

## WIRE WOUND CHIP COMMON MODE COIL 片式共模绕线电感

### ● FEATURES 特性

- 1.High common mode impedance at high frequency effects excellent noise suppression performance.  
高频共模阻抗高，噪声抑制性能优良。
- 2.20Ω~2000Ω are optional for different noise level and signal frequency  
对于不同的噪声电频和信号频率，选择20Ω~2000Ω阻抗。



### ● APPLICATIONS 用途

- 1.USB 2.0 line for personal computers and peripheral  
电脑和外围设备的USB 2.0线路。
- 2.IEEE 1394 line for personal computers, DVC, STB  
用于计算机、DVC、机顶盒的IEEE 1394线路。
- 3.LVDS, panel line for liquid display panels, graph card,etc.  
LVDS，用于液体显示面板的面板线，图形卡等。
- 3.USB 3.0 line or HDMI2.0 for personal computers and peripheral  
电脑和外围设备的USB 3.0或HDMI2.0线路。

### ● PART NUMBERING SYSTEM 品名系统

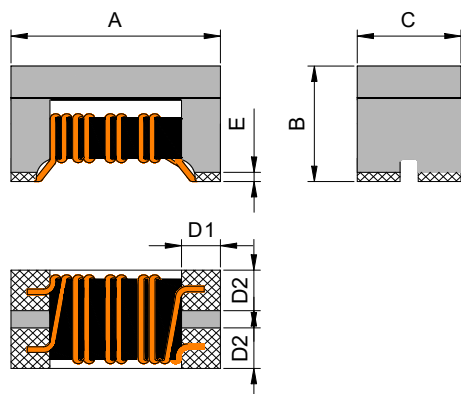
CMC 3216 S - 102 - 2P - T  
A B C D E F

A: Type 型号 B: External Dimensions 外形尺寸 A\*C

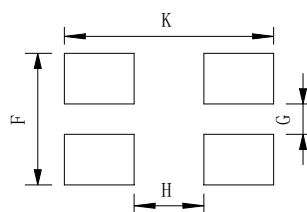
C: Material type 材料类型 D: Impedance Value 阻抗值 102 = 1000Ω

E: Number of line 2P : 2-Line 双线 F: Packaging : T=Taping and reel

### ● SHAPES AND DIMENSIONS 外形尺寸 (Unit:mm)

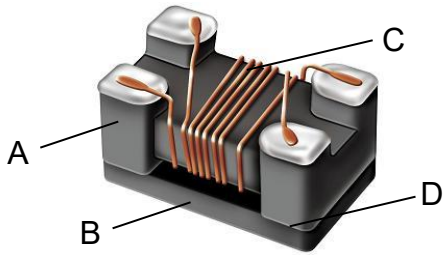


### Recommended Land Pattern



TYPE(型号)	A	B	C	D1	D2	E	F	G	H	K
CMC1210	1.25±0.2	0.8±0.1	1.0±0.2	0.33 Ref	0.36 Ref	0.10 Max	1.0 Ref	0.3 Ref	0.5 Ref	1.55 Ref
CMC2012	2.0±0.2	1.2±0.2	1.2±0.2	0.5 Ref	0.45 Ref	0.17 Max	1.2 Ref	0.4 Ref	0.8 Ref	2.6 Ref
CMC3216	3.2±0.2	2.0±0.2	1.6±0.2	0.7 Ref	0.6 Ref	0.22 Max	1.6 Ref	0.4 Ref	1.6 Ref	3.7 Ref
CML3416	3.4±0.2	2.0±0.2	1.6±0.2	0.7 Ref	0.6 Ref	0.22Max	1.7 Ref	0.5 Ref	1.7 Ref	3.7 Ref
CMC3225	3.2±0.2	2.2±0.2	2.5±0.2	0.7 Ref	0.7Ref	0.3Max	3.5Ref	0.6Ref	1.6 Ref	4.4Ref
CMC4532	4.5±0.2	2.8±0.2	3.2±0.2	0.8 Ref	1.1 Ref	0.5 Max	3.2 Ref	1.0 Ref	2.7 Ref	5.1 Ref
CML4532	4.5±0.2	2.8±0.2	3.2±0.2	0.8 Ref	1.1 Ref	0.5 Max	3.2 Ref	1.0 Ref	2.7 Ref	5.1 Ref

● **STRUCTURE AND MATERIAL**



Part	Components	Material
A	Core	Ferrite
B	I Core	Ferrite
C	Wire	Polyurethane enameled copper wire
D	Epoxy	Epoxy resin

● **ELECTRICAL CHARACTERISTICS**

1. Operating temperature range : -40°C~105°C(Including self - temperature rise)
2. Storage temperature range (packaging conditions): -10°C~+40°C and RH 70% (Max.)

● **TEST AND MEASUREMENT PROCEDURES**

1. Common Mode Impedance( $\Omega$ )

Test equipment: Keysight E4991B / Agilent 4787A or equivalent

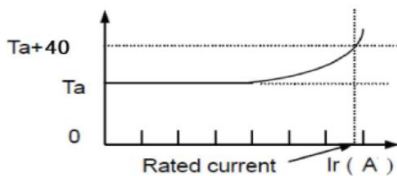
2. DC Resistance (DCR)

Test equipment: Agilent34420A / Agilent 4338B or equivalent

3. Rated Current (Irms)

Irms is direct electric current as chip surface temperature rose just 20 or 40 against chip initial surface temperature ( $T_a$ ),

$$\text{Rated Current} \geq 1A \Delta T \ 40^\circ C \ \text{Max}$$



4. Insulation Resistance

Test equipment: Chroma or equivalent TH2683A / ZX6583

● **RECOMMENDED SOLDERING TECHNOLOGIES**

Re-flowing Profile

Preheat condition: 150~200 /60~120sec.

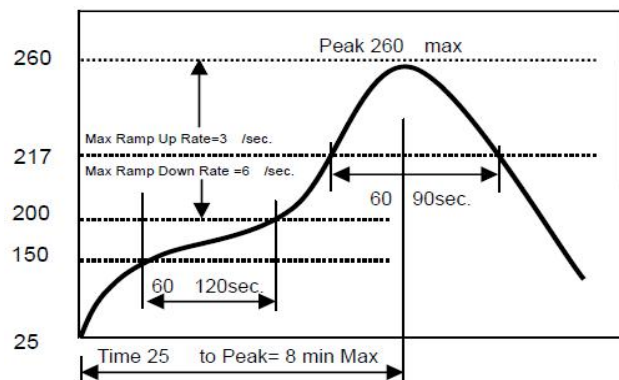
Allowed time above 217C: 60~90sec.

Max temp: 260

Max time at max temp: 10sec

Solder paste: Sn/3.0Ag/0.5Cu

Allowed Reflow time: 2 times max



● **SPECIFICATION TABLE:**

CMC1210S Series

Part No.	Common Mode Impedance( $\Omega$ )	Test Frequency (MHz)	DCR ( $\Omega$ ) Max	Max. Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance ( $M\Omega$ ) Min.
CMC1210S-200-2P-T	20 $\pm$ 25%	100	0.15	500	50	10
CMC1210S-350-2P-T	35 $\pm$ 25%	100	0.18	430	50	10
CMC1210S-600-2P-T	60 $\pm$ 25%	100	0.30	400	50	10
CMC1210S-900-2P-T	90 $\pm$ 25%	100	0.30	400	50	10
CMC1210S-121-2P-T	120 $\pm$ 25%	100	0.40	260	50	10
CMC1210S-161-2P-T	160 $\pm$ 25%	100	0.40	260	50	10
CMC1210S-181-2P-T	180 $\pm$ 25%	100	0.40	250	50	10
CMC2012S-201-2P-T	200 $\pm$ 25%	100	0.40	250	50	10

CMC1210U Series

Part No.	Common Mode Impedance( $\Omega$ )	Test Frequency (MHz)	DCR ( $\Omega$ ) Max	Max. Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance ( $M\Omega$ ) Min.
CMC1210U-140-2P-T	14 $\pm$ 25%	100	0.12	600	50	10
CMC1210U-350-2P-T	35 $\pm$ 25%	100	0.30	400	50	10
CMC1210U-500-2P-T	50 $\pm$ 25%	100	0.30	300	50	10
CMC1210U-600-2P-T	60 $\pm$ 25%	100	0.30	300	50	10
CMC1210U-900-2P-T	90 $\pm$ 25%	100	0.40	300	50	10

CMC2012S Series

Part No.	Common Mode Impedance( $\Omega$ )	Test Frequency (MHz)	DCR ( $\Omega$ ) Max	Max. Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance ( $M\Omega$ ) Min.
CMC2012S-300-2P-T	30 $\pm$ 25%	100	0.20	450	50	10
CMC2012S-800-2P-T	80 $\pm$ 25%	100	0.30	400	50	10
CMC2012S-900-2P-T	90 $\pm$ 25%	100	0.30	400	50	10

CMC2012S-121-2P-T	120±25%	100	0.30	400	50	10
CMC2012S-181-2P-T	180±25%	100	0.35	350	50	10
CMC2012S-201-2P-T	200±25%	100	0.35	330	50	10
CMC2012S-260-2P-T	260±25%	100	0.40	300	50	10
CMC2012S-371-2P-T	370±25%	100	0.45	300	50	10
CMC2012S-801-2P-T	800±25%	100	0.75	300	50	10
CMC2012S-901-2P-T	900±25%	100	0.80	150	50	10
CMC2012S-102-3P-T	1000±25%	100	0.80	150	50	10

#### CMC2012U Series

Part No.	Common Mode Impedance(Ω)	Test Frequency (MHz)	DCR (Ω) Max	Max. Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (MΩ) Min.
CMC2012U-300-2P-T	30±25%	100	0.20	400	50	10
CMC2012U-600-2P-T	60±25%	100	0.30	300	50	10
CMC2012U-900-2P-T	90±25%	100	0.30	300	50	10
CMC2012U-120-2P-T	120±25%	100	0.35	330	50	10

#### CMC3216S/L Series

Part No.	Common Mode Impedance(Ω)	Test Frequency (MHz)	DCR (Ω) Max	Max. Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (MΩ) Min.
CMC3216S-900-2P-T	90±25%	100	0.30	370	50	10
CMC3216S-260-2P-T	260±25%	100	0.50	310	50	10
CMC3216S-601-2P-T	600±25%	100	0.80	260	50	10
CMC3216S-102-2P-T	1000±25%	100	1.00	230	50	10
CMC3216S-222-2P-T	2200±25%	100	1.20	200	50	10
CMC3216S-242-2P-T	2400±25%	100	1.20	200	50	10
CML3216S-600-2P-T	L:50uH~90uH @100khz	100	1.70	200	50	10

### CMC3225S Series

Part No.	Common Mode Impedance( $\Omega$ )	Test Frequency (MHz)	DCR ( $\Omega$ ) Max	Max. Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (M $\Omega$ ) Min.
CMC3225S-900-2P-T	90 $\pm$ 25%	100	0.05	1000	50	10
CMC3225S-161-2P-T	160 $\pm$ 25%	100	0.12	680	50	10
CMC3225S-271-2P-T	270 $\pm$ 25%	100	0.13	640	50	10
CMC3225S-501-2P-T	500 $\pm$ 25%	100	0.20	1000	50	10
CMC3225S-601-2P-T	600 $\pm$ 25%	100	0.20	1000	50	10
CMC3225S-801-2P-T	800 $\pm$ 25%	100	0.20	1000	50	10
CMC3225S-102-2P-T	1000 $\pm$ 25%	100	0.30	750	50	10
CMC3225S-222-2P-T	2200 $\pm$ 25%	100	0.30	640	50	10
CMC3225S-242-2P-T	2400 $\pm$ 25%	100	0.30	640	50	10
CML3225B-510-2P-T	L:51 $\mu$ H + 50%/-30%	100kHz,0.1v	0.70	200	80	10
CML3225E-101-2P-T	L:51 $\mu$ H + 50%/-30%	100kHz,0.1v	1.50	150	80	10

### CMC3225H Series

Part No.	Indutance( $\Omega$ )	Test Frequency (MHz)	DCR ( $\Omega$ ) Max	Max. Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (M $\Omega$ ) Min.
CMC3225H-501-2P-T	500 $\pm$ 25%	100	0.10	2000	50	10
CMC3225H-102-2P-T	1000 $\pm$ 25%	100	0.10	1500	50	10

### CML3416S Series

Part No.	Indutance( $\mu$ H)	Test Frequency (MHz)	DCR ( $\Omega$ ) Max	Max. Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (M $\Omega$ ) Min.
CML3416S-60 $\mu$ H.Min	60 $\mu$ H Min	100KHZ,0.1v	1.70	200	50	10

### CMC4532S Series

Part No.	Common Mode Impedance( $\Omega$ )	Test Frequency (MHz)	DCR ( $\Omega$ ) Max	Max. Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (M $\Omega$ ) Min.
CMC4532S-900-2P-T	90 $\pm$ 25%	100	0.05	4000	50	10
CMC4532S-121-2P-T	120 $\pm$ 25%	100	0.07	3000	50	10

CMC4532S-201-2P-T	200±25%	100	0.10	1500	50	10
CMC4532H-231-2P-T	230±25%	100	0.05	3500	50	10
CMC4532S-331-2P-T	330±25%	100	0.11	1500	50	10
CMC4532S-601-2P-T	600±25%	100	0.12	1500	50	10
CMC4532H-601-2P-T	600±25%	100	0.06	2500	50	10
CMC4532S-801-2P-T	800±25%	100	0.16	1000	50	10
CMC4532H-102-2P-T	1000±25%	100	0.11	2100	50	10
CMC4532S-142-2P-T	1400±25%	100	0.20	700	50	10
CMC4532S-1000Ω/Min	1000ΩMin L:51uH+50%/-30%@100khz	10	1.00	200	50	10

#### CML4532S Series

Part No.	Common Mode Impedance(Ω)	Test Frequency (KHz)	DCR (Ω) Max	Max. Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (MΩ) Min.	L(uH)
CML4532S-11uH	300Ω Min@10MHz	100	0.60	360	50	10	11+50%/-30%
CML4532S-220-2P-T	500Ω Min@10MHz	100	1.00	310	50	10	22+50%/-30%
CML4532S-51uH	1000 Min@10MHz	100	1.00	230	50	10	51+50%/-30%
CML4532S-101-2P-T	2000Ω Min@10MHz	100	2.00	200	50	10	100+50%/-30%

1. Operating temperature range : -40℃~105℃(Including self - temperature rise)
2. Storage temperature range (packaging conditions): -10℃~+40℃ and RH 70% (Max.)
3. Rated Current (Irms)

Irms is direct electric current as chip surface temperature rose just 20℃ or 40℃ against chip initial surface temperature (Ta)

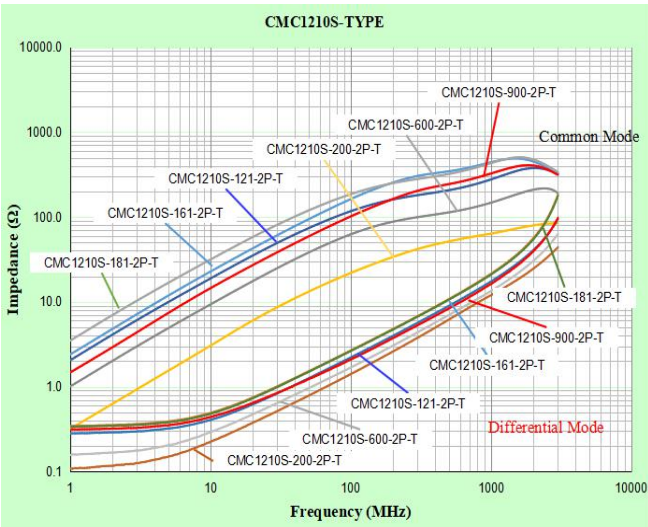
Temperature rise: Rated Current < 1A ΔT 20℃ Max

Rated Current ≥ 1A ΔT 40℃ Max

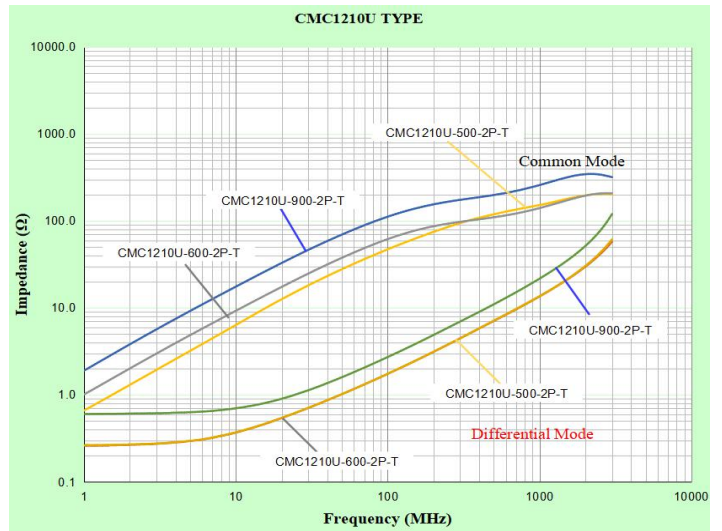


● Impedance Vs Frequency Curve:

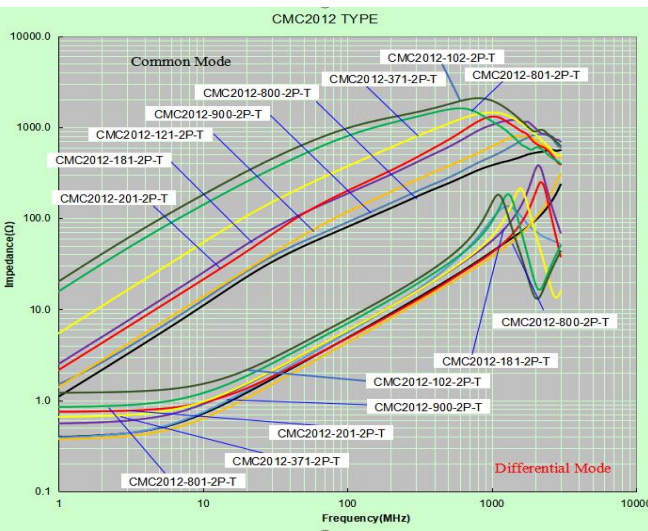
CMC1210 Series



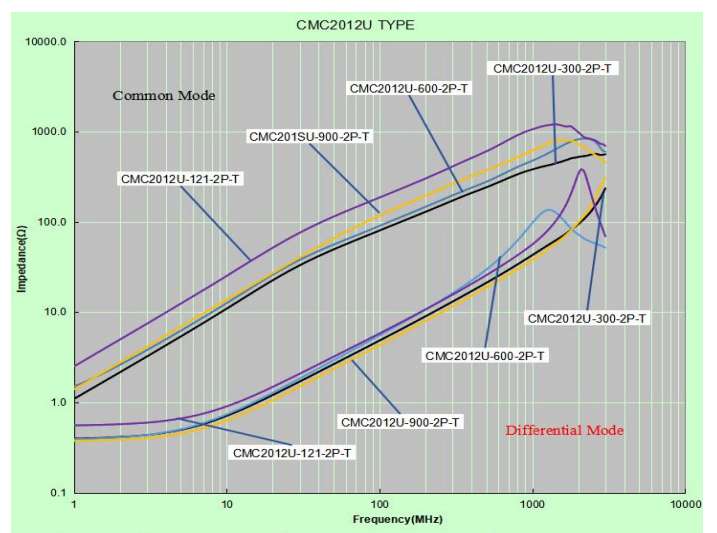
CMC1210U Series



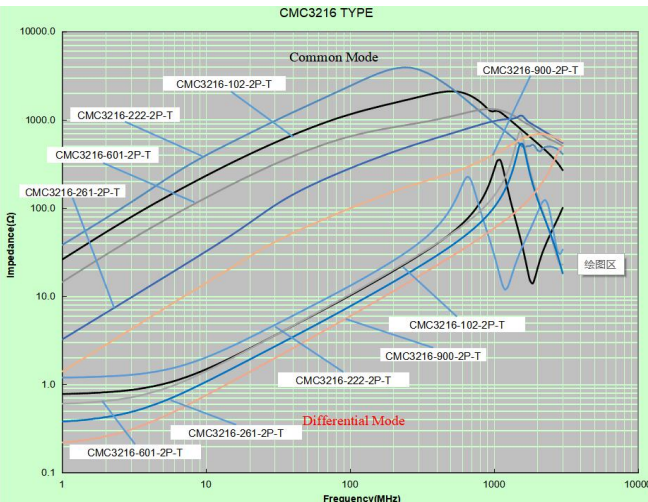
CMC2012 Series



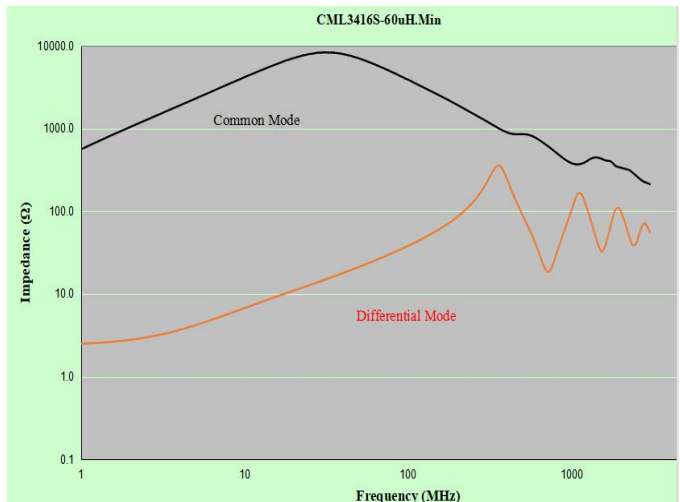
CMC2012U Series



CMC3216 Series

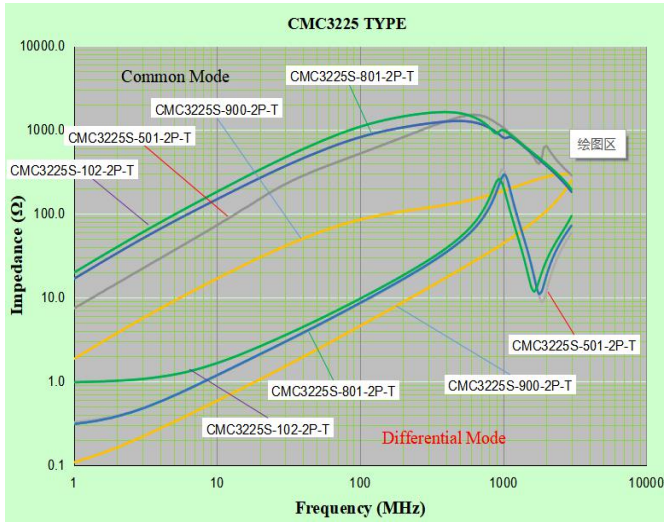


CML3416 Series

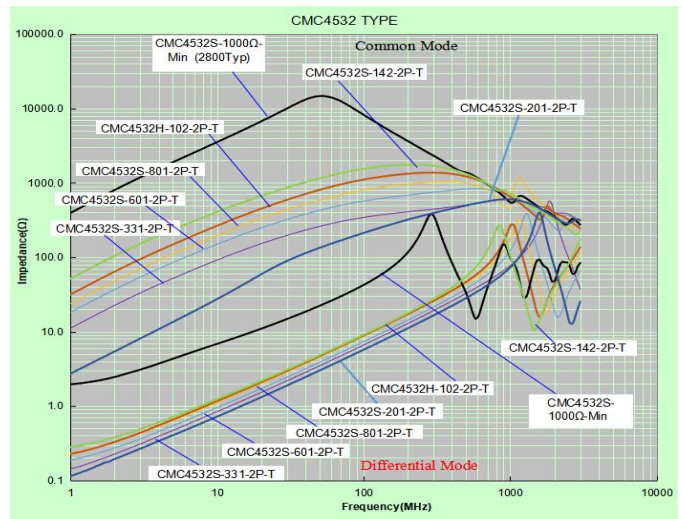




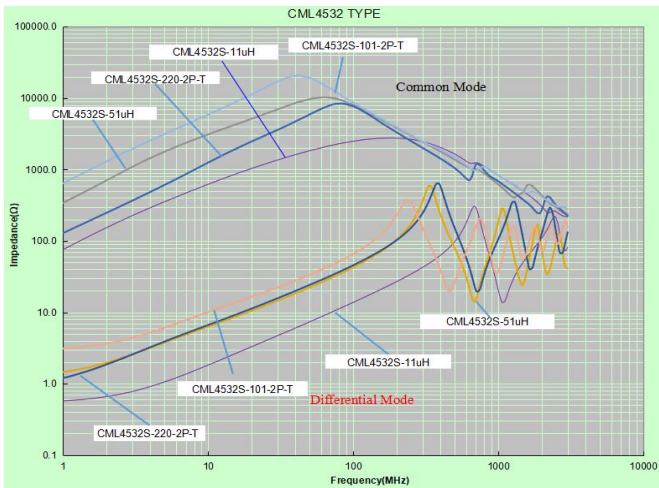
### CMC3225 Series



### CMC4532 Series



### CML4532 Series



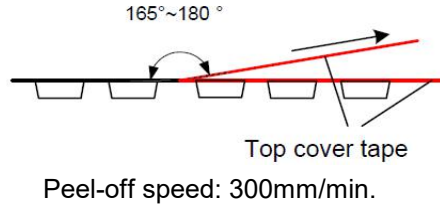
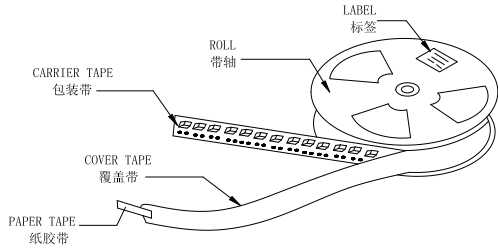




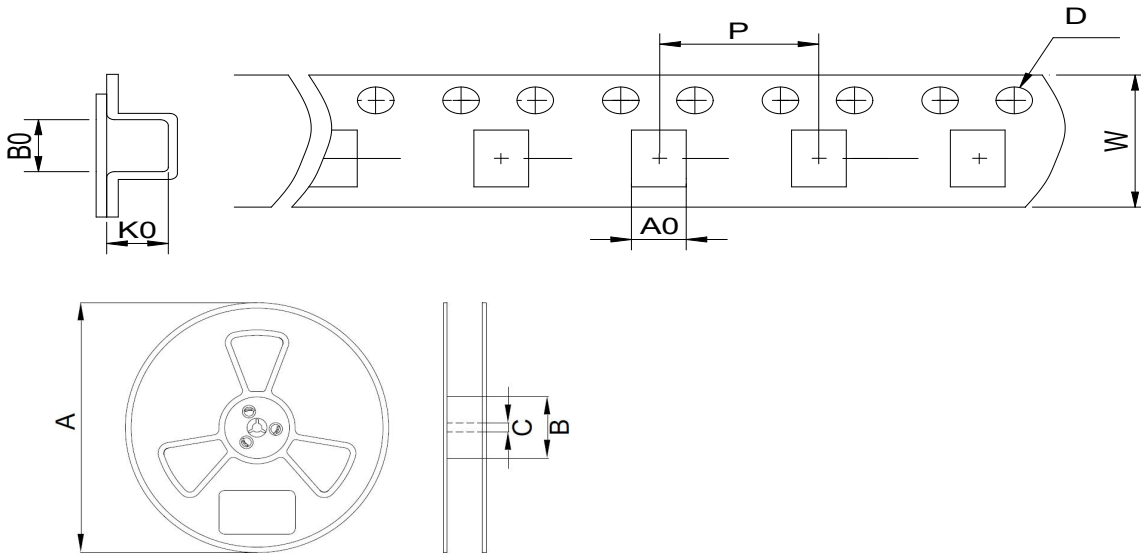
● **PACKAGING SPECIFICATION :**

1. Packaging - Cover Tape

The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



2. Packaging - Tape & Reel



Type	Tape Dimension (mm)						Reel Dimension (mm)			Quantity (Pcs/Reel)
	W	A0	B0	K0	D	P	A	B	C	
CMC1210	8	1.1	1.4	1.0	1.5	4	178	60	13	3000 pcs
CMC2012	8	1.55	2.45	1.5	1.5	4	178	60	13	2000 pcs
CMC3216	8	1.95	3.7	2.4	1.5	4	178	60	13	2000 pcs
CML3416	8	1.95	3.7	2.4	1.5	4	178	60	13	2000 pcs
CMC3225	12	2.9	3.5	2.7	1.5	8	330	10.75	2.3	3000 pcs
CMC4532	12	3.7	4.85	3	1.5	8	178	60	13	500 pcs

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