



产品编码 P/N	PCAQ4520~1513 series	测试设备 TEST INSTRUMENT	Keysight:E4991B Chroma:16502 3302
产品系列 Series	贴片共模电感	测试频率 TEST FREQUENCY	100MHZ / 0.1V

客户名称

Customer

:

客户编码

Customer P/N

:

产品系列

Series

:

贴片共模电感

SMD Common Mode Choke

产品编码

Supply P/N

:

PCAQ4520~1513 series

发版号

Version

:

A3.0

承认日期

Endorsement Date

:

2025-8-13

备注

Note

:

谱罗德电子科技（深圳）有限公司 PuLuoDe Electronic Technology (Shenzhen) Co. LTD	
制作 APPROVED	Ben
审查 CHECKED	Yuki
确认 PREPARED	Peter

客户承认

Customer Approval

客户签章



谱罗德电子科技（深圳）有限公司

PuLuoDe Electronic Technology (Shenzhen) Co., LTD

深圳市宝安区石岩三联工业区B栋311

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修订记录

REVISION RECORD



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产品系列 Series	贴片共模电感	测试频率 TEST FREQUENCY	100MHZ / 0.1V

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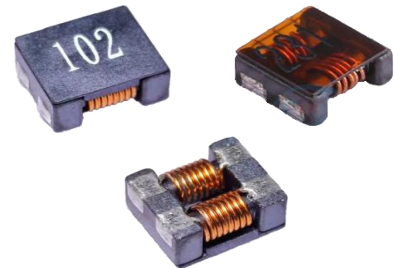


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产品特点

Features

- 阻抗范围广，适用于不同频率的信号噪音抑制
30Ω~4000Ω are optional for different noise level and signal frequency
- 产品薄，尺寸小，高频共模噪声抑制效果好
Low profile, Small size, Prevention of common mode noise at high frequency
- SMD结构便于SMT生产自动化贴片
SMD structure is convenient for SMT production automation patch
- 超小超薄的结构减少PCB的占用面积
Takes up less PCB real estate and save more power



编码解释

Code interpretation

PCAQ
<u>类别码</u>
Category code

XXXXMX
<u>尺寸系列</u>
Dimension

XXX
<u>阻抗值</u>
Impedance

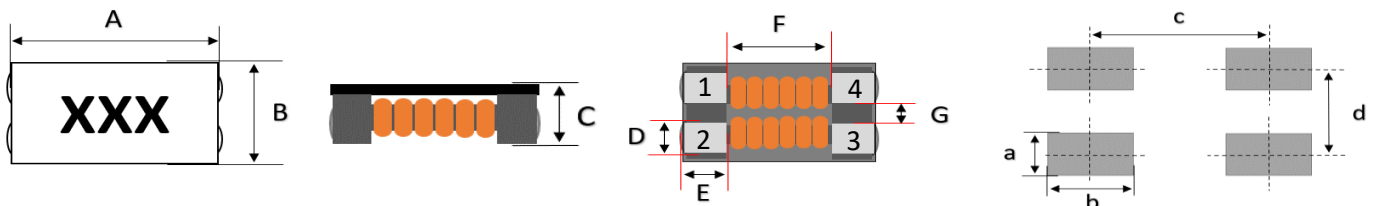
封装尺寸

Dimension

(mm)

推荐的焊盘尺寸

Recommened Land Pattern



系列 Series	封装尺寸 Dimension							焊盘尺寸 Land Pattern			
	A	B	C	D	E	F	G	a	b	c	d
4520	4.75±0.5	4.5±0.5	2.0 Max	0.8 Typ	1.0 Typ	*	*	1.3	1.5	3.5	2
5028	5.0±0.5	4.7±0.5	2.8 Max	1.0 Typ	0.9 Typ	2.7 Typ	1.0 Typ	2	1.3	4	2.3
7060	7.0±0.5	6.0±0.5	3.8MAX	1.5±0.3	1.7±0.3	3.5Typ	1.5 Typ	2	2.2	5.3	3.2
9070	9.0±0.5	7.0±0.5	4.8MAX	1.5±0.3	1.7±0.3	5.7Typ	2.0 Typ	2	2.2	7.3	3.7
1211	12.0±0.5	10.8±0.5	6.4Max	2.7±0.5	2.5±0.5	7.0Typ	2.5 Typ	3.5	3.2	9.5	5.2
1513	15.0±0.5	13.0±0.5	6.5MAX	2.7±0.5	3.0±0.5	9.0Typ	3.3 Typ	3.5	3.7	12	6

- 规格参数基于环境温度25℃取得
All test Data is referenced to 25℃ ambient
- 电感工作环境温度：-40℃ ~ 125℃
Operating temperature range -40 °C to +125 °C
- 加载额定电流会使电感温度上升大约 40℃ (电感初始温度+上升温度=电感最终温度)
Typical Rated Current would cause an approximately ΔT of 40℃
- 务必考虑最终的产品设计，元器件布局，线路板走线，以及使用环境过程中，电感最终温度不得超过125℃
The operating temperature of inductance do not exceed 125℃
- 使用电感时，请查阅第14页注意事项
The announcements is on page 15



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4520 Series

产品编码 P/N	@ 25 °C Ambient Temperture					
	阻抗 Impedance		DCR	绝缘性 (IR)	额定电流 (Rated Current)	额定电压 (Rated Voltage)
	Ω		m Ω	M Ω		
	Min	Typ	Max	Min	mA	V
PCAQ4520MB-900	30	90	35	10	3200	50
PCAQ4520MB-151	80	150	38	10	3100	50
PCAQ4520MB-231	180	230	39	10	3000	50
PCAQ4520MB-301	180	300	39	10	3000	50
PCAQ4520MB-401	200	400	50	10	2500	50
PCAQ4520MB-501	300	500	55	10	2400	50
PCAQ4520MB-701	500	700	59	10	2200	50
PCAQ4520MB-901	700	900	68	10	2100	50
PCAQ4520MB-102	800	1000	68	10	2100	50
PCAQ4520MB-122	1000	1200	74	10	2000	50
PCAQ4520MB-142	1200	1400	81	10	1900	50

5028 Series

产品编码 P/N	@ 25 °C Ambient Temperture					
	阻抗 Impedance		DCR	绝缘性 (IR)	额定电流 (Rated Current)	额定电压 (Rated Voltage)
	Ω		m Ω	M Ω		
	Min	Typ	Max	Min	mA	V
PCAQ5028MW-101	70	100	11	10	7000	125
PCAQ5028MW-151	100	150	13	10	6500	125
PCAQ5028MW-231	180	230	15	10	6000	125
PCAQ5028MW-301	200	300	15	10	6000	125
PCAQ5028MW-401	300	400	17	10	5000	125
PCAQ5028MW-501	350	500	20	10	4500	125
PCAQ5028MW-701	500	700	22	10	4000	125
PCAQ5028MW-102	800	1000	30	10	3500	125
PCAQ5028MW-122	1000	1200	37	10	3000	125
PCAQ5028MW-142	1200	1400	40	10	2500	125



电气特性

ELECTRICAL CHARACTERISTICS



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7060 Series

产品编码 P/N	@ 25 °C Ambient Temperture					
	阻抗 Impedance		DCR	绝缘性 (IR)	额定电流 (Rated Current)	额定电压 (Rated Voltage)
	Ω		m Ω	M Ω		
	Min	Typ	Max	Min	mA	V
PCAQ7060MW-400	40	70	5	10	15000	125
PCAQ7060MW-101	100	140	10	10	9000	125
PCAQ7060MW-301	225	300	10	10	5000	125
PCAQ7060MW-501	275	350	10	10	5000	125
PCAQ7060MW-601	500	700	15	10	4000	125
PCAQ7060MW-701	500	700	15	10	4000	125
PCAQ7060MW-102	800	1020	17	10	3000	125
PCAQ7060MW-132	910	1300	21	10	2500	125
PCAQ7060MW-152P	1300	1500	21	10	2500	125
PCAQ7060MW-272	2000	2700	63	10	1000	125
PCAQ7060MW-302	2500	3000	75	10	900	125

9070 Series

产品编码 P/N	@ 25 °C Ambient Temperture					
	阻抗 Impedance		DCR	绝缘性 (IR)	额定电流 (Rated Current)	额定电压 (Rated Voltage)
	Ω		m Ω	M Ω		
	Min	Typ	Max	Min	mA	V
PCAQ9070MW-301	225	300	6	10	6000	125
PCAQ9070MW-501	450	600	8	10	5500	125
PCAQ9070MW-701	500	700	10	10	5000	125
PCAQ9070MW-102	750	1000	13	10	4000	125
PCAQ9070MW-152	1300	1500	20	10	3500	125
PCAQ9070MW-222	1700	2200	60	10	2500	125
PCAQ9070MW-272	2000	2700	86	10	2000	125
PCAQ9070MW-302	2500	3000	80	10	2000	125



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1211 Series

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	阻抗 Impedance		DCR	绝缘性 (IR)	额定电流 (Rated Current)	额定电压 (Rated Voltage)
	Ω		m Ω	M Ω		
	Min	Typ	Max	Min	mA	V
PCAQ1211MW-800	80	230	2	10	10000	125
PCAQ1211MW-501	250	500	5.5	8	10000	125
PCAQ1211MW-701	500	700	6	10	8000	125
PCAQ1211MW-801	600	800	8	10	8000	125
PCAQ1211MW-102	750	1000	14	10	6000	125
PCAQ1211MW-152	1000	1500	16	10	5000	125
PCAQ1211MW-202	1400	2200	24	10	4000	125
PCAQ1211MW-222	2200	2500	35	10	1800	125
PCAQ1211MW-272	2300	2700	50	10	1500	125
PCAQ1211MW-302	2500	3000	90	10	1100	125
PCAQ1211MW-402	3300	4000	100	10	2000	125

1513 Series

产品编码 P/N	@ 25 °C Ambient Temperture					
	阻抗 Impedance		DCR	绝缘性 (IR)	额定电流 (Rated Current)	额定电压 (Rated Voltage)
	Ω		m Ω	M Ω		
	Min	Typ	Max	Min	mA	V
PCAQ1513MW-301	200	300	6	10	13000	125
PCAQ1513MW-501	400	500	8	10	11000	125
PCAQ1513MW-551	450	550	5.5	10	10000	125
PCAQ1513MW-701	500	700	7	10	10000	125
PCAQ1513MW-102	800	1000	12	10	9000	125
PCAQ1513MW-152	1300	1500	35	10	8000	125
PCAQ1513MW-222	1800	2200	50	10	6000	125
PCAQ1513MW-302	2500	3000	75	10	4000	125



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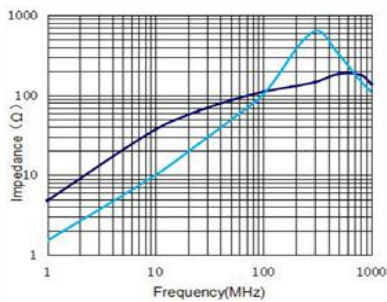

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特性曲线

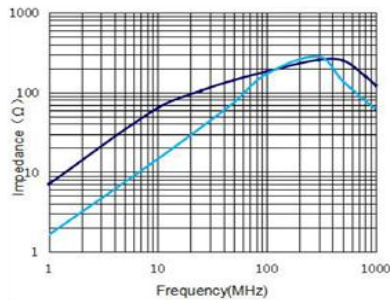
Performance Curves

—— 差模特性 (Differential Mode) —— 共模特性 (Common Mode)

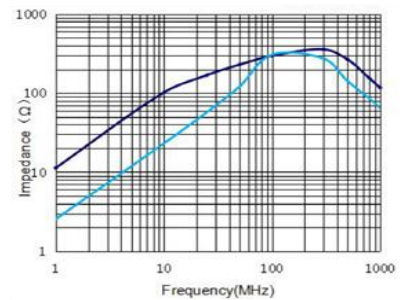
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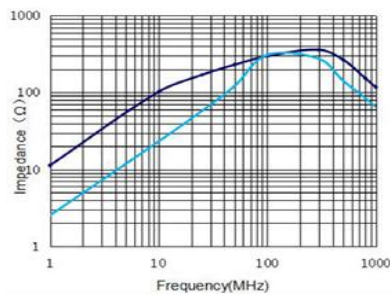
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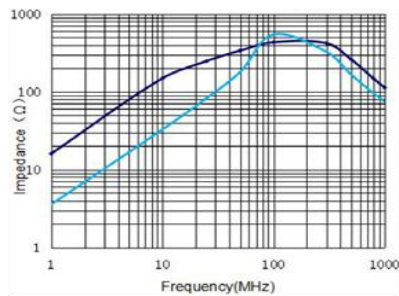
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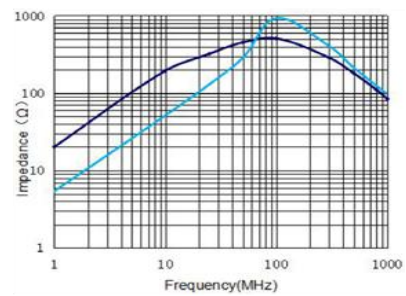
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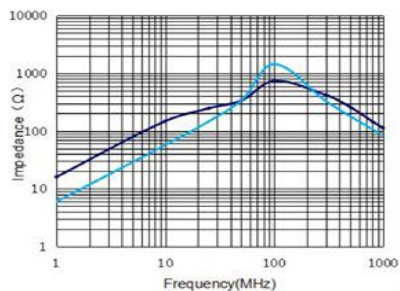
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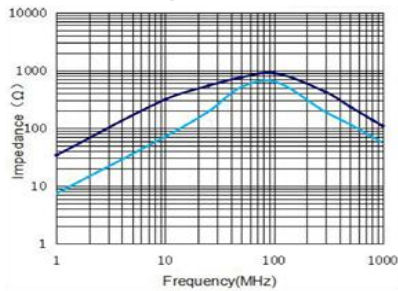
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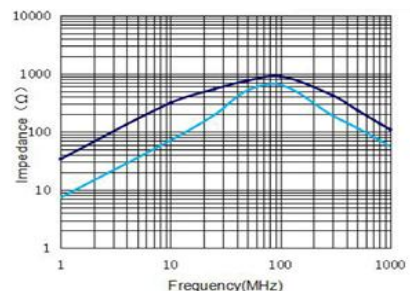
PCAQ4520MB-701



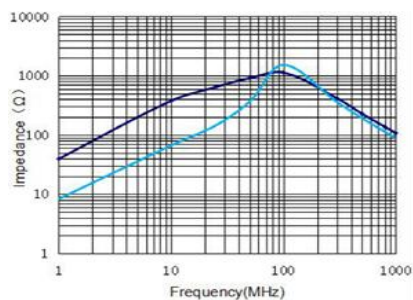
PCAQ4520MB-901



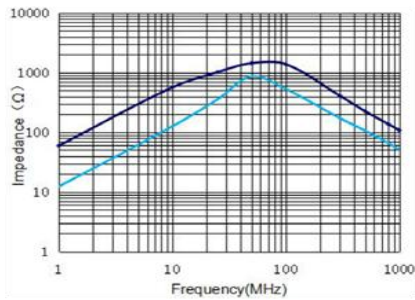
PCAQ4520MB-102



PCAQ4520MB-122



PCAQ4520MB-142



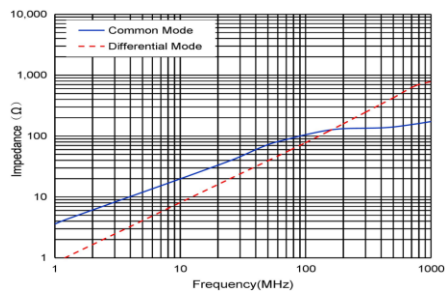
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特性曲线

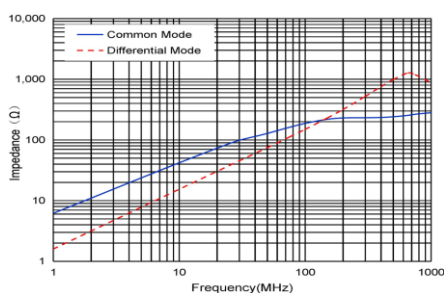
Performance Curves

—— 差模特性 (Differential Mode) —— 共模特性 (Common Mode)

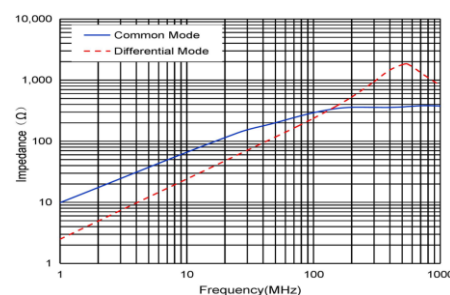
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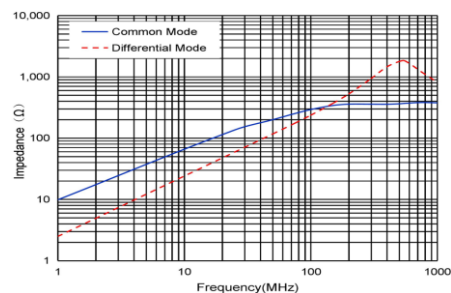
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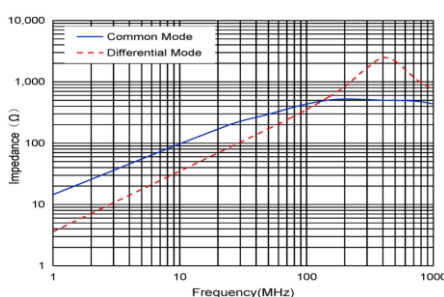
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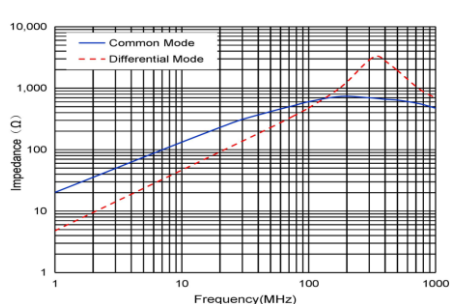
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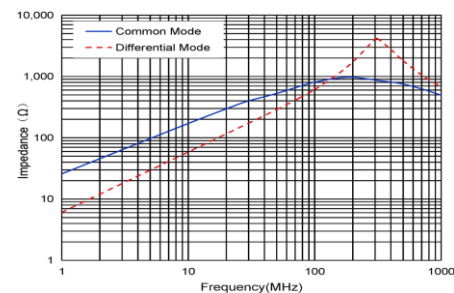
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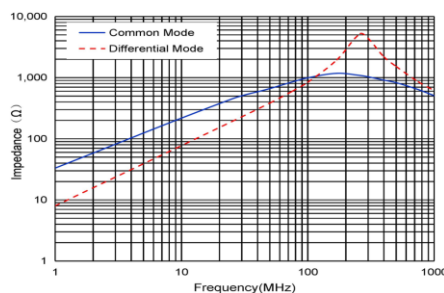
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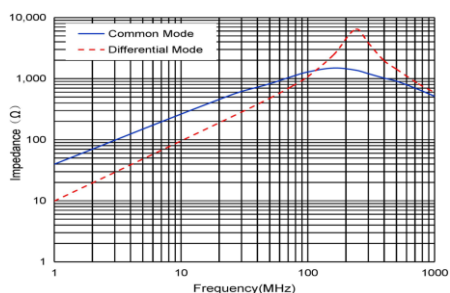
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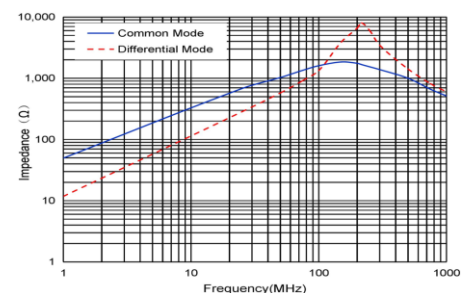
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PCAQ5028MW-122



PCAQ5028MW-142

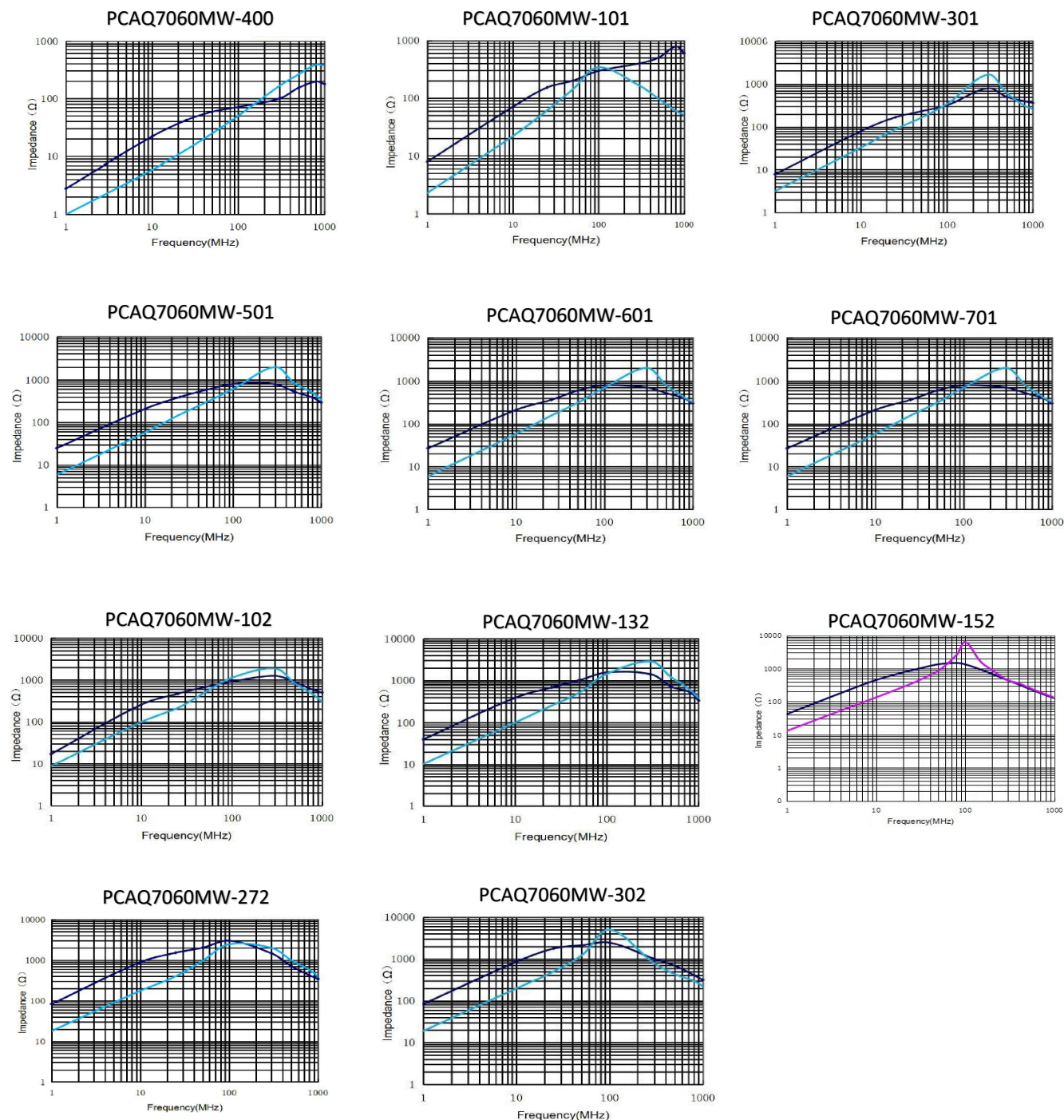


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特性曲线

Performance Curves

—— 差模特性 (Differential Mode) —— 共模特性 (Common Mode)

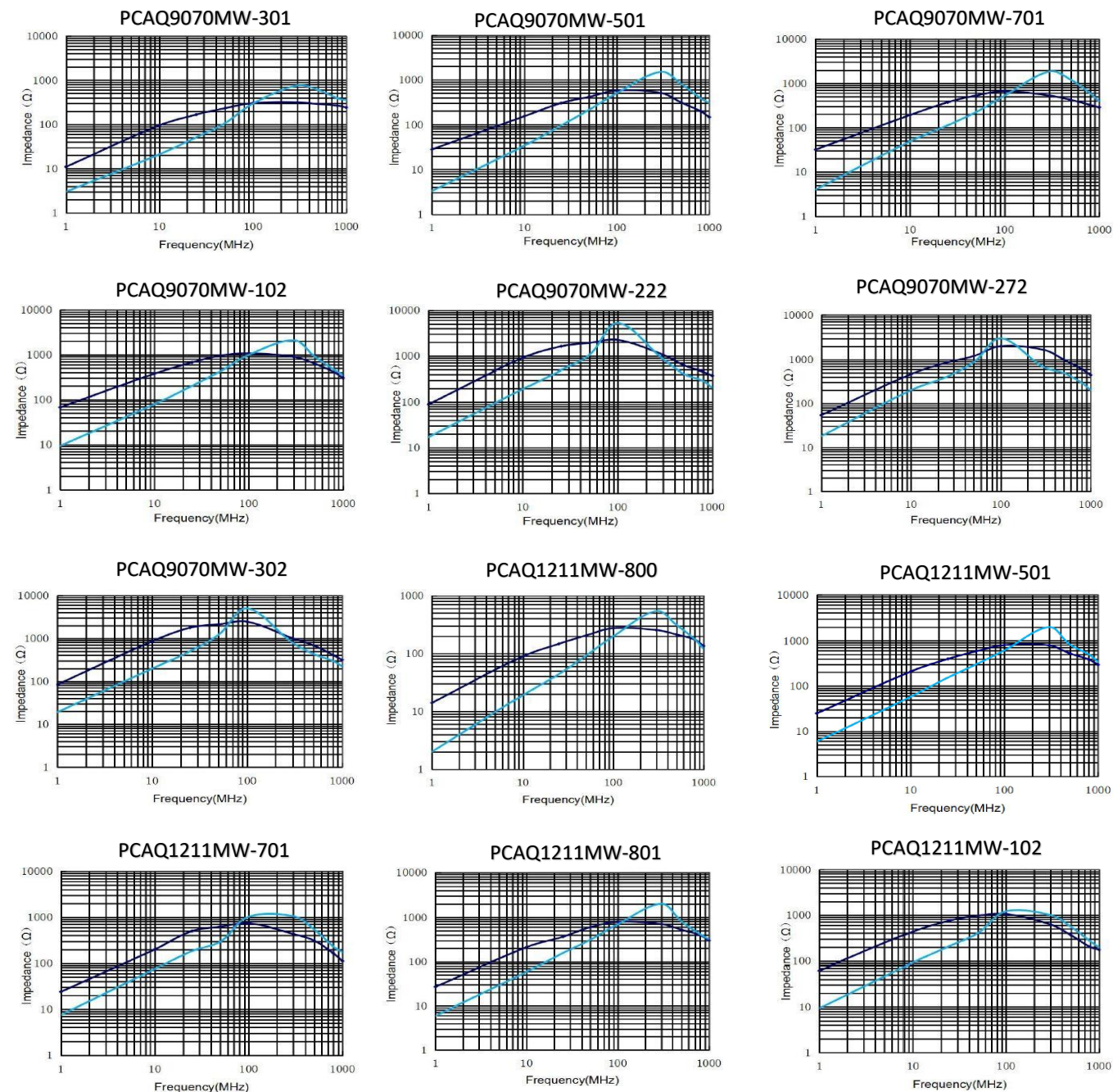


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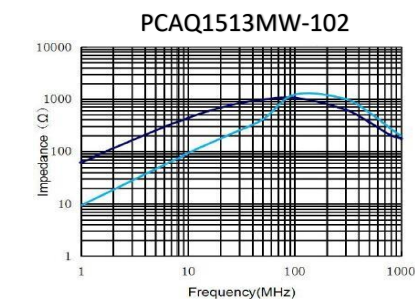
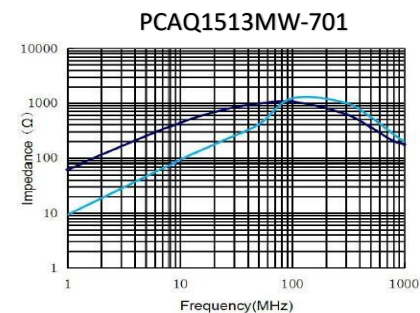
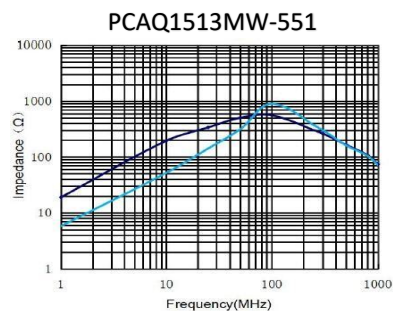
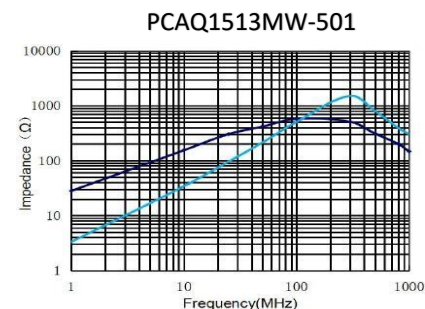
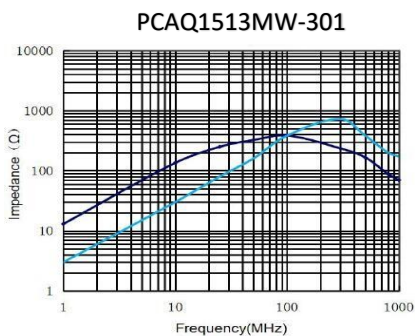
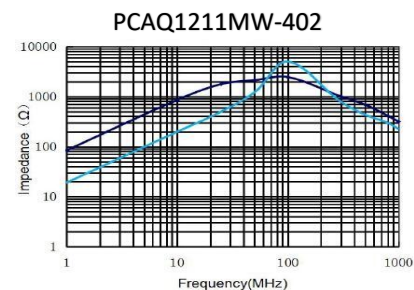
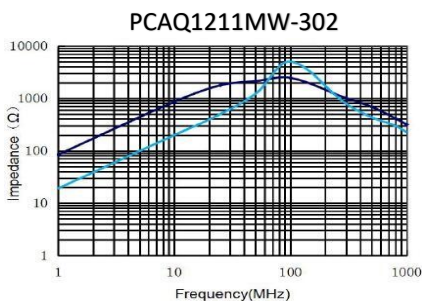
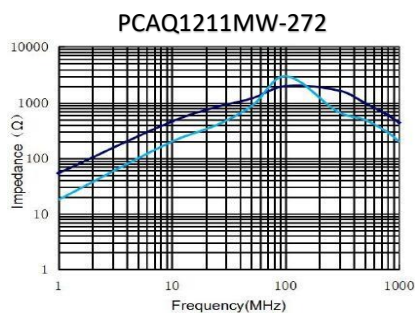
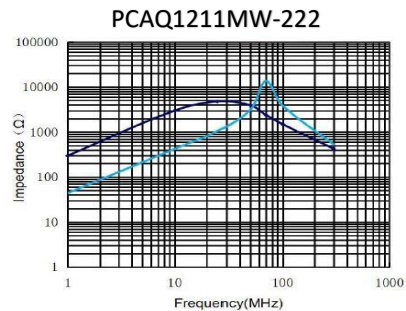
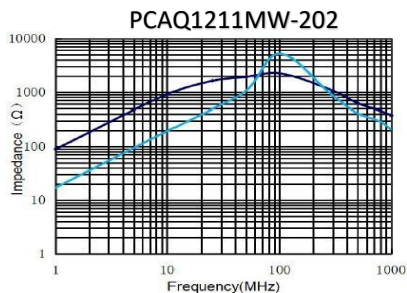
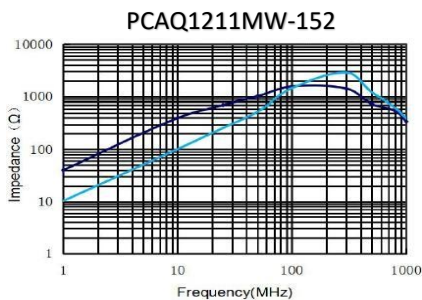


产品编码 P/N	PCAQ4520~1513 series	测试设备 TEST INSTRUMENT	Keysight:E4991B Chroma:16502 3302
产品系列 Series	贴片共模电感	测试频率 TEST FREQUENCY	100MHZ / 0.1V

特性曲线

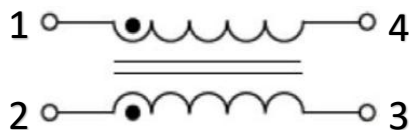
Performance Curves

—— 差模特性 (Differential Mode) —— 共模特性 (Common Mode)



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电气图 Schematics



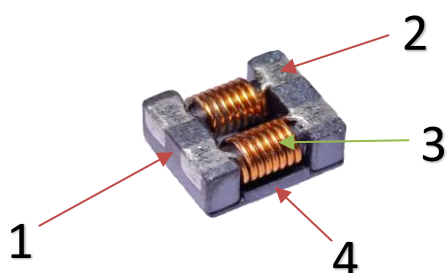
◎ 电感内置两组线圈
Inductor Contents two (2) Set(s) of Coil

丝印方式 Marking



◎ 4520黑色喷码, 5028激光刻字, 7060~1513白色喷码
4520-black mark , 5028-lettering, 7060~1513-white mark

内部构造 Internal Structure



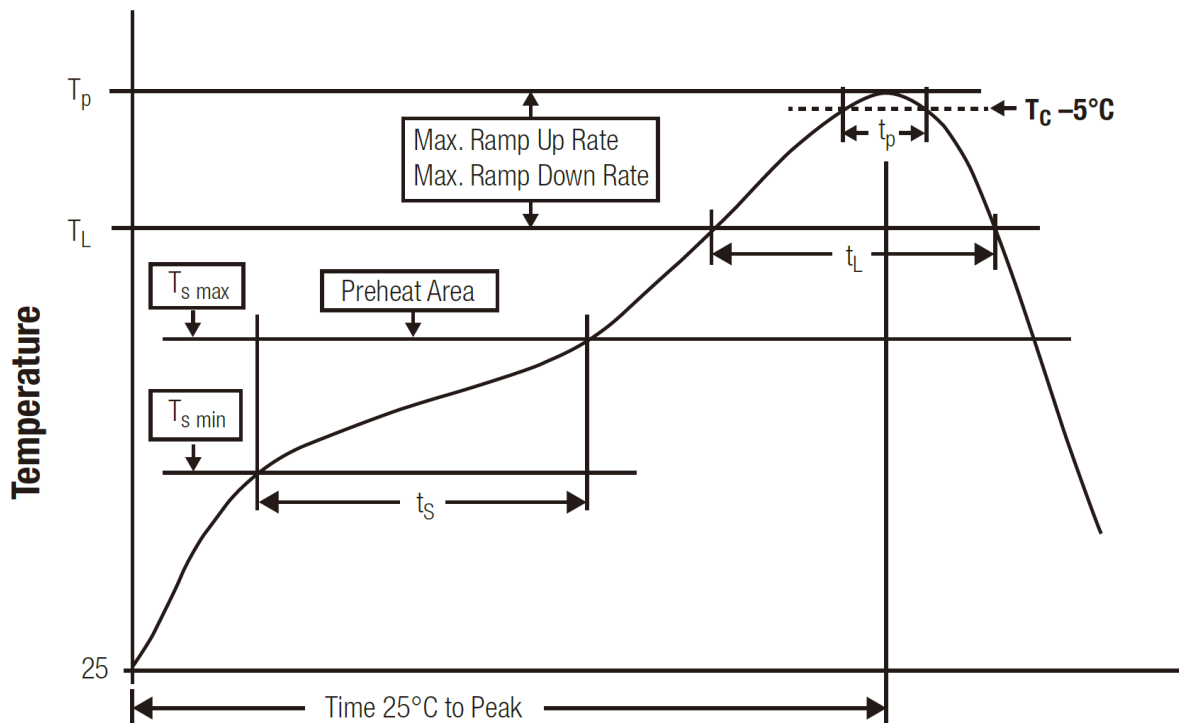
- 1: 磁芯 / Core
- 2: 电极 / Electrode
- 3: 线圈 / Coil
- 4: 顶盖 / Base



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焊接温度（推荐）

Recommended Classification Wave Soldering Profile



Clas

Profile Feature	Time Item	Value
Preheat Temperature Min	Ts min	150 °C
Preheat Temperature Max	Ts max	200 °C
Preheat Time ts from Ts min to Ts max	ts	60 - 120 seconds
Ramp-up Rate (TL to TP)		3 °C/ second max.
Liquidous Temperature	TL	217 °C
Time tL maintained above TL	tL	60 - 150 seconds
Peak package body temperature	TP	TP ≤ Tc, see Table below
Time within 5°C of actual peak temperature	t p	20 - 30 seconds
Ramp-down Rate (TP to TL)		6 °C/ second max.
Time 25°C to peak temperature		8 minutes max.

Package Classification Reflow Temperature (Tc):

Properties	Volume mm³ <350	Volume mm³ 350-2000	Volume mm³ >2000
PB-Free Assembly Package Thickness < 1.6 mm	260°C	260°C	260°C
PB-Free Assembly Package Thickness 1.6 mm - 2.5 mm	260°C	250°C	245°C
PB-Free Assembly Package Thickness > 2.5 mm	250°C	245°C	245°C

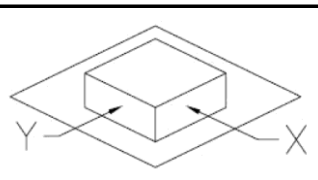
* 参考标准: IPC/ JEDEC J-STD-020E refer standard to: IPC/ JEDEC J-STD-020E



产品编码 P/N	PCAQ4520~1513 series	测试设备 TEST INSTRUMENT	Chroma: 3302 16502 Keysight: E4991
产品系列 Series	贴片共模电感	测试频率 TEST FREQUENCY	100MHZ / 0.1V

可靠性实验

RELIABILITY TESTING

项目/Item	方法/Method
Operating Temperature	- 40 to +125 °C (Contain Heating coil)
Appearance Inspection	No external defects by visual inspection
Terminal Strength	 After soldering , between copper plaet and terminals of coils , push in two directions of X , Y with standing 10N(1.02kg) for10+/-2 sec. Terminal should not peel off. (Refer to figure at right)
Heat endurance of reflow soldering	
Insulating resistance	Over 10 MΩ at 50V D.C . between wire and core
Dielectric Strength	Apply at 0.5KV 1mA for 3S between wire and core
Temperature characteristics	Inductance coefficient (0~2,000) × 10 / °C (- 40~ + 125 °C)
Humidity characteristics	Inductance deviation within ± 10% , after 96 hours in 90~95% relative humidity at 40 ± 2 °C and 1 hours drying under normal condition

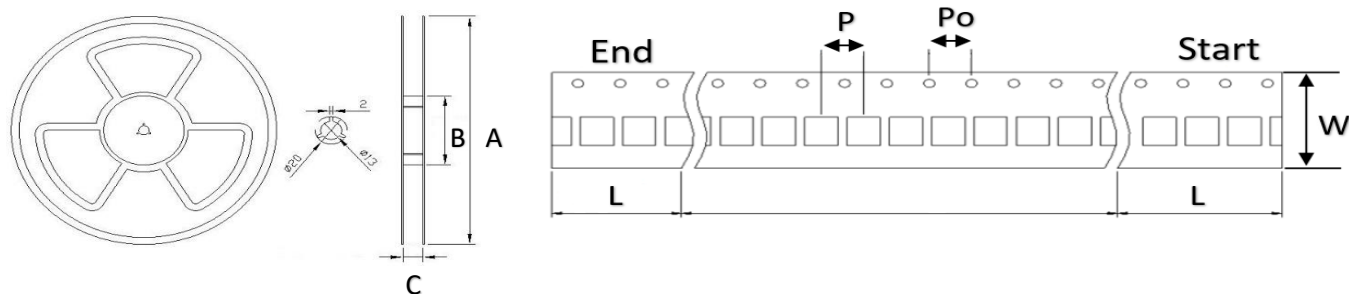
A test is made under the above mentioned condition , and it is kept for 2 hours in the normal



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載帶卷盤尺寸 : (mm)

Packing Dimension



系列 Series	A	B	C	W	P	Po	L
4520	178	*	18	16	8	4.0	前后预留大约30空格
5028	178	*	18	16	8	4.0	前后预留大约30空格
7060	330	100	16.5	16	12	4.0	前后预留大约30空格
9070	330	100	16.5	16	12	4.0	前后预留大约30空格
1211	330	100	24.5	24	16	4.0	前后预留大约30空格
1513	330	100	24.5	24	20	4.0	前后预留大约30空格



包裝方式

PACKING FOR SMD



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产品系列 Series	贴片共模电感	测试频率 TEST FREQUENCY	100MHZ / 0.1V

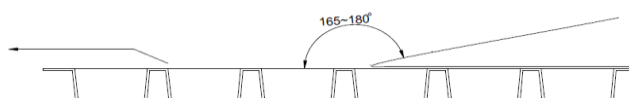
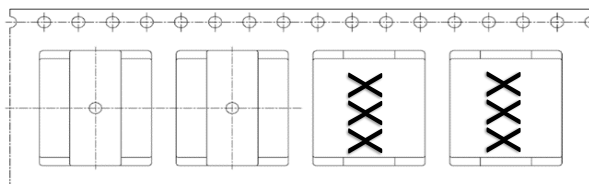
載帶內產品排列方式:
Inductance Packing Method

載帶剝離力:
Typical Pulling Force

首字對孔

The First mark is on the side of the gear hole

20~120 gf

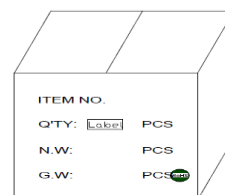
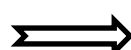
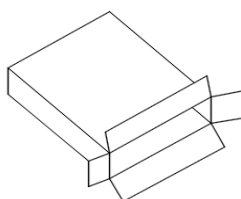
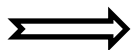
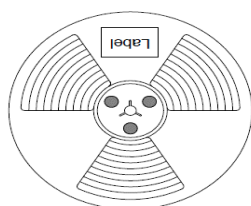


裝箱數量:
Package Quantity

卷盘
MPQ

内盒
Middle box

外箱
Outer box



系列 Series	卷盘 MPQ	内盒 Middle box	外箱 Outer box
4520	1000pcs	5000pcs	50000pcs
7060	1500pcs	4500pcs	13500pcs
7060	1500pcs	4500pcs	13500pcs
9070	700pcs	1400pcs	4800pcs
1211	500pcs	1000pcs	4000pcs
1513	400pcs	800pcs	3200pcs





注意事项

使用本产品时，请注意以下事项

- ◎ 产品保存期限为12个月，保存条件：温度5~40℃，湿度10~75%RH以内，超过保存期限可能会使元器件电极发生氧化，存储标准可参照：IEC_61760-2-2021
This components storage life is 12 months, Storage Temperature: TEMP.5~40℃; RH10%~75%. Please use this components within the warranty period. refer standard to: IEC_61760-2-2021
- ◎ 请勿在极端环境下使用和保存（高盐，强酸，强碱，强辐射等）。
Do not use this component in special environments, such as high salt content, strong acid, strong alkali, strong corrosion and other special environments.
- ◎ 焊接前请先预热，预热与焊接温度之间温差建议控制在150℃以内；焊接标准参考：IPC/ JEDEC J-STD-020E
Please preheat the product before welding; it is recommended to control the preheating temperature and welding temperature within 150℃. refer standard to: IPC/ JEDEC J-STD-020E
- ◎ 元器件焊接后需重新拆卸焊接修正时，请遵循规格书规定的条件范围；过高的加热温度以及反复的拆卸可能会导致元器件失效。
When repairing this component, the temperature used for disassembly should not exceed the datasheet limit and do not disassemble it frequently to prevent damage to the component.
- ◎ 请勿用清洗剂、丙酮等腐蚀性液体接触该元器件，这可能会侵蚀元器件本体以至于失效。
Do not use acetone or other corrosive liquids to contact this component or it will cause it to fail.
- ◎ 元器件焊接到线路板后，请注意不可因线路板整体变形或局部变形而施加给电感剩余应力，这可能会导致元器件脱落、破损失效。
When this component is soldered to the circuit board, you need to pay attention to the stress applied to it by the PCB, which may cause it to fall off or damaged fail.
- ◎ 元器件通电后温度会随电流的增大而上升，设计时请务必考虑留有余量。
Self heating (Rated Current or Irms) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.
- ◎ 过高的静电会损坏该元器件，请注意静电防护。
Too high static electricity will cause permanent damage to the product, please pay attention to electrostatic protection.
- ◎ 本元器件作为磁性产品，设计时请务必考虑周边元器件与本产品可能产生的耦合效应影响。
This magnetic component needs to be considered for coupling effects in the application.
- ◎ 谱罗德并不能完全掌握或熟悉客户的特定应用以及要求，贵司有责任和义务验证此元器件以及元器件规格书中的描述是否满足于贵司的设计要求；需要指出是：即使按照现有的技术标准操作，该元器件依然有几率在典型寿命结束前发生故障，谱罗德强烈建议贵司对于该元器件在一些典型的严苛应用中，例如安规产品，工业产品、医疗产品、车载产品、航空/航天等产品应用，对于该元器件可能存在的失效情况做适当的冗余设计，以此避免该元器件在失效时造成严重后果；特别提醒：对于特定的应用对象谱罗德强烈要求贵司同谱罗德取得书面的许可，否则谱罗德不予承担元器件失效带来的任何责任，特定对象包括且不限于：车用，航空航天，安规产品，军用以及贵司对元器件有严苛要求的产品。
PROD cannot fully understand and be familiar with customers' specific applications and requirements. Your company has the responsibility and obligation to verify whether the components and the description in the component specification meet your design requirements. Special reminder: Even if operated in accordance with existing technical standards, this component still has a chance of failure before the end of its typical life. PROD strongly recommends that your company make appropriate redundant designs for possible failure situations of this component in some typical harsh applications, such as safety products, industrial products, medical products, automotive products, aviation/aerospace products, etc., so as to avoid serious consequences when the component fails.
PROD Requirements: For specific application item, PROD strongly requires your (or company) to obtain written permission from PROD, otherwise PROD will not bear any responsibility for component failure. Specific item list include but are not limited to: automotive, aerospace, safety products, military and products that your company has strict requirements on components.



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