

SMD Common Mode Filter / CML TYPE

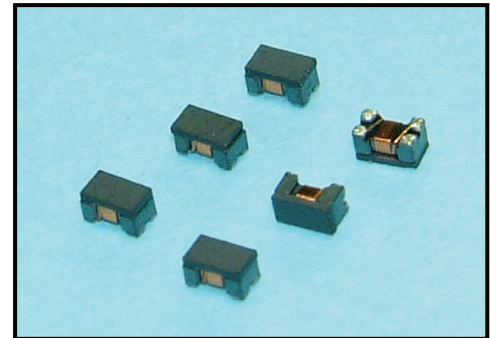
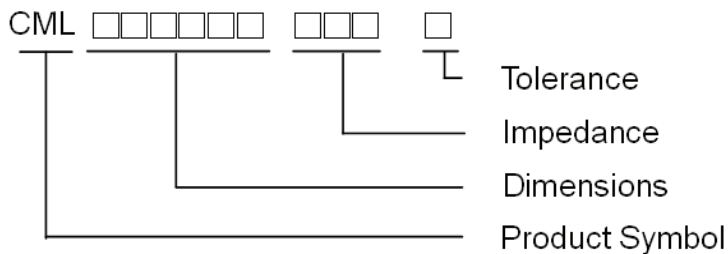
▣.Features:

1. High common mode impedance at high frequency effects excellent noise suppression performance.(在高頻的共模阻抗具有很好的雜訊抑制表現。)
2. CML series realizes small size and low profile.(CML具小尺寸及扁薄外觀。)
3. The products contain no lead and also support lead-free soldering.(產品無鉛適合無鉛錫。)

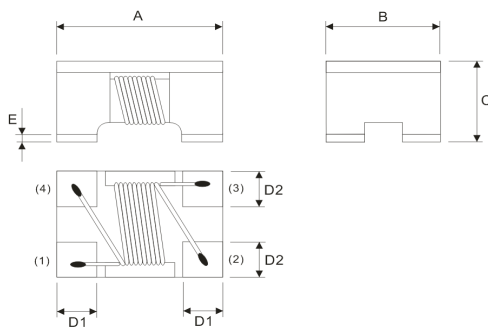
▣.Applications:

Common mode noise suppression of signal lines in high speed and high density digital equipment such as personal computers and peripherals.

▣.Product Identification :



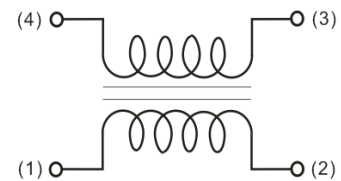
▣.Shape and Dimension



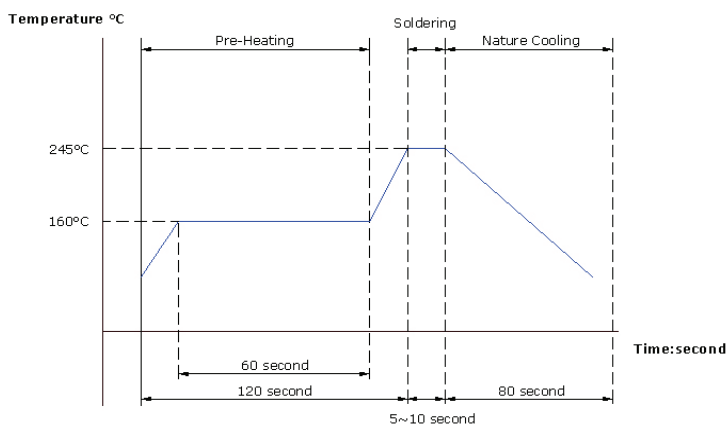
Dimensions in mm

TYPE	A(mm)	B(mm)	C(mm)	D1(mm)	D2(mm)	E(mm)
CML201212	2.0±0.25	1.2±0.25	1.2±0.25	0.45(typ.)	0.40(typ.)	0.17(typ.)
CML321620	3.2±0.30	1.6±0.25	1.9±0.30	0.60(typ.)	0.60(typ.)	0.17(typ.)

▣.Schematic



▣.Recommended Reflow



Wire-Wound Chip Coils Lead-Free IR Reflow Temperature Profile

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Electrical Characteristics (CML201212 TYPE)

Part No.	Impedance (Ω)	Tolerance ($\pm\%$)	Test frequency (MHz)	DCR (Ω) Max	IDC (mA) Max	Insulation Resistance (M Ω)(min)	Rated Voltage (Vdc)
CML201212T-300□	30	25	100	0.20	450	10	50
CML201212T-400□	40	25	100	0.12	500	10	50
CML201212T-420□	42	25	100	0.12	500	10	50
CML201212T-500□	50	25	100	0.20	500	10	50
CML201212T-670□	67	25	100	0.25	400	10	50
CML201212T-750□	75	25	100	0.30	400	10	50
CML201212T-900□	90	25	100	0.30	400	10	50
CML201212T-121□	120	25	100	0.30	370	10	50
CML201212T-161□	160	25	100	0.30	340	10	50
CML201212T-181□	180	25	100	0.35	330	10	50
CML201212T-201□	200	25	100	0.35	330	10	50
CML201212T-221□	220	25	100	0.35	330	10	50
CML201212T-261□	260	25	100	0.40	300	10	50
CML201212T-301□	300	25	100	0.50	300	10	50
CML201212T-331□	330	25	100	0.50	300	10	50
CML201212T-371□	370	25	100	0.40	280	10	50
CML201212T-601□	600	25	100	0.375	250	10	50
CML201212T-671□	670	25	100	0.60	150	10	50
CML201212T-681□	680	25	100	0.60	170	10	50
CML201212T-901□	900	25	100	0.80	120	10	50
CML201212T-102□	1000	25	100	0.80	100	10	50
CML201212T-222□	2200	25	100	1.40	100	10	50

Electrical Characteristics (CML321620 TYPE)

Part No.	Impedance (Ω)	Tolerance ($\pm\%$)	Test frequency (MHz)	DCR (Ω) Max	IDC (mA) Max	Insulation Resistance (M Ω)(min)	Rated Voltage (Vdc)
CML321620T-900□	90	25	100	0.30	370	10	50
CML321620T-161□	160	25	100	0.40	340	10	50
CML321620T-261□	260	25	100	0.50	310	10	50
CML321620T-601□	600	25	100	0.80	260	10	50
CML321620T-102□	1000	25	100	1.00	230	10	50
CML321620T-222□	2200	25	100	1.20	200	10	50

NOTE:

1. Operating temperature range $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$
2. IDC for Inductance drop 10% from its value without current.
3. □Tolerance : J=5% ; K=10% ; M=20% ; Y=25% ; N=30%

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. Reliability and Test Conditions(可靠性測試條件)

1-1.Mechanical Performance

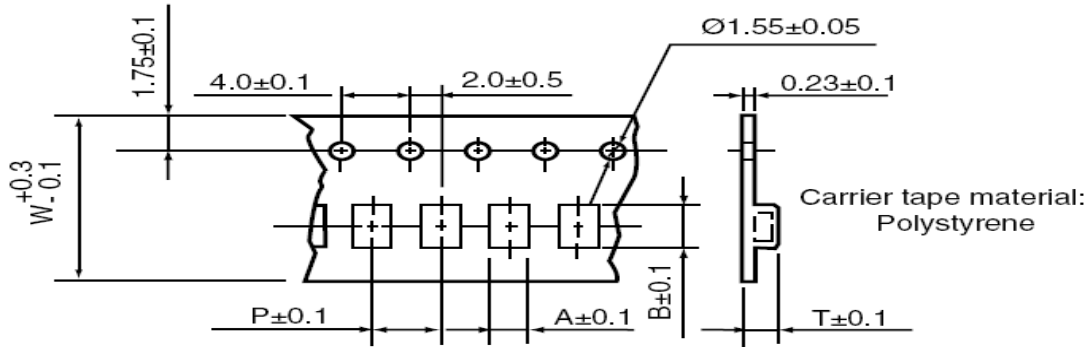
Item	Specification	Test Method
Resistance to Soldering Heat	Appearance: No damage	1. The device should be reflow soldered on PCB (peak 260°C±5°C for 10 seconds) 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Test time: 6 minutes
Solder ability	The electrodes shall be at least 90% covered with new solder coating	1.Pre-heating: 150°C, 1min 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Solder Temperature: 245±5°C. 4. Immersion Time: 4±1 sec.
Component Adhesion (Push Test)	2 Lbs	The device should be reflow soldered (245±5°C For 10 seconds) to a tinned copper substrate. A force gauge should be applied to the side of the component. The device must withstand a minimum force of 2 pounds without a failure of the termination attached to component.

1-2.Environmental Performance

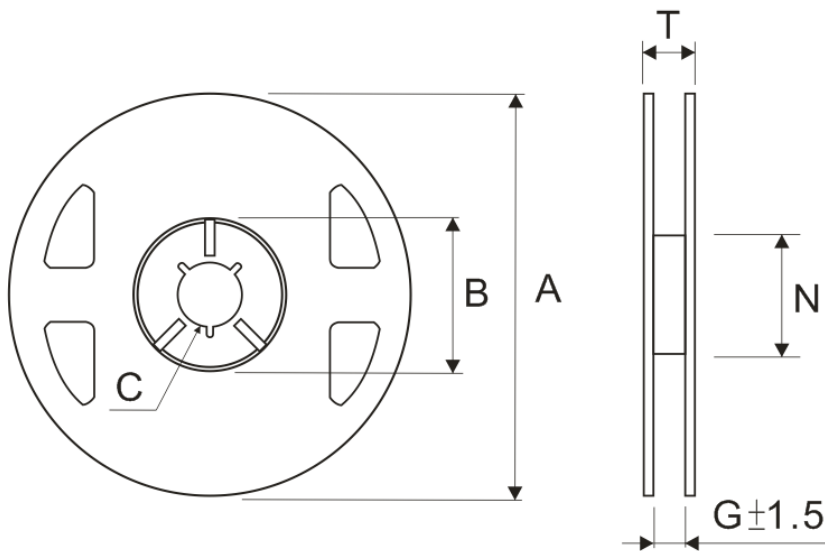
Item	Specification	Test Method															
Temperature Cycle	Appearance: No damage Impedance: within±20% of initial value	One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25±3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25±2</td> <td>3</td> </tr> <tr> <td>3</td> <td>85±3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25±2</td> <td>3</td> </tr> </tbody> </table> Total: 5cycles Measured after exposure in the room condition for 1hrs	Step	Temperature (°C)	Time (min)	1	-25±3	30	2	25±2	3	3	85±3	30	4	25±2	3
Step	Temperature (°C)	Time (min)															
1	-25±3	30															
2	25±2	3															
3	85±3	30															
4	25±2	3															
High Temperature Resistance		Temperature: 85±3°C Time: 50hrs Measured after exposure in the room condition for 1hrs															
Low Temperature Resistance		Temperature: -25±3°C Time: 50hrs Measured after exposure in the room condition for 1hrs															
Humidity Resistance		Temperature: 40±2°C Relative Humidity: 90 ~ 95% / Time: 100hrs Measured after exposure in the room condition for 1hrs															
High Temperature Load Life	There should be no evidence of short or open circle	Temperature: 85±3°C Load: Allowed DC Current Time: 500Hrs															
Humidity Load Life		Temperature: 40±2°C Relative Humidity: 90~95% Load: Allowed DC Current Time: 500Hrs															

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4 .Packing Specifications



TYPE	Packaging Quantity		Tape Dimension(mm)				
	Pcs / Reel	Inner box	A	B	W	P	T
CML201212	2000	10000	1.5	2.25	8	4	1.45
CML321620	2000	10000	1.76	3.47	8	4	2.05



TYPE	Reel Dimension(mm)					
	A	B	C	G	N	T
CML201212	178±2	21.0±0.8	13.0±0.8	9.5	60	12
CML321620	178±2	21.0±0.8	13.0±0.8	9.5	60	12