	0.20	800
CBG321609U501T	±25%	500	100	0.30	600
CBG321609U601T	±25%	600	100	0.30	600
CBG321609U801T	±25%	800	100	0.35	600
CBG321609U102T	±25%	1000	100	0.35	600
CBG321609U122T	±25%	1200	100	0.60	300
CBG321609U152T	±25%	1500	50	0.60	300
CBG321609U182T	±25%	1800	50	0.80	100
CBG321609U202T	±25%	2000	50	1.00	100
CBG321609U252T	±25%	2500	50	1.20	50
CBG321609U302T	±25%	3000	50	1.50	50

**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
CBG322513U190T	12~25 Ω	19	100	0.1	1000
CBG322513U260T	±25%	26	100	0.1	1000
CBG322513U310T	±25%	31	100	0.1	1000
CBG322513U600T	±25%	60	100	0.15	1000
CBG322513U800T	±25%	80	100	0.2	400
CBG322513U101T	±25%	100	100	0.2	400

CBG322513U121T	±25%	120	100	0.2	400
CBG322513U151T	±25%	150	100	0.3	400
CBG322513U181T	±25%	180	100	0.4	400
CBG322513U221T	±25%	220	100	0.4	400
CBG322513U301T	±25%	300	100	0.4	400
CBG322513U501T	±25%	500	100	0.4	300
CBG322513U601T	±25%	600	100	0.4	300
CBG322513U801T	±25%	800	100	0.4	300
CBG322513U102T	±25%	1000	100	0.4	300

**4516 Type**

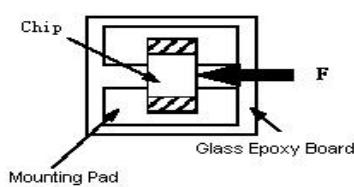
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CBG451616U190T	12~25 Ω	19	100	0.1	1000
CBG451616U260T	±25%	26	100	0.1	1000
CBG451616U310T	±25%	31	100	0.15	1000
CBG451616U600T	±25%	60	100	0.2	1000
CBG451616U700T	±25%	70	100	0.25	1000
CBG451616U800T	±25%	80	100	0.3	1000
CBG451616U900T	±25%	90	100	0.35	1000
CBG451616U121T	±25%	120	100	0.4	500
CBG451616U151T	±25%	150	100	0.4	500
CBG451616U221T	±25%	220	100	0.45	500
CBG451616U301T	±25%	300	100	0.45	500
CBG451616U501T	±25%	500	100	0.5	200
CBG451616U601T	±25%	600	100	0.5	200
CBG451616U801T	±25%	800	100	0.55	200

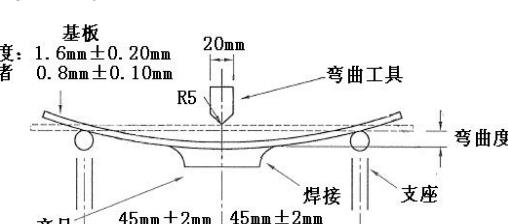
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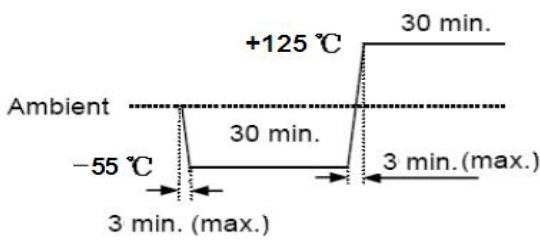
型号 Part NO	误差范围 Tolerance	标称阻抗 Impedance(Ω)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	额定电流 Ir (mA)Max
CBG453215U380T	±25%	38	100	0.15	1000
CBG453215U700T	±25%	70	100	0.2	1000
CBG453215U800T	±25%	80	100	0.2	1000
CBG453215U101T	±25%	100	100	0.2	500
CBG453215U121T	±25%	120	100	0.25	500
CBG453215U151T	±25%	150	100	0.25	500
CBG453215U221T	±25%	220	100	0.3	300
CBG453215U301T	±25%	300	100	0.3	300
CBG453215U601T	±25%	600	100	0.4	200

**◆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°C ~ +125°C	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°C ~ 150°C 预热时间: 60s 焊料: (96.5%Sn/3.0%Ag/0.5%Cu) 焊锡 焊锡温度: 245°C ± 5°C 浸锡深度: 10mm 浸锡时间: 5±1s 浸渍到助焊剂约: 3 ~ 5 s Preheating temperature: 120°C to 150°C Preheating time: 60s Solder 96.5%Sn/3.0%Ag/0.5%Cu of the Sn solder. Solder temperature: 245±5°C Immersion tin depth: 10mm Duration: 5±1s Dip performance to a flux of about: 3 ~ 5 s
3	耐焊接热 Resistance to Soldering Heat	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%	预热温度: 120°C ~ 150°C 预热时间: 60s 焊料: (96.5%Sn/3.0%Ag/0.5%Cu) 焊锡 浸锡温度: 260°C ± 5°C 浸锡深度: 10mm 浸锡时间: 10±1s 浸渍到助焊剂约: 3~5 s Preheating temperature: 120°C to 150°C Preheating time: 60s Solder 96.5%Sn/3.0%Ag/0.5%Cu of the Sn solder. Solder temperature: 260°C ± 5°C Immersion tin depth: 10mm Duration: 10±1s Dip performance to a flux of about: 3~5 s
4	端电极强度 Adhesion of electrode	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.	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



序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
5	耐低温 Low temperature resistance	无可见机械损伤，阻抗变化率小于±30%。 No mechanical damage. Impedance change: within ±30%	测试温度: -55±2°C 测试时间: 1000 <sup>+24</sup> <sub>-0</sub> h Temperature: -55±2°C Testing time: 1000 <sup>+24</sup> <sub>-0</sub> h
6	抗弯强度 Bending strength	无可见机械损伤 No mechanical damage	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 time20s±1s 。  
7	振动 Vibration	无可见机械损伤，阻抗变化率小于±30%。 No mechanical damage. Impedance change: within ±30%	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.
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 <sup>+24</sup> <sub>-0</sub> h 测试温度: 125±2°C Testing time: 1000 <sup>+24</sup> <sub>-0</sub> h Temperature: 125±2°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°C±2°C 测试时间: 1000 <sup>+24</sup> <sub>-0</sub> h Humidity: 90% to 95% RH Temperature: 60°C±2°C Testing time: 1000 <sup>+24</sup> <sub>-0</sub> 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 <sup>+24</sup> <sub>-0</sub> h 测试温度: 85°C±2°C impose current: at room Testing time: 1000 <sup>+24</sup> <sub>-0</sub> h Temperature: 85±2°C

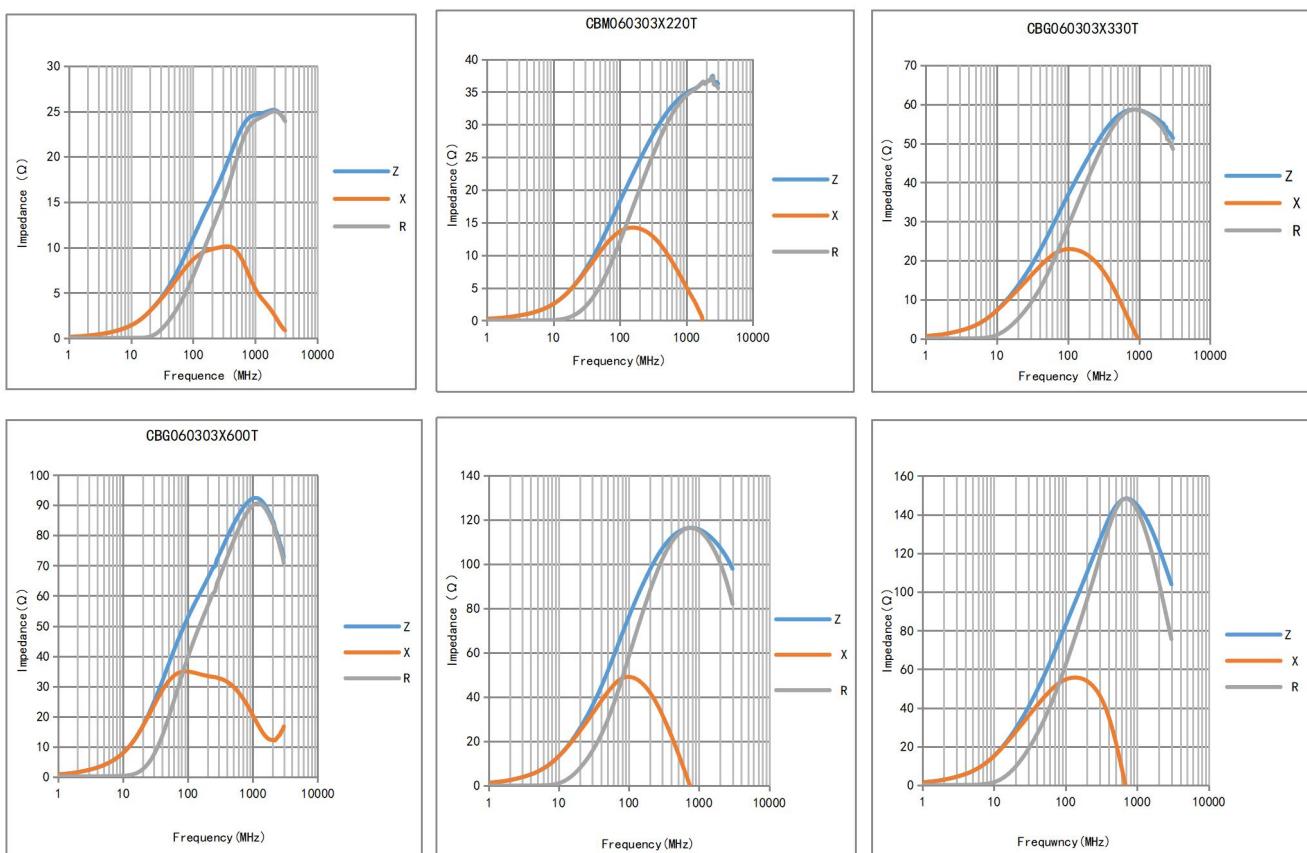
序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
11	温度冲击 Temperature Shock	<p>无可见机械损伤， 阻抗变化率小于±30%。 No mechanical damage. Impedance change: within ±30%</p>	<p>温度: -55°C, 30±3分钟 +125°C, 30±3分钟 循环次数: 100</p> <p>Temperature: -55°C for 30±3min +125°C for 30±3min Number of cycles: 100</p>  <p>The diagram illustrates the temperature shock test cycle. It shows a sequence of three temperature steps: -55°C for 30 minutes, followed by ambient temperature for 3 minutes (maximum), and finally +125°C for 30 minutes. The total cycle time is 30 minutes.</p>

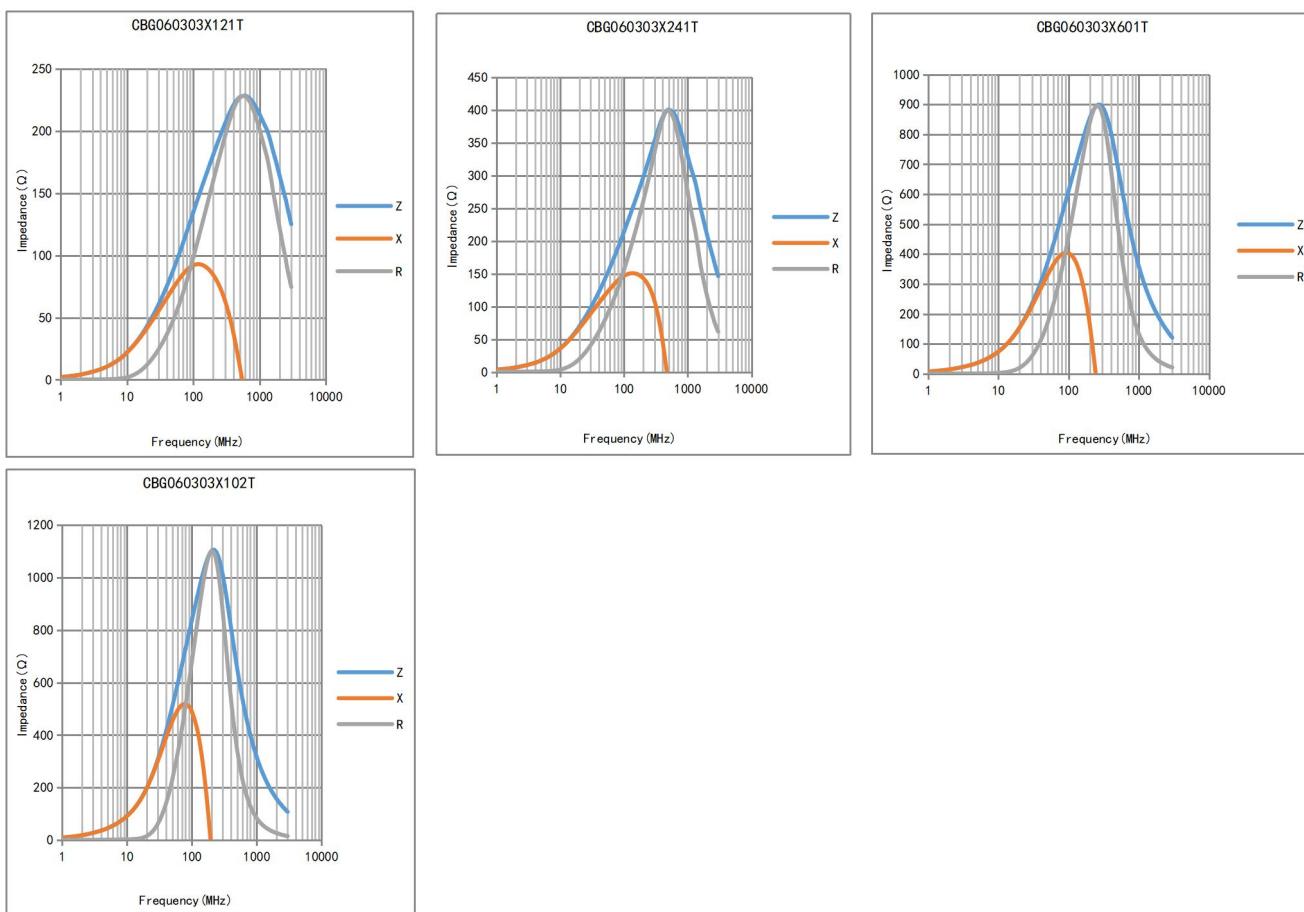
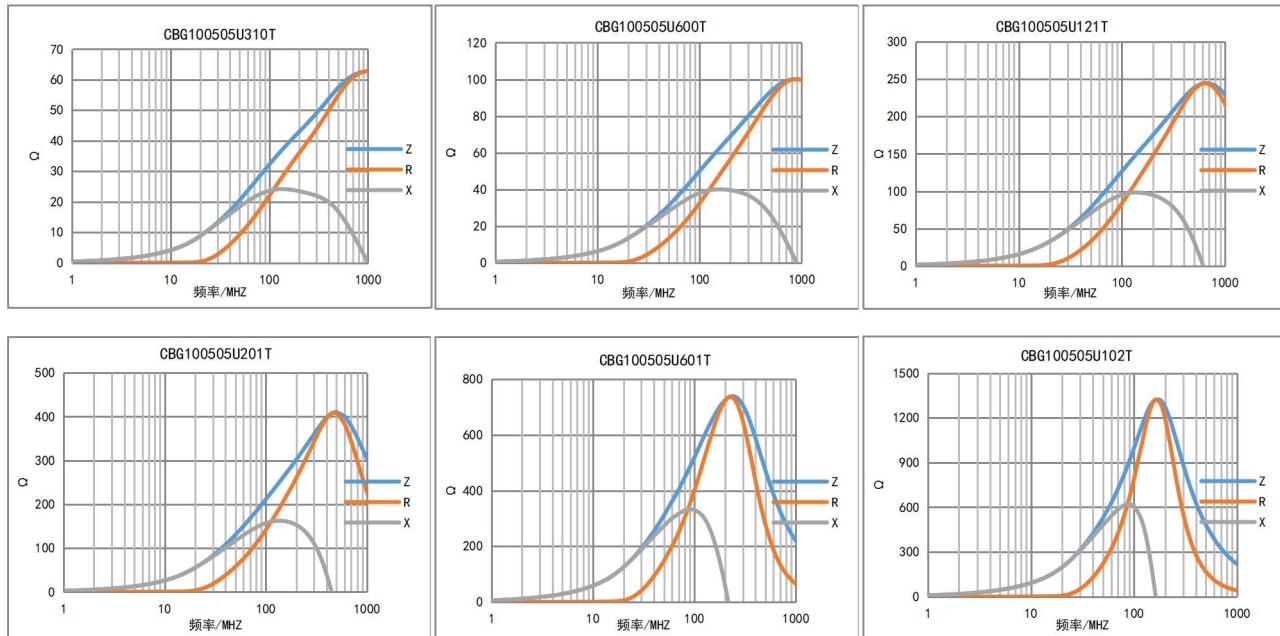
注: 以上要求测试电性能的项目, 应试验后在标准条件下放置 24 小时后测试。  
Note: When there are questions concerning, measurement shall be made after 24±2hrs of recovery under the standard condition.

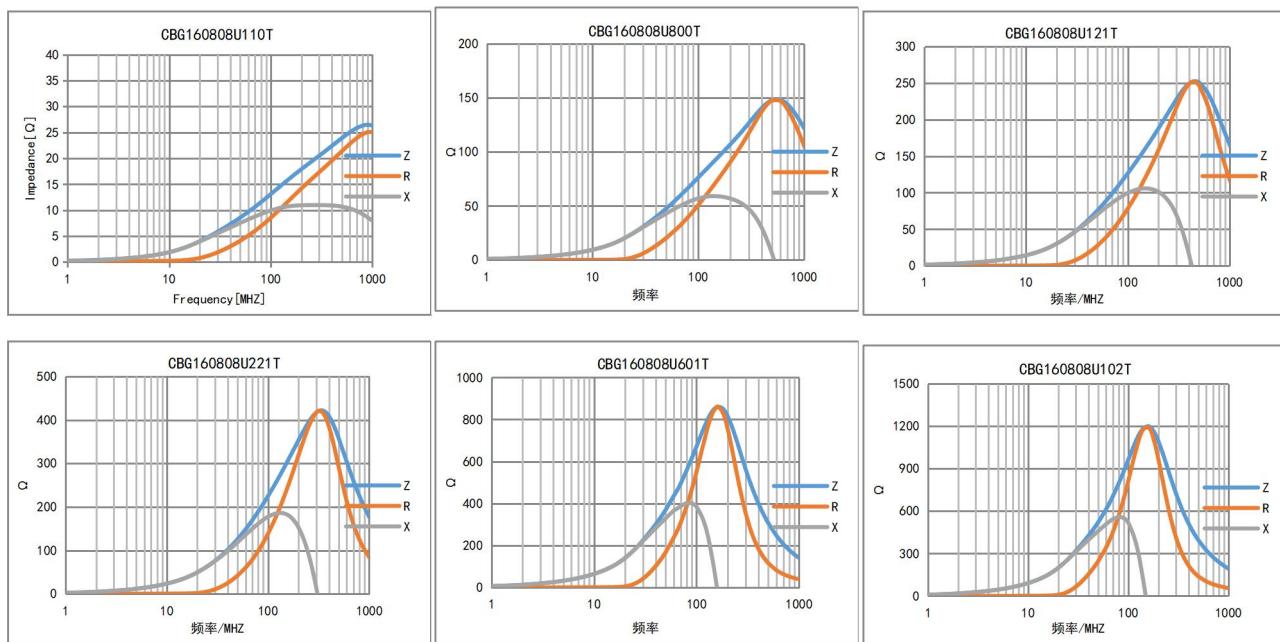
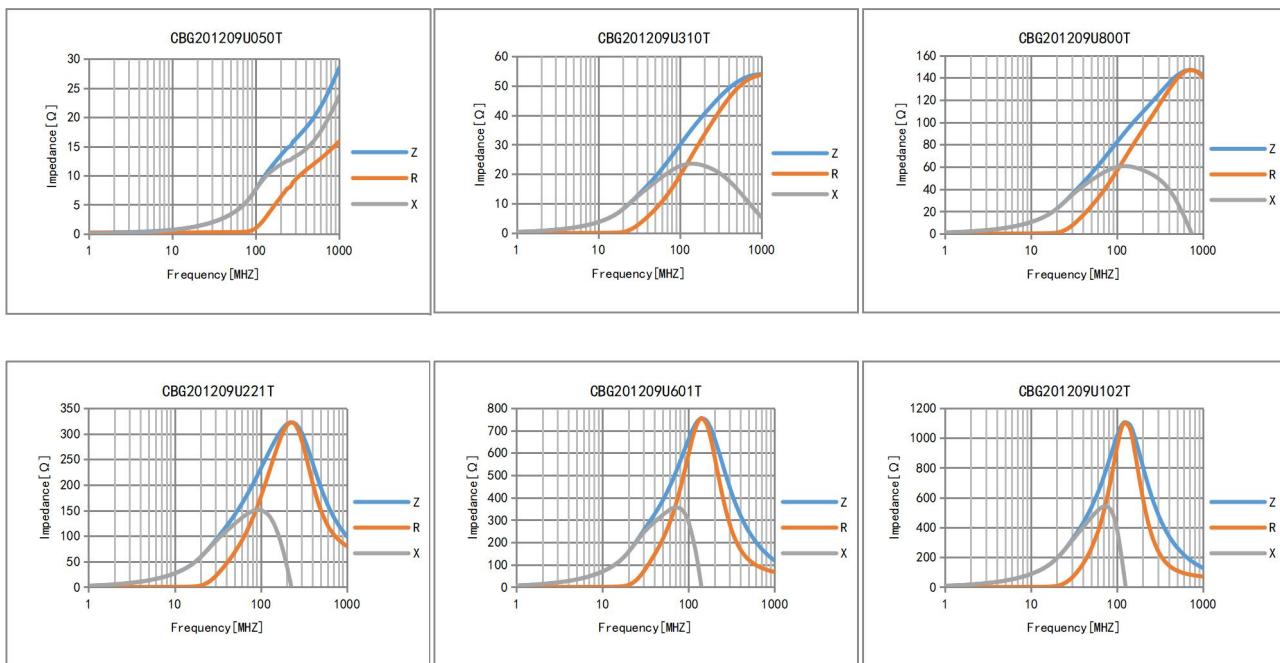
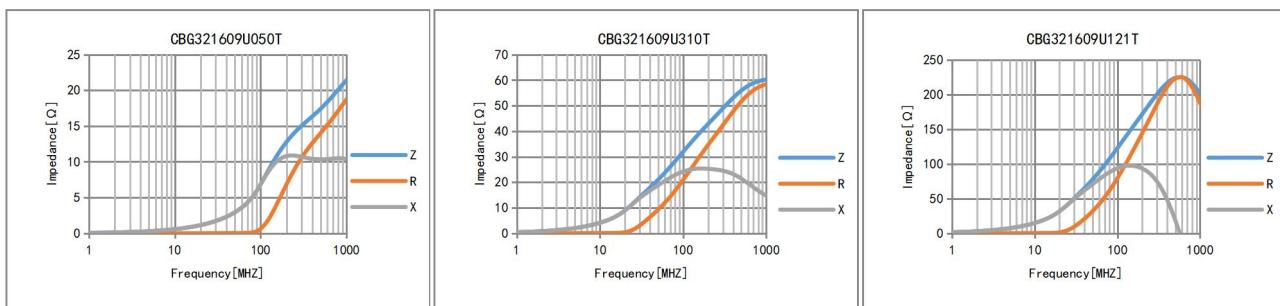
### ◆ 产品特性曲线图

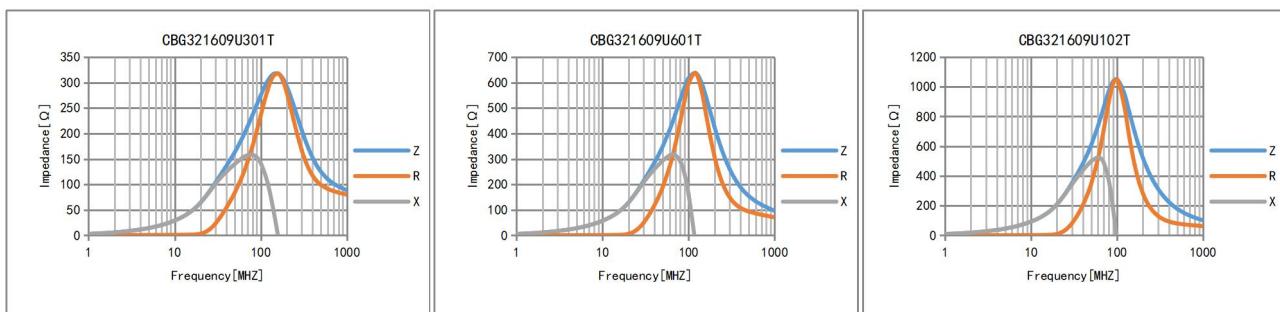
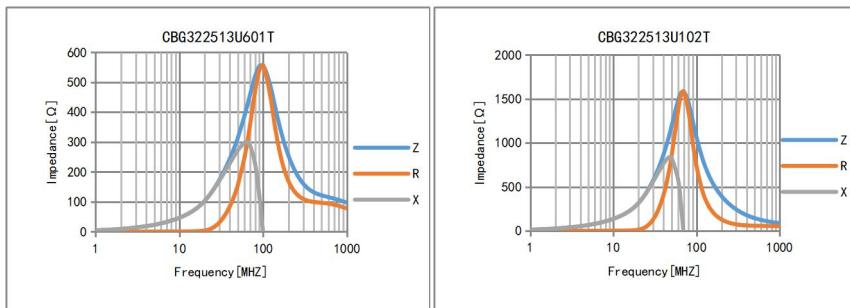
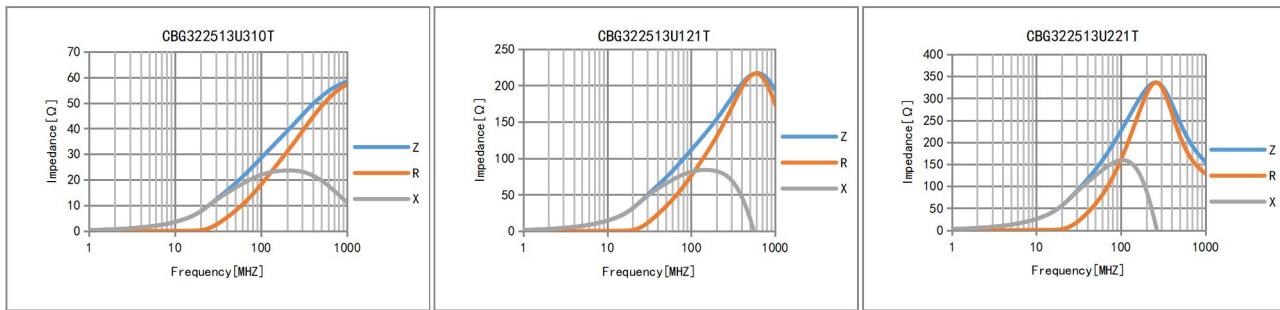
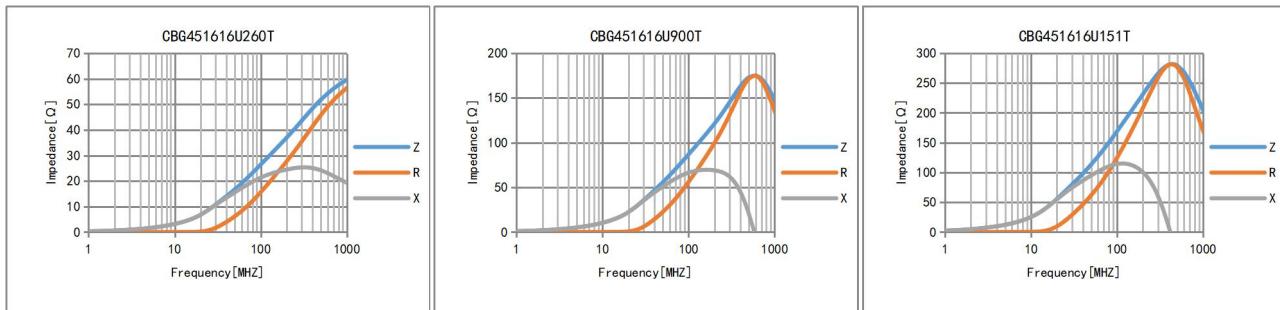
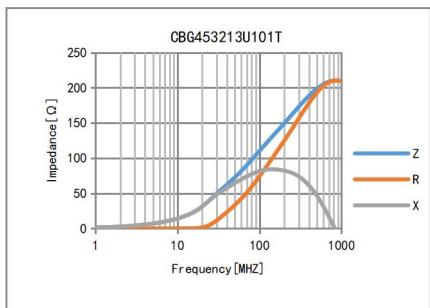
Product Characteristic Curve

CBG0603 Type




**CBG1005 Type**

**CBG1608 Type**

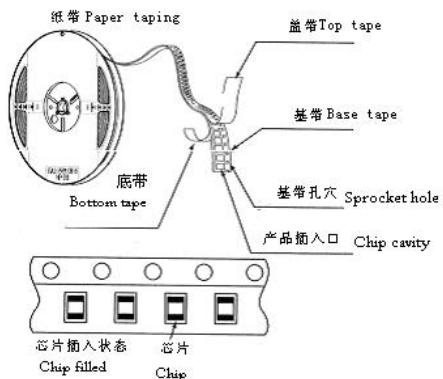

**CBG2012 Type**

**CBG3216 Type**



**CBG3225 Type**

**CBG4516 Type**

**CBG4532 Type**


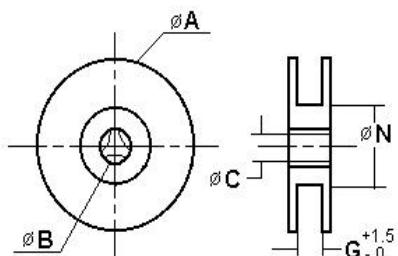
### ◆ 包装

#### Packaging

\* 编带图 Taping drawings

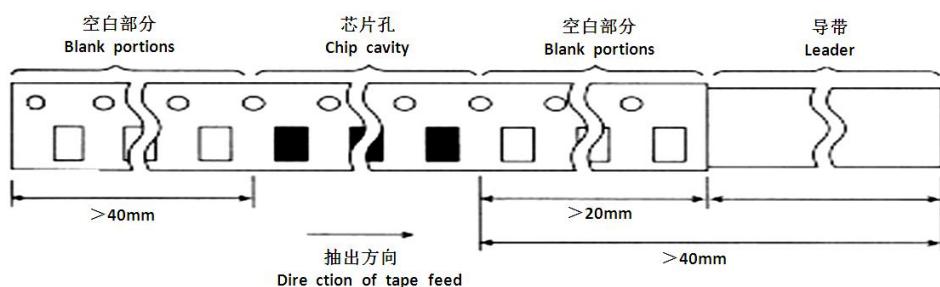


\* 卷盘尺寸 Reel dimensions (Unit: mm)



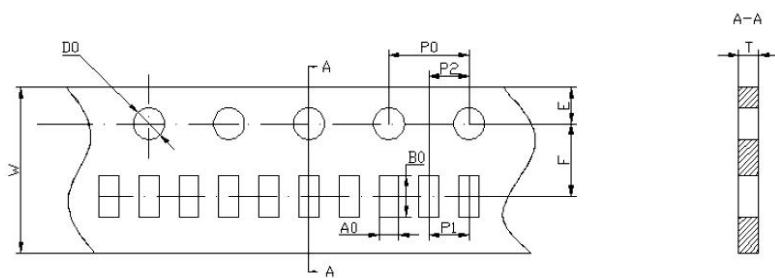
型号 Size	A	B	C	N	G
CF-8	178±2.0	22.0±2.0	12.5±1.5	57±2.0	8
CF-12	330±2.0	22.0±2.0	12.5±1.5	98±2.0	12

\* 导带及空格部分 Leader and blank portion



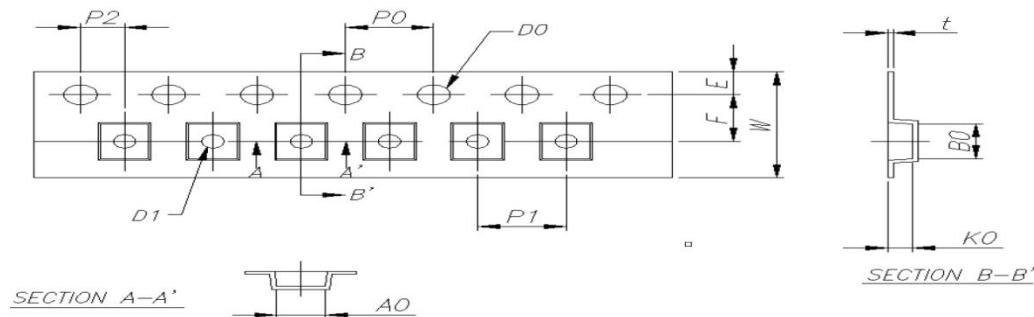
\* 编带尺寸 Taping dimensions (Unit: mm)

纸带 Paper tape



Part NO.	A0	B0	W	F	E	P1	P2	P0	D0	T
060303	0.35±0.03	0.66±0.03	8.00±0.10	3.50±0.05	1.75±0.05	2.00±0.05	2.00±0.05	4.00±0.05	1.55±0.05	0.42±0.03
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+/-0.20
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
P10	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	060303
每卷数量 REEL	3000	3000	3000	4000	3000	4000	4000	10000	15000
每盒数量 BOX	12000	30000	30000	40000	30000	40000	40000	100000	150000
每箱数量 CASE	36000	180000	180000	240000	180000	240000	240000	600000	900000