

FEATURES 特征

- Winding type realizes small size and low profile..
绕线结构, 小尺寸
- Prevention of common mode noise at high frequency.
对高频共模噪声有良好的抑制作用
- 300~28000Ω are optional for different noise level and signal frequency.
对不同的噪声水平和信号频率, 有 30Ω~2800Ω 可供选择
- Operating Temp : -40℃~+125℃(Including self heating).
工作温度范围:-40℃~+125℃(包括自身温度上升)



APPLICATIONS 用途

- USB2.0 of PC, peripheral equipments, small digital AV equipments, etc.
PC机及周边设备、数字 AV 等其他设备的 USB2.0接口
- LVDS lines of Note PC, LCD.
笔记本电脑、LCD的LVDS线
- Audio lines.
音频线路

PART NUMBERING 产品型号

APCW	2012	-	900	P	2	T
①	②		③	④	⑤	⑥

① Series Name	
APCW	Winding Type Common Mode Choke Coil

② External Dimensions	
	1608[0603]
	2012[0805]
	2520[1008]
	3216[1206]
	3225[1210]
	4532[1812]

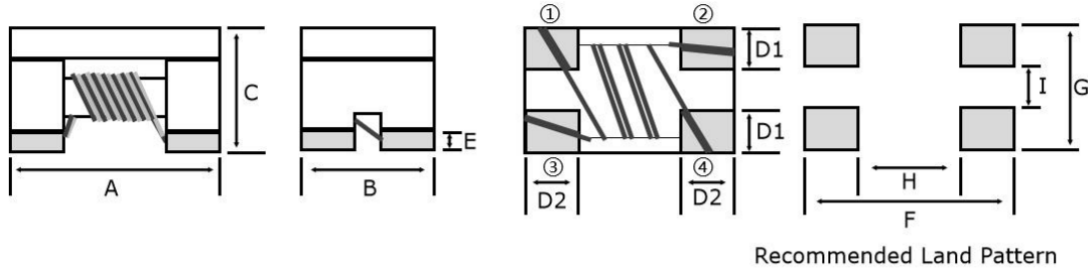
③ Nominal Impedance	
Code (example)	Nominal Impedance [Ω]
900	90
121	120
102	1000

④ Impedance Tolerance	
Code (example)	Impedance Tolerance
P	$\pm 25\%$
N	$\pm 30\%$

⑤ Number of Lines	
	2

⑥ Packaging	
T	Tape & Reel

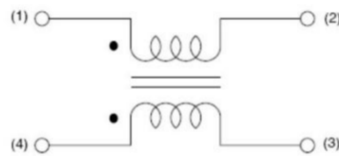
DIMENSIONS & RECOMMENDED LAND PATTERN 尺寸及推荐焊盘



Unit: mm

Series	Dimensions				Recommended Land Pattern					
	A	B	C	E	D1	D2	F	G	I	H
APCW1608	1.6±0.1	0.8±0.1	1.1±0.1	0.1 Max.	0.25	0.33	1.89	0.85	0.25	0.73
APCW2012	2.0±0.2	1.2±0.2	1.2±0.2	0.2 ±0.1	0.46	0.55	2.6	1.25	0.4	0.8
APCW2520	2.5±0.2	2.0±0.2	1.2±0.2	0.2 Typ.	0.6	0.45	3.2	2.2	0.6	1.2
APCW3216	3.2±0.2	1.6±0.2	1.9±0.2	0.2 Typ.	0.6	0.7	3.5	1.9	0.4	1.7
APCW3225	3.2±0.2	2.5±0.2	2.15±0.2	0.2 Typ.	0.9	0.8	4	2.8	0.6	1.6
APCW4532	4.5±0.2	3.2±0.2	2.8±0.2	0.2 Typ.	1.2	1.0	4.8	3.8	0.7	2.4

EQUIVALENT CIRCUIT 等效电路



ELECTRICAL CHARACTERISTICS 特性规格表

● APCW1608 Series

Part Number	Impedance	Rated Voltage	Test Freq.	Heat Rating Current	DC Resistance	Insulation Resistance
				Max.	Max.	Min.
Unit	Ω	Volts	MHz	mA	Ω	mΩ
Symbol	Z	VDC	Freq.	Irms	DCR	IR
APCW1608-220P2T	22	20	100	500	0.11	10
APCW1608-900P2T	90	20	100	300	0.25	10

● APCW2012 Series

Part Number	Impedance	Rated Voltage	Test Freq.	Heat Rating Current	DC Resistance	Insulation Resistance
				Max.	Max.	Min.
Unit	Ω	Volts	MHz	mA	Ω	mΩ
Symbol	Z	VDC	Freq.	Irms	DCR	IR
APCW2012-300P2T	30	50	100	400	0.15	10
APCW2012-500P2T	50	50	100	400	0.25	10
APCW2012-670P2T	67	50	100	400	0.25	10
APCW2012-900P2T	90	50	100	400	0.3	10

ELECTRICAL CHARACTERISTICS 特性规格表

● APCW2012 Series

Part Number	Impedance	Rated Voltage	Test Freq.	Heat Rating Current	DC Resistance	Insulation Resistance
				Max.	Max.	Min.
Unit	Ω	Volts	MHz	mA	Ω	m Ω
Symbol	Z	VDC	Freq.	Irms	DCR	IR
APCW2012-121P2T	120	50	100	370	0.3	10
APCW2012-181P2T	180	50	100	330	0.35	10
APCW2012-221P2T	220	50	100	300	0.4	10
APCW2012-261P2T	260	50	100	300	0.4	10
APCW2012-361P2T	360	50	100	280	0.45	10
APCW2012-601P2T	600	50	100	220	0.6	10
APCW2012-801P2T	800	50	100	300	0.88	10
APCW2012-901P2T	900	50	100	150	0.9	10
APCW2012-102P2T	1000	50	100	150	1.3	10

● APCW2520 Series

Part Number	Impedance	Rated Voltage	Test Freq.	Heat Rating Current	DC Resistance	Insulation Resistance
				Max.	Max.	Min.
Unit	Ω	Volts	MHz	mA	Ω	m Ω
Symbol	Z	VDC	Freq.	Irms	DCR	IR
APCW2520-301P2T	300	50	100	400	0.2	10
APCW2520-451P2T	450	50	100	350	0.3	10
APCW2520-601P2T	600	50	100	330	0.38	10
APCW2520-102P2T	1000	50	100	240	0.5	10

● APCW3216 Series

Part Number	Impedance	Rated Voltage	Test Freq.	Heat Rating Current	DC Resistance	Insulation Resistance
				Max.	Max.	Min.
Unit	Ω	Volts	MHz	mA	Ω	m Ω
Symbol	Z	VDC	Freq.	Irms	DCR	IR
APCW3216-900P2T	90	50	100	370	0.3	10
APCW3216-121P2T	120	50	100	350	0.3	10
APCW3216-161P2T	160	50	100	340	0.4	10
APCW3216-221P2T	220	50	100	300	0.45	10
APCW3216-261P2T	260	50	100	310	0.5	10
APCW3216-361P2T	360	50	100	300	0.6	10
APCW3216-601P2T	600	50	100	260	0.8	10
APCW3216-801P2T	800	50	100	240	0.9	10
APCW3216-102P2T	1000	50	100	230	1	10
APCW3216-142P2T	1400	50	100	220	1	10
APCW3216-202P2T	2000	50	100	200	1.2	10
APCW3216-222P2T	2200	50	100	200	1.2	10

ELECTRICAL CHARACTERISTICS 特性规格表

● APCW3225 Series

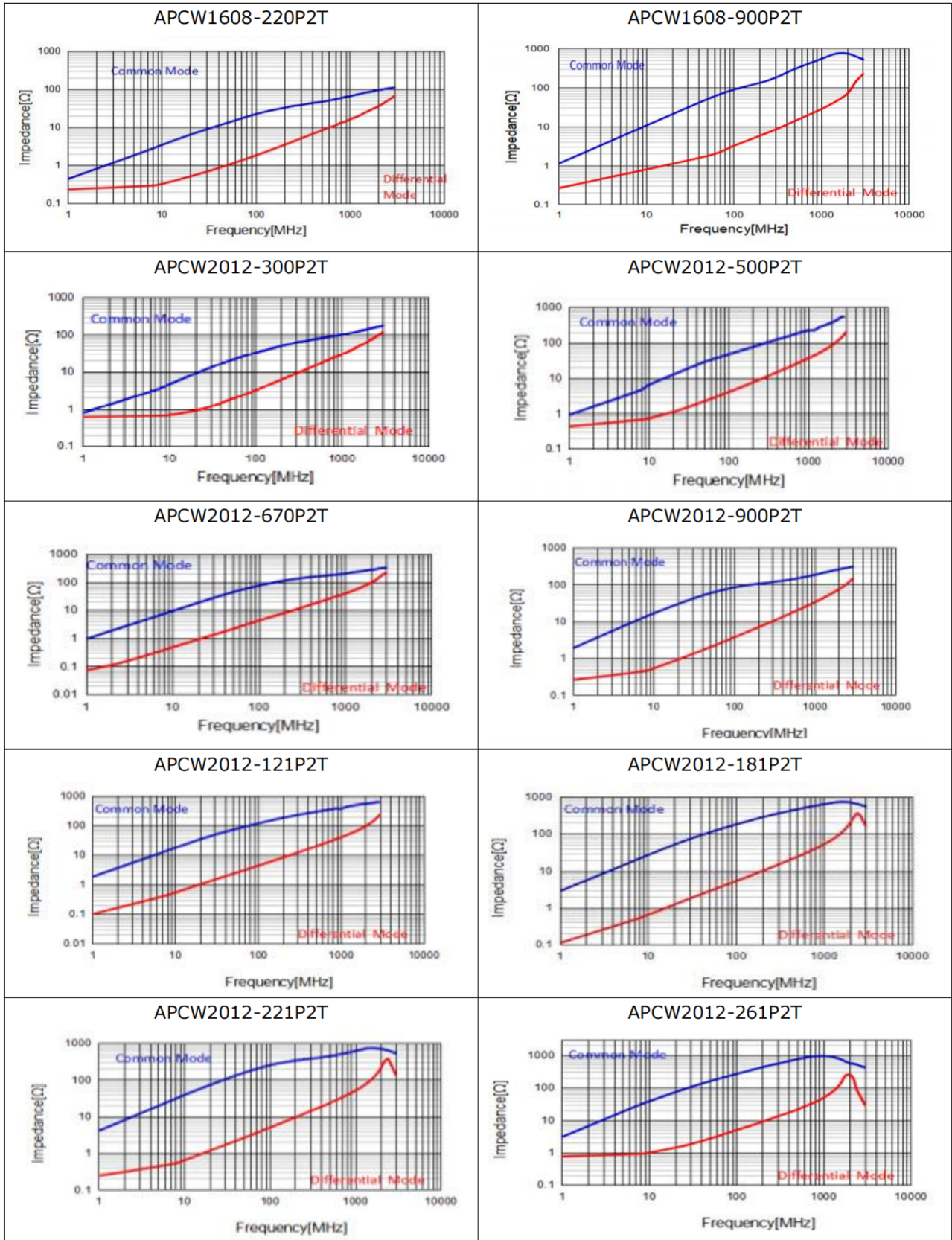
Part Number	Impedance	Rated Voltage	Test Freq.	Heat Rating Current	DC Resistance	Insulation Resistance
				Max.	Max.	Min.
Unit	Ω	Volts	MHz	mA	Ω	mΩ
Symbol	Z	VDC	Freq.	Irms	DCR	IR
APCW3225-800P2T	80	50	100	640	0.12	10
APCW3225-900P2T	90	50	100	1000	0.12	10
APCW3225-161P2T	160	50	100	480	0.15	10
APCW3225-271P2T	270	50	100	450	0.25	10
APCW3225-501P2T	500	50	100	1000	0.3	10
APCW3225-601P2T	600	50	100	1000	0.2	10
APCW3225-801P2T	800	50	100	350	0.35	10
APCW3225-102P2T	1000	50	100	480	0.35	10

● APCW4532 Series

Part Number	Impedance	Rated Voltage	Test Freq.	Heat Rating Current	DC Resistance	Insulation Resistance
				Max.	Max.	Min.
Unit	Ω	Volts	MHz	mA	Ω	mΩ
Symbol	Z	VDC	Freq.	Irms	DCR	IR
APCW4532-800P2T	80	50	100	2300	0.05	10
APCW4532-900P2T	90	50	100	2000	0.085	10
APCW4532-121P2T	120	50	100	1400	0.1	10
APCW4532-201P2T	200	50	100	1500	0.1	10
APCW4532-221P2T	220	50	100	1300	0.1	10
APCW4532-331P2T	330	50	100	1100	0.11	10
APCW4532-601P2T	600	50	100	1400	0.12	10
APCW4532-701P2T	700	50	100	1500	0.12	10
APCW4532-801P2T	800	50	100	1000	0.16	10
APCW4532-901P2T	900	50	100	1000	0.17	10
APCW4532-102P2T	1000	50	100	1000	0.18	10
APCW4532-142P2T	1400	50	100	700	0.2	10
APCW4532-282P2T	2800	50	100	900	0.35	10

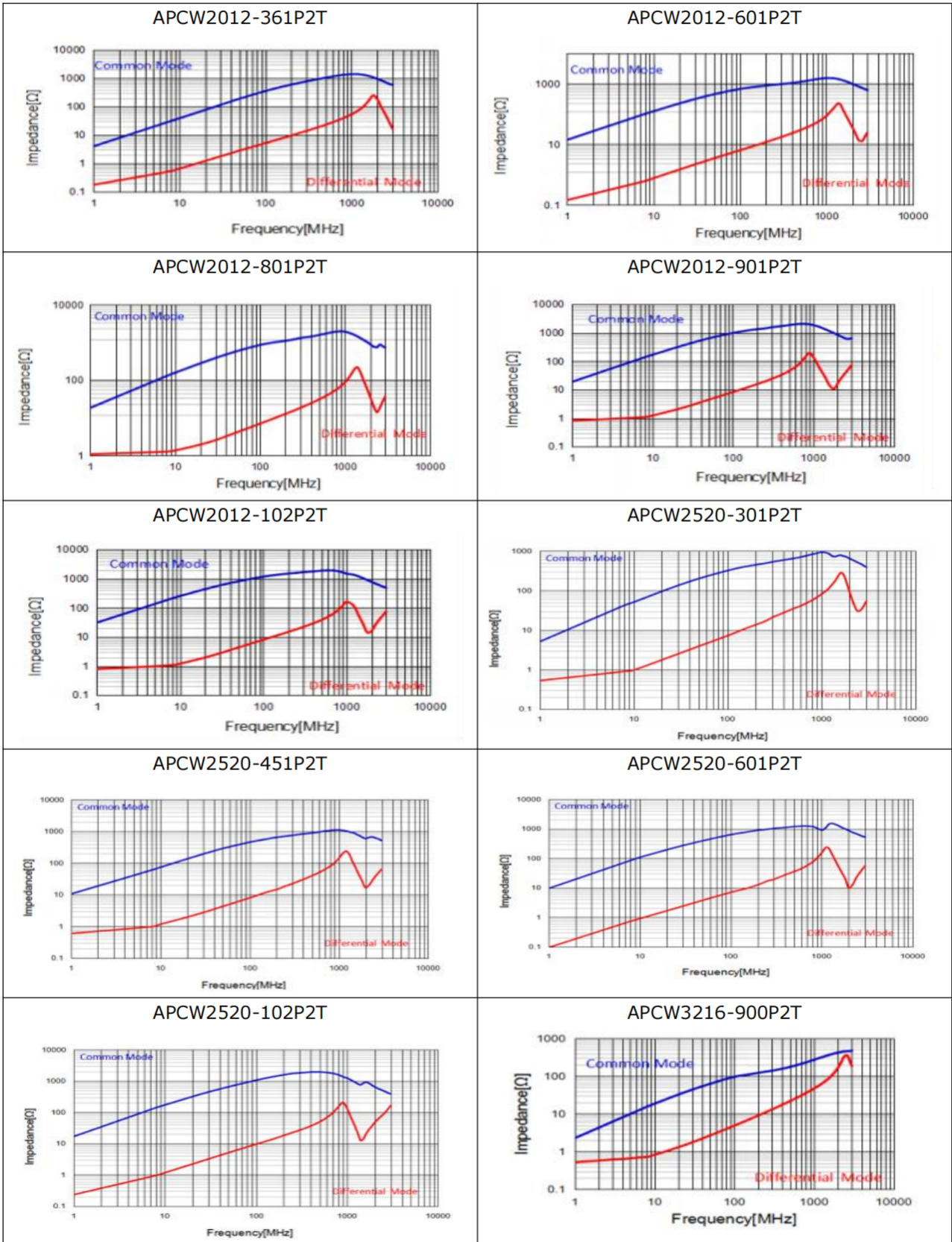
- Rating DC current: Temperature rise(ΔT) is 40°C approximately at Irms.
- Storage temp.: -10°C ~ +40°C R.H.: 60% Max.
- Moisture sensitivity level (MSL) 1
- Recommended products should be used within 12 months from the date of delivery.

CHARACTERISTICS(REFERENCE) 特征曲线

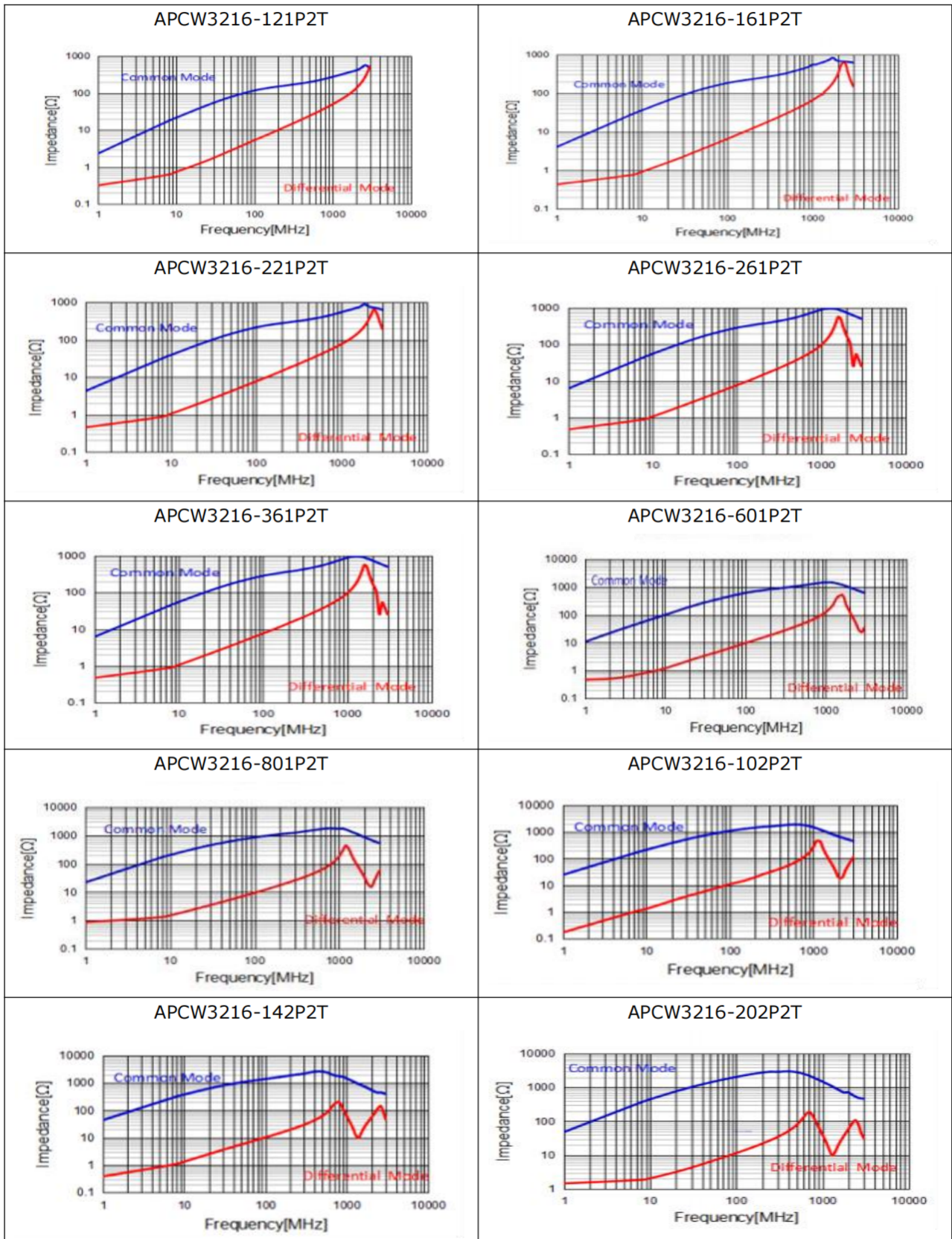


Specifications subject to change without notice. Please check our website for latest information.

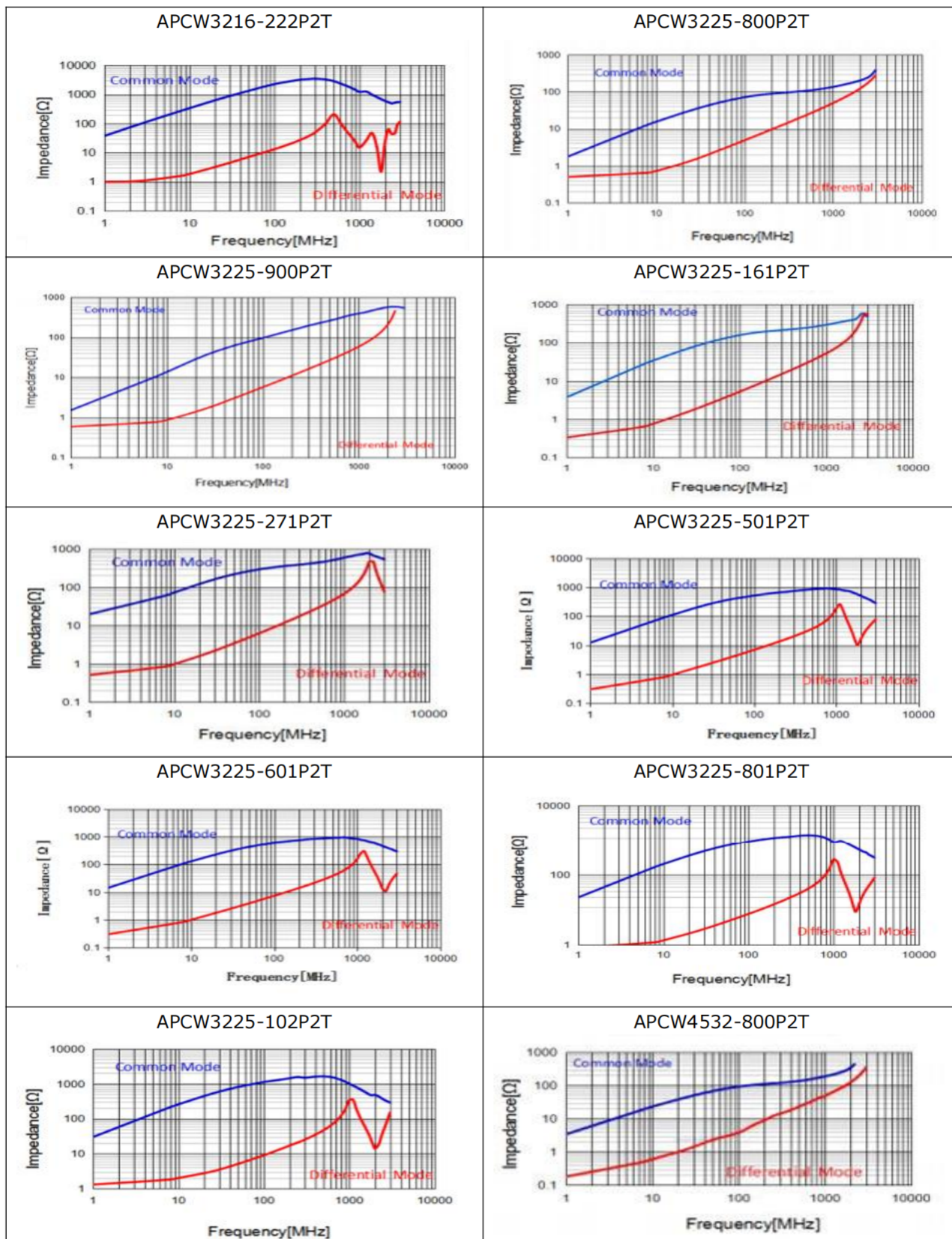
CHARACTERISTICS(REFERENCE) 特征曲线



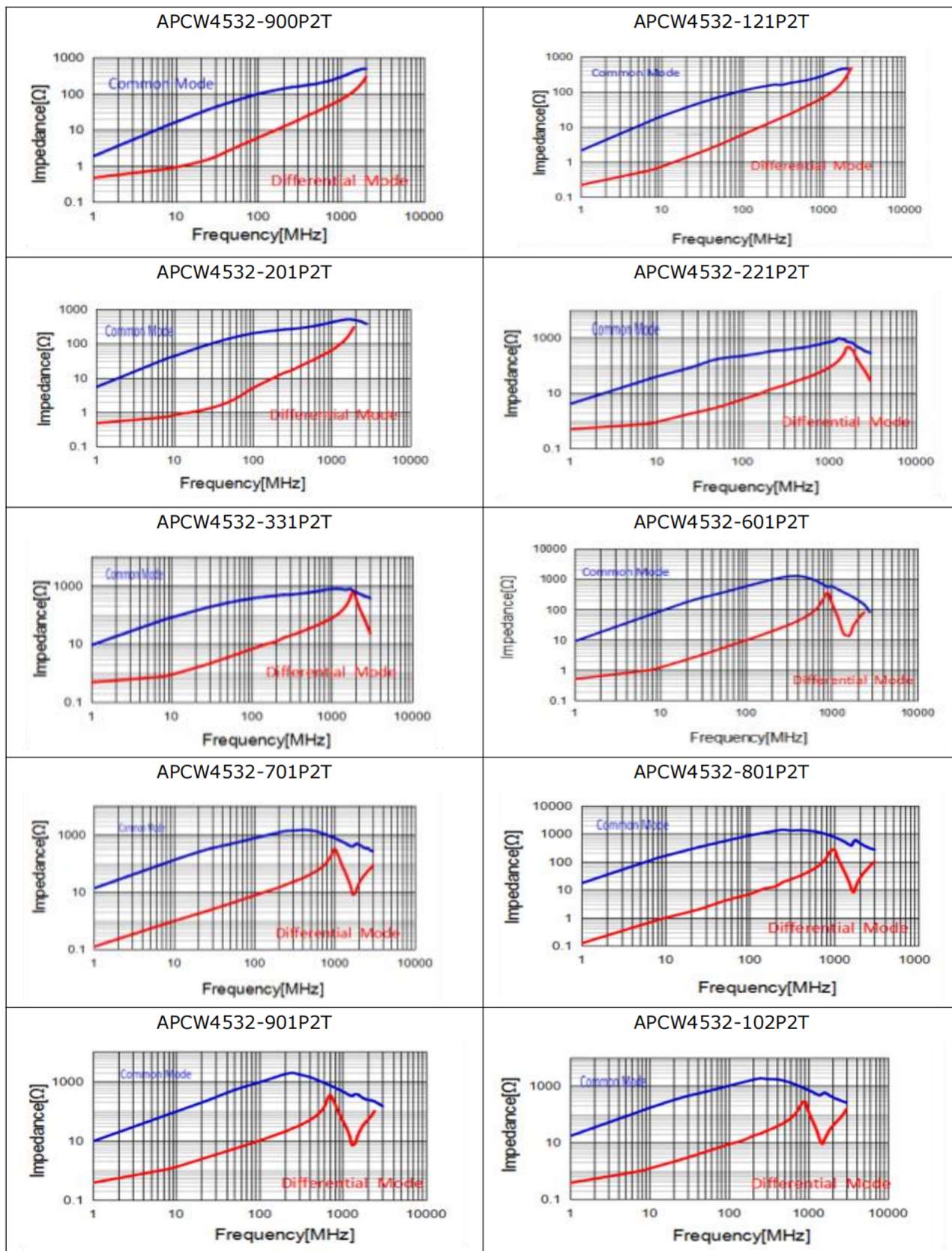
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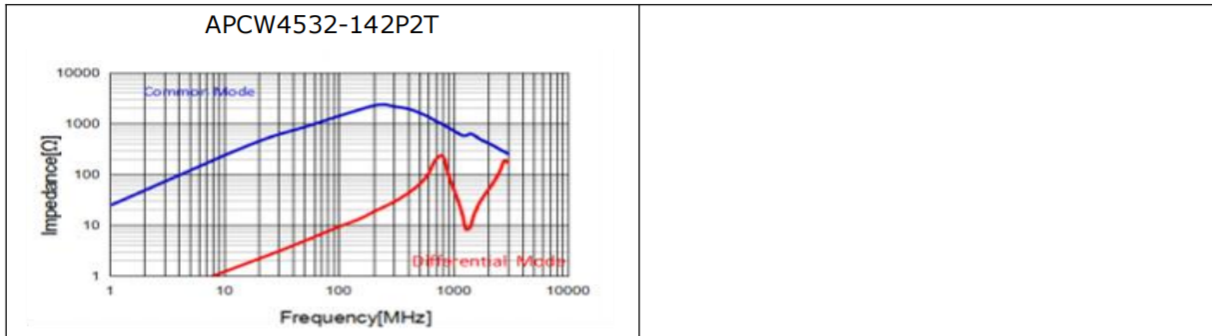
CHARACTERISTICS(REFERENCE) 特征曲线



CHARACTERISTICS(REFERENCE) 特征曲线



CHARACTERISTICS(REFERENCE) 特征曲线

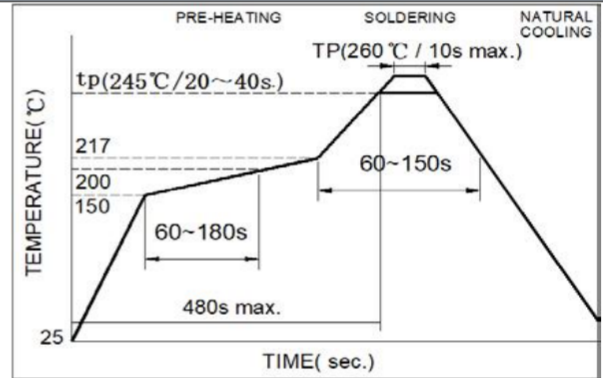


RECOMMENDED SOLDERING TECHNOLOGIES 回流焊建议

Re-flow Soldering (Lead Free)

- ◆ Preheat circuit and products to 150°C.
- ◆ 260°C tip temperature (max).
- ◆ Reflow times: no more than 2 times.
- ◆ Solder paste thickness: the best 0.08mm is ,but max is 0.1mm.

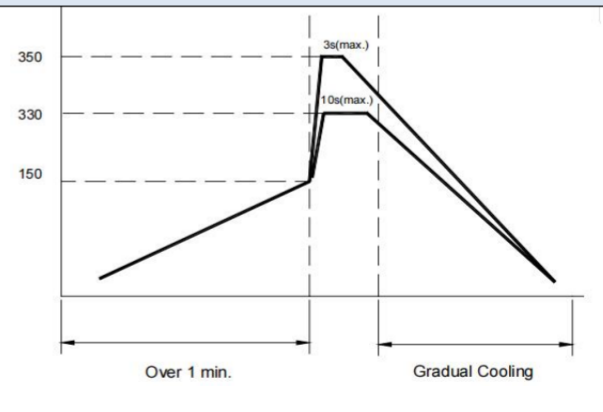
Note: The reflow profile in the above table is only for qualification and is not meant to specify board assembly profiles. Actual board assembly profiles must be based on the customer's specific board design, solder paste and process, and should not exceed the parameters as the Reflow profile shows.



Hand Soldering

- ◆ Use a 20 watt soldering iron with tip diameter of 1.0mm.
- ◆ Limit soldering time to 3 sec.

Note: Take care not to apply the tip of the soldering iron to the terminal electrodes.

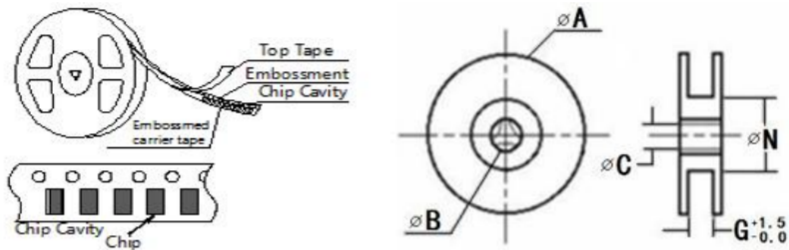


PACKAGING 包装

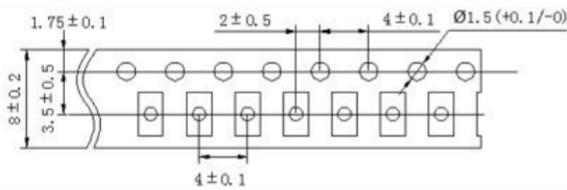
- Packaging (unit:mm)

Product Series	Quantity / Reel
APCW1608	3000Pcs
APCW2012	2000Pcs
APCW2520	2000Pcs
APCW3216	2000Pcs
APCW3225	1000pcs
APCW4532	500Pcs

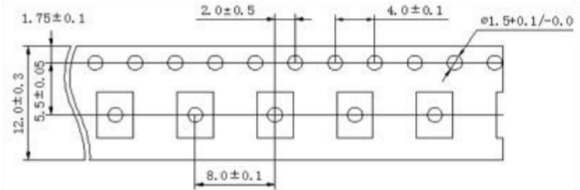
- Taping Drawings



CF-8



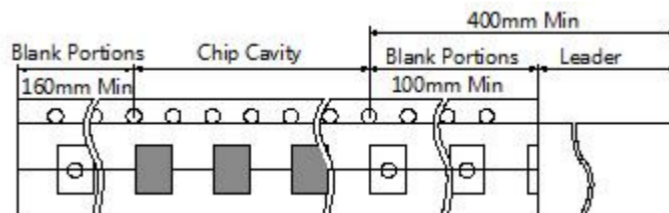
CF-12



- Reel Dimensions(unit:mm)

Tape		A	B	C	N	G
APCW1608	CF-8	178±2.0	22±2.0	13.0±1.0	60±1.0	8
APCW2012	CF-8	178±2.0	22±2.0	13.0±1.0	60±1.0	8
APCW2520	CF-12	178±2.0	22±2.0	13.0±1.0	60±1.0	12
APCW3216	CF-8	178±2.0	22±2.0	13.0±1.0	60±1.0	8
APCW3225	CF-12	178±2.0	22±2.0	13.0±1.0	60±1.0	12
APCW4532	CF-12	178±2.0	22±2.0	13.0±1.5	60±1.0	12

- Leader and Blank Portion



- Peeling off Force:0.05 to 0.7N in the direction show below.



PRECAUTIONS ON USE 使用注意事项

● Precautions on Use.

- 1. Always wear static control bands to protect against ESD.
- 2. Any devices used with the products (soldering irons, measuring instruments) should be properly grounded.
- 3. Keep bare hands and metal conductors (i.e., metal desk) away from electrodes or conductive areas that lead to electrodes.
- 4. Preheat when soldering.
- 5. Don't apply current in excess of the rated current value. It may reduce the impedance or inductance, or cause damage to components due to over-current.
- 6. For magnetic products, keep clear of anything that may generate magnetic fields such as speakers and coils. Use non-magnetic tweezers when handling the chips.
- 7. When soldering, the electrical characteristics may be varied due to hot energy and mechanical stress.
- 8. When coating products with resin, the relatively high resin curing stress may change the electrical characteristics. For exterior coating, select resin carefully so that electrical and mechanical performance of the product is not affected. Before using, please evaluate reliability with the product mounted in your application set.
- 9. When mount chips with adhesive in preliminary assembly, do appropriate check before the soldering stage, i.e., the size of land pattern, type of adhesive, amount applied, hardening of the adhesive on proper usage and amounts of adhesive to use.
- 10. Mounting density: Add special attention to radiating heat of products when mounting other components nearby. The excessive heat by other products may cause deterioration at joint of this product with substrate.
- 11. Since some products are constructed like an open magnetic circuit, narrow spacing between components may cause magnetic coupling.
- 12. Please do not give the product any excessive mechanical shocks in transportation.
- 13. Please do not touch wires by sharp terminals such as tweezers to avoid causing any damage to wires.
- 14. Please do not add any shock and power to the soldered product to avoid causing any damage to chip body.
- 15. Please do not touch the electrodes by naked hand as the solderability of the external electrodes may deteriorate by grease or oil on the skin.

■ SAFETY REMINDERS 注意事项

SAFETY REMINDERS

The Company shall not guarantee the suitability, performance, or quality for the following applications that require a high level of safety and reliability, or where equipment failure, malfunction, or abnormal operation may cause damage to human life, physical well-being, or property, and may have significant social impacts (hereinafter referred to as "specific applications"). If you intend to use this product in the application scenarios listed below, or if you have special requirements exceeding the scope or conditions specified in each product catalog, please contact us.

- (1) Aerospace/aviation equipment
- (2) Transportation equipment (cars, electric trains, ships, etc.)
- (3) Medical equipment
- (4) Power-generation control equipment
- (5) Atomic energy-related equipment
- (6) Seabed equipment
- (7) Transportation control equipment
- (8) Public information-processing equipment
- (9) Military equipment
- (10) Electric heating apparatus, burning equipment
- (11) Disaster prevention/crime prevention equipment
- (12) Safety equipment
- (13) Other applications that are not considered general-purpose applications

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.