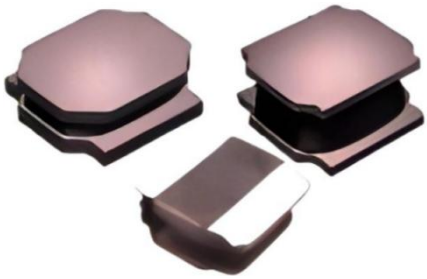
cybermax
cybermaxtech.com

CMLW4020P Series

Wire Wound SMD Power Inductors

◆ Features

1、Metallization on ferrite core results in excellent shock resistance and damage-free durability;
2、Closed magnetic circuit design reduces leakage flux and Electro Magnetic Interference (EMI);
3、Low DCR decreases power loss, small and slim take up less PCB real estate;
4、Automatic production ensures high quality and consistency;



◆ Applications

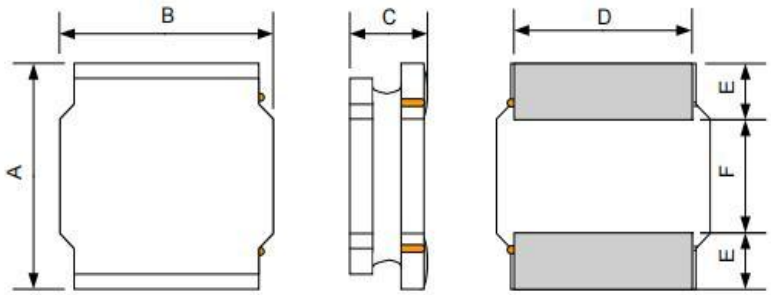
1、LED Lighting;
2、Mobile devices with multifunction such as adding color TV and camera;
3、Flat-screen TVs, blue-ray disc recorders, set top boxes;
4、Notebooks, desktop computers, servers, graphic cards;
5、Portable gaming devices, personal navigation systems, personal multimedia devices;
6、Automotive systems
7、Telecomm base stations

◆ Lead Free Part Numbering

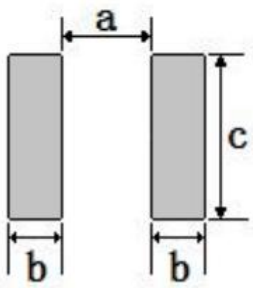
CMLW	4020	P	2R2	M	S	T
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) Series Type
(2) Dimension：A×B×C
(3) Material Code
(4) Inductance：2R2=2.2μH 100=10μH
(5) Inductance Tolerance：M=±20%, N=±30%
(6) Company Code
(7) Packaging：Tape Carrier Package

◆ Dimensions



Recommended Land Pattern



Unit:mm

Series	A	B	C	D	E	F	a	b	c
CMLW402P	4.0±0.2	4.0±0.2	2.0Max.	3.3±0.2	1.0Typ	2.0Typ.	1.8Typ.	1.2Typ.	3.5Typ.

◆ Electrical Characteristics

1、Operating temperature range (individual chip without packing): -40℃ ~ +125℃ （Including Self-heating）.
2、Storage temperature range (packaging conditions): -10℃ ~ +40℃ and RH 70% (Max.).

◆ Construction and material

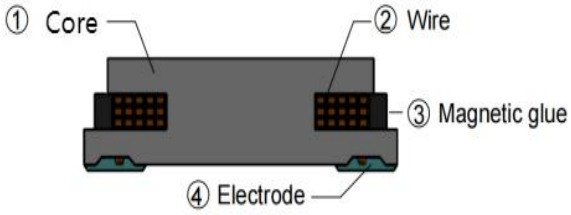


Fig.1 Body Structure

Code	Part Name	Material Name
①	Core	Soft magnetic metal
②	Wire	Polyurethane system enameled copper wire
③	Magnetic Glue	Epoxy resin and magnetic powder
④	Outer Electrodes	Top surface solder coating Sn、Ag、Cu

◆ SOLDERING CONDITIONS

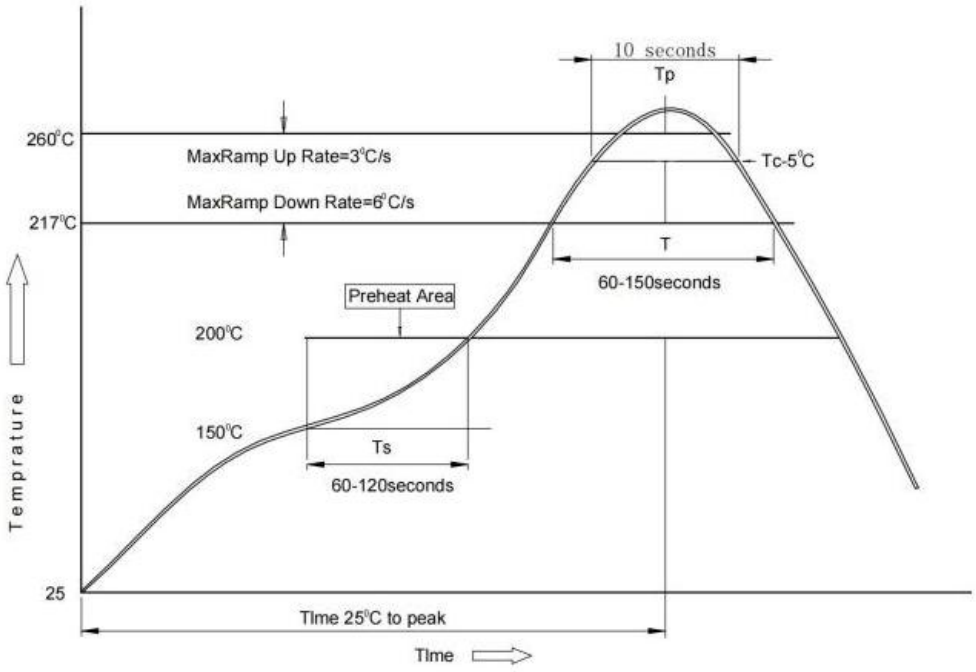
Applicable soldering process to the products is refl

1、Soldering Materials

(1)Solder:Sn-3.0Ag-0.5Cu

(2)Flux:Use rosin-based flux,but not strongly acidic flux (with xhlorine exceeding 0.2wt%).Do not use water soluble flux.

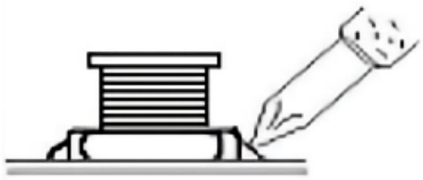
2、Reflow Soldering Profile



3、Soldering Iron

Reworking with electric solding iron must preheating at 150℃ for 1 minute is required,and do not directly touch the core with the tip of the soldering iron.The reworking soldering conditions are as follows.

①Temperature of soldering iron tip:350℃；
② Soldering iron power output:≤30W；
③ Diameter of soldering iron end:≤1.0mm；
④Soldering time:＜3s



◆ Specification

Part Number	Inductance @1MHz,1V (uH)	DC Resistance(Ω)		Saturation Current(A)		Heat Rating Current(A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
		DCR		Isat		Irms	
CMLW4020P Series							
CMLW4020PR47MST	0.47±20%	0.032	0.021	10.0	12.0	6.40	7.50
CMLW4020PR68MST	0.68±20%	0.039	0.026	8.00	9.00	4.30	5.00
CMLW4020P1R0MST	1.0±20%	0.039	0.032	7.50	7.70	4.00	4.50
CMLW4020P1R5MST	1.5±20%	0.049	0.039	7.00	7.30	3.50	3.70
CMLW4020P2R2MST	2.2±20%	0.093	0.073	6.50	7.00	3.00	3.50
CMLW4020P3R3MST	3.3±20%	0.117	0.093	5.00	5.50	2.50	3.20
CMLW4020P4R7MST	4.7±20%	0.153	0.123	4.50	4.70	2.20	2.50
CMLW4020P6R8MST	6.8±20%	0.205	0.169	3.50	4.20	2.00	2.40
CMLW4020P100MST	10±20%	0.216	0.190	2.80	3.50	2.00	2.35
CMLW4020P220MST	22±20%	0.600	0.505	2.10	2.50	1.20	1.50

Notes

1.All test data is referenced to 25°Cambient.

2.Isat: DC current at which the inductance drops approximate30% from its value without current.

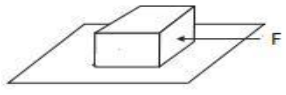
3.Irms :DC current that will cause an approximate ΔT of 40°C(reference ambient temperature is 25°C).

4.Absolute maximum voltage: DC 30V.

5.Rated current: Isator Irms,whichever is smaller.

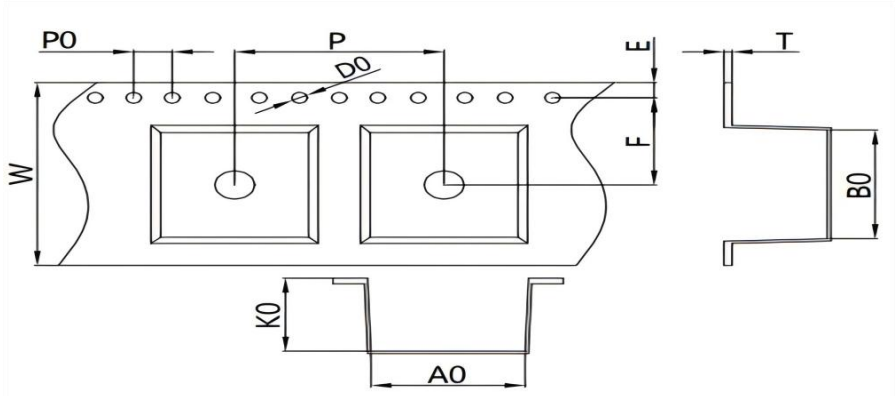
6.The part temperature (ambient + temp. rise) should not exceed 125℃ under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

◆ Reliability Test

TEST ITEM	SPECIFICATION	TEST CONDITION
High temperature Storage test	1. No significant defects in appearance. 2.ΔL/L≦10% 3.ΔDCR/DCR≦10%	Temperature:125℃±5℃(N: Follow theproduct specification for the setting.) Time : 96±2 hours Place the samples for one hour at room temperature and test them within two hours
Low temperature Storage test	1. No significant defects in appearance. 2.ΔL/L≦10% 3.ΔDCR/DCR≦10%	Temperature: -40℃±5℃ (M: Follow the product specification for the setting) Time : 96±2 hours Place the samples for one hour at room temperature and test them within two hours.
Humidity test	1. No significant defects in appearance. 2.ΔL/L≦10% 3.ΔDCR/DCR≦10%	Temperature: 40±2℃ , Humidity: 93±3%RH Time : 96±2 hours Place the samples for one hour at room temperature and test them within two hours
Solderability test	Terminals must have 95% minimum solder coverage	1.Dip pads in flux then dip in solder pot at 245±5°C for 5 second. 2.Solder: lead free 3.Flux: rosin flux
Heat endurance of flow soldering	1. No significant defects in appearance. 2.ΔL/L≦10% 3.ΔDCR/DCR≦10%	1.Refer to the above reflow curve and go through the reflow for twice. 2.The peak temperature : 260+0/-5℃
Vibration test	1. No significant defects in appearance. 2.No short and no open.	Apply frequency 10~55~10Hz and amplitude 1.5mm, 1 min/cycle in X Y and Z direction for 2 hours each. (total 6 hours)
Terminal strength push test	1. Applied force:10N Duration: 10sec 2.Solder paste thickness:0.12mm 3.Meet the above requirements without any loosetermina	older the test samples to the PCB through245 ℃ reflow, apply a standard force on the side of the test samples for 10 seconds. 

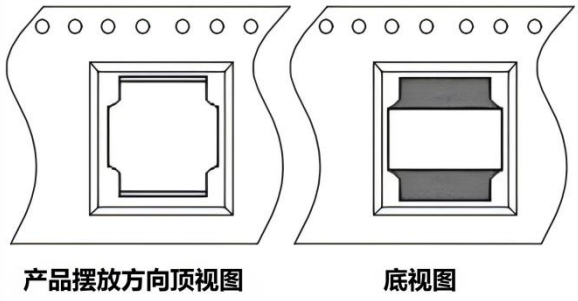
◆ Packaging and Marking:

1.Tape Packaging Dimensions

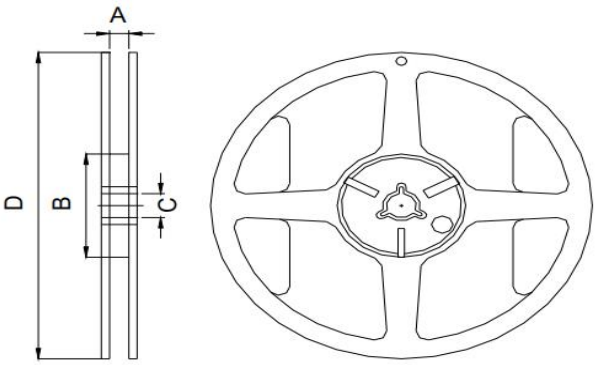


Type	W	P	A0	B0	K0	T	E	F	P0	D0
CMLW402P	12.0 ±0.30	8.00 ±0.30	4.40 ±0.15	4.40 ±0.15	2.1 ±0.20	0.30 ±0.10	1.75 ±0.10	5.50 ±0.10	4.00 ±0.10	1.50 ±0.10

2.Leader and blank portion



3.Reel Dimensions（Unit：mm）



A(mm)	12.5
B(mm)	60
C(mm)	13.0
D(mm)	330±2.0

4.Packaging Quantity

Type	Standard Quantity		
	Reel	Inner box	Carton box
CMLW402P	3000 pcs / reel	4Reel / box (12000 pcs)	3 Inner boxes, (36000 pcs)