Coilmaster

RoHS Compliant

SPECIFICATION APPROVAL

CUSTOMER : Ozdisan

PRODUCT : ML201210EM-4R7M-LF

PB-FREE

CODE NO. : C01620278

CUS. CODE :

SPEC.NO. : C-1620-278(01)

DATE : 31-May-24

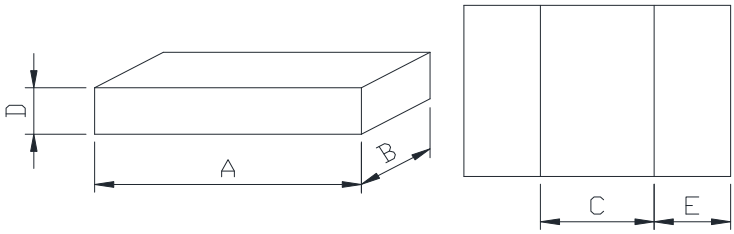
CUSTOMER APPROVAL

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PRODUCT	ML201210EM-4R7M-LF	COIL SPECIFICATION	DATE	2024/5/31
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CONFIGURATION & DIMENSIONS ：



A ： 2.0±0.2 m/m
B ： 1.2±0.2 m/m
C ： 0.6±0.2 m/m
D ： 1.0 Max. m/m
E ： 0.7±0.3 m/m

ELECTRICAL CHARACTERISTIC：

INDUCTANCE AT 1MHz 1V ： 4.70 μH±20%
DC RESISTANCE(mΩ)： 300 Max. 275 Typ.
Irms (A)： 1.6 Max. 1.8 Typ.
Irms:DC current (A) that will cause an approximate △ T of 40℃.
Isat (A)： 1.4 Max. 1.6 Typ.
Isat:DC current (A) that will cause L0 to drop approximately 30%.
Operating Temperature Range : -55℃ to + 125℃ .
The part temperature (ambient + temp rise) should not exceed 125 under °C
the worst case operating conditions. Circuit design,component placement,
PCB trace size and thickness, airflow and other cooling provision all affect the part temperature.
Part temperature should be verified in the end application.

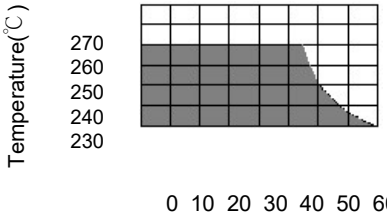
STANDARD ATMOSPHERIC CONDITIONS

Unless otherwise specified the standard range of atmospheric conditions for
making measurements and tests is as follows:
Ambient temperature : 20±15℃
Relative humidity : 30~70%
If there may be any doubt on the results, measurements shall be made within
the following limits :
Ambient temperature : 25±5℃
Relative humidity : 30~70%

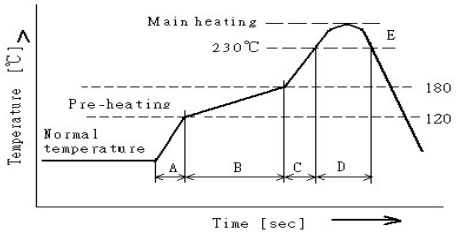
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6) Reflow soldering conditions

- Pre－heating should be in such a way that the temperature difference between solder and ferrite surface is limited to 150℃ max.Also cooling into solvent after soldering should be in such a way that the temperature difference is limited to 100℃ max.
  Unenough pre－heating may cause cracks on the ferrite, resulting in the deterioration of product quality.
- Products should be soldered within the following allowable range indicated by the slanted line.
  The excessive soldering conditions may cause the corrosion of the electrode, When soldering is repeated, allowable time is the accumulated time.



Temperature Profile



A	Slope of temp. rise	1 to 5	℃/sec
B	Heat time	50 to 150	sec
	Heat temperature	120 to 180	℃
C	Slope of temp. rise	1 to 5	℃/sec
D	Time over 230℃	90~120	sec
E	Peak temperature	255~260	℃
	Peak hold time※	10 max.	sec
	※ No. of mounting	3	times

(Melting area of solder)

6-1 Reworking with soldering iron

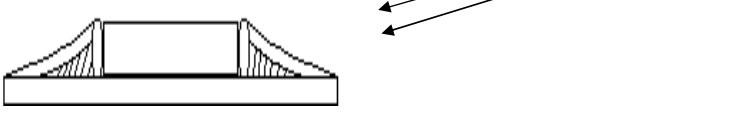
Preheating	150℃, Iminute
Tip temperature	280℃ max
Soldering time	3seconds max.
Soldering iron output	30w max.
End of soldering iron	ϕ 3mm max.

- Reworking should be limited to only one time.

Note：Do not directly touch the products with the tip of the soldering iron in order to prevent the crack on the ferrite material due to the thermal shock.

6-2 Solder Volume

Solder shall be used not to be exceed the upper limits as shown below.



Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance.

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7 EQUIPMENT

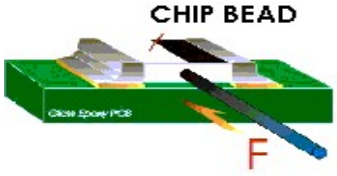
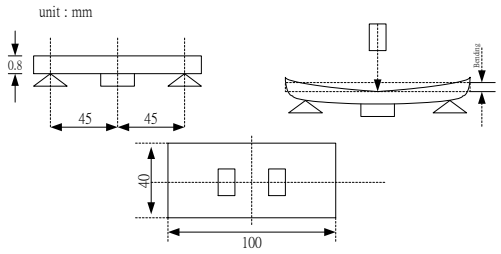
7-1 IMPEDANCE

Impedance shall be measured with HP－4286A impedance analyzer or equivalent system

7-2 DC RESISTANCE

DC resistance shall be measured using HP 4338 digital mili－ohm meter with 4 terminal method.

8.MECHANICAL CHARACTERISTICS

ITEM	Specification	TEST CONDITIONS
TERMINAL STRENGTH	Without deformation cases impedance shall be satisfied ± 30% DC resistance shall be satisfied.	Solder chip on PCB and applied 10N (1.02Kgf) for 10 sec 
Substrate bending test	Without deformation cases, impedance shall be satisfied ± 30% DC resistance shall be satisfied.	After soldering a chip to a test substrate, bend the substrate by 3mm hold for 10s and then return. Soldering shall be done in accordance with the recommended PC board pattern and reflow soldering. 
RESISTANCE TO SOLDER HEAT	No visible damage Electrical characteristics and mechanical characteristics shall be satisfied.	Solder Temp. : 265±3℃ Immersion time : 6±1 sec Preheating : 100℃ to 150℃, 1 minute. Measurement to be made after keeping at room temp for 24±2 hrs. Solder : Sn-3Ag-0.5Cu
SOLDER－ABILITY	95% min. coverage of all metabolised area	Solder temp. : 240±5℃ Immersion time : 3±1 sec Solder : Sn-3Ag-0.5Cu

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9. RELIABILITY AND TEST CONDITIONS

9-1 HIGH TEMPERATURE RESISTANCE

a. Performance specification

1.Appearance：no mechanical damage

2.Impedance shall be with ±30% of the initial value

3. DC resistance shall be satisfied

b.Test condition

1.Temperature125℃±2℃

2.Applied current：Rated current(maximum value)

3.Testing time：96±4hrs

4.Measurement：After placing at room ambient temperature for 1 hours minimum

9-2 HUMIDITY RESISTANCE

a.Performance specification

1.Appearance：no mechanical damage

2.Impedance:within ±30% of initial value

3.DC resistance shall be satisfied

b.Test condition

1.Humidity：90 to 95% RH

2.Temperature：60±2℃

3.Applied current：Rated current (maximum value)

4.Testing tine：500±4hours

5.Measurement：After placing at room ambient temperature for 1 hours minimum

9-3 TEMPERATURE CYCLE

a.Performance specification

1.Appearance：no mechanical damage

2.Impedance:within ±30% of initial value

3. DC resistance shall be satisfied

b.Test condition

1.Temperature -55℃,+125℃ kept stabilized for 30 minutes each

2.Cycle：100 cycles

3.Measurement：After placing for 1 hours minimum at room ambient temperature

4. step1. -55℃ temp±3℃ 30±3 minutes

step2. Standard atmospheric conditions 5s or less

step3. +125℃ temp±2℃ 30±3 minutes

step4. Standard atmospheric conditions 5s or less

9-4 LOW TEMPERATURE STORAGE LIFE TEST

a.Performance specification

1.Appearance：no mechanical damage

2.Impedance shall be with ±30% of the initial value

3. DC resistance shall be satisfied

b.Test condition

1.Temperature -55℃±2℃

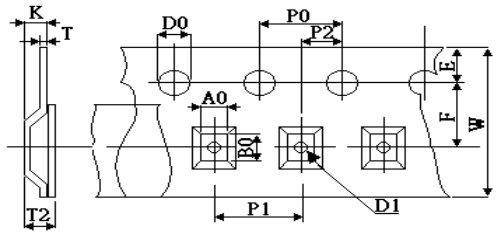
2.Testing time：1008±12hours

3.Measurement：After placing for 24 hours minimum at room ambient temperature

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EMBOSSED CARRIER TAPE PACKAGING

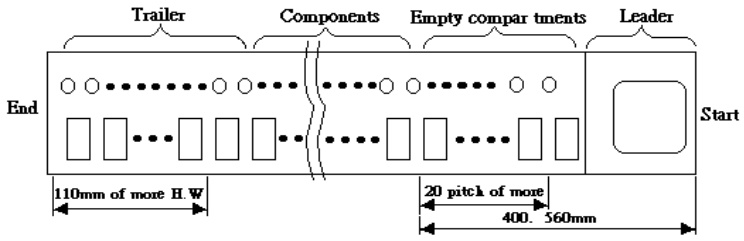
1 DIMENSIONS



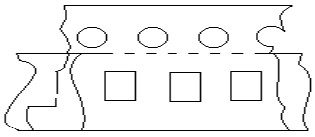
Unreeling direction

A0	B0	W	F	E	P1	P2	P0	D0	T	T2
1.1 ±0.1	1.9 ±0.1	8.0 ±0.2	3.5 ±0.1	1.75 ±0.1	4.0 ±0.1	2.00 ±0.1	4.0 ±0.1	1.55 ±0.1	0.2 ±0.05	1.00 ±0.1

2 LEADER AND TRAILER TAPE

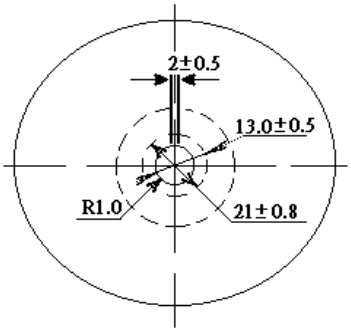


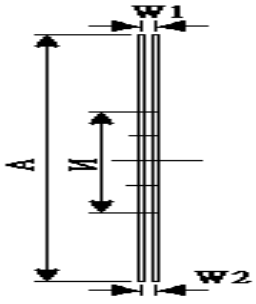
3 DIRECTION THE DIRECTION SHALL BE SEEN FROM THE TOP OF COVER TAPE



Unreeling direction

4 REELS





UNIT:mm

A	178 ±2.0
N	50 MIN
W1	10 ±1.5
W2	20 MAX

PACKING QTY.

3,000 PCS REEL

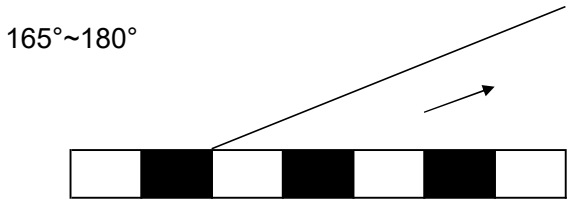
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10-5 PULLING STRENGTH OF TAPES

Carrier tape	(1kgf or more)
Cover tape	(0.5kgf or more)

10-6 PEELING STRENGTH OF COVER TAPE

Cover tape	(20g~120g)



Test condition

1) peel angle：165°~180° vs carrier tape

2) peel speed：300mm/min

11.PACKAGING

1) Tape & Reel packaging in composite specification 6/8

2) Reel and a bag of desiccant shall be packed in Nylon or plastic bag

3) Maximum of 5 bags shall be packaged in a inner box

4) Maximum of 6 inner box shall be packaged in a outer box

12.Reel Label

Producing the goods label needs to indicate (1) Pb Free (2) RoHS Compliant

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12. STORAGE

12-1 The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to high humidity. Packages must be stored at 40℃ or less and 70% RH or less.

12-2 The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to dust or harmful gas (hydrogen chloride, sulfurous acid gas or hydrogen sulfide).

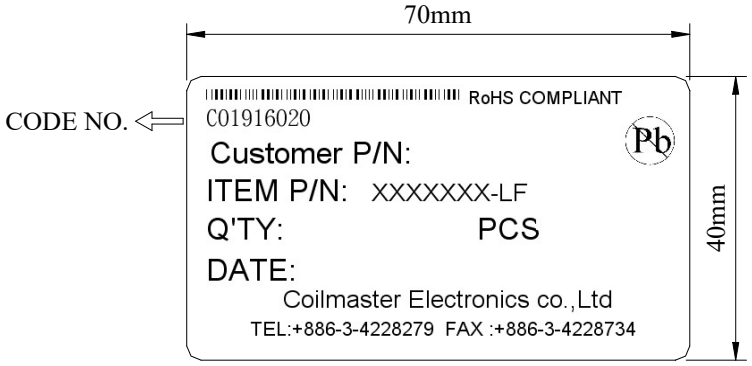
12-3 Packaging material may be deformed if packages are stored where they are exposed to heat or direct sun－light.

12-4 Minimum packages, such as polyvinyl heat－seal packages shall not be opened until just before they are used. If opened, use the reels as soon as possible.

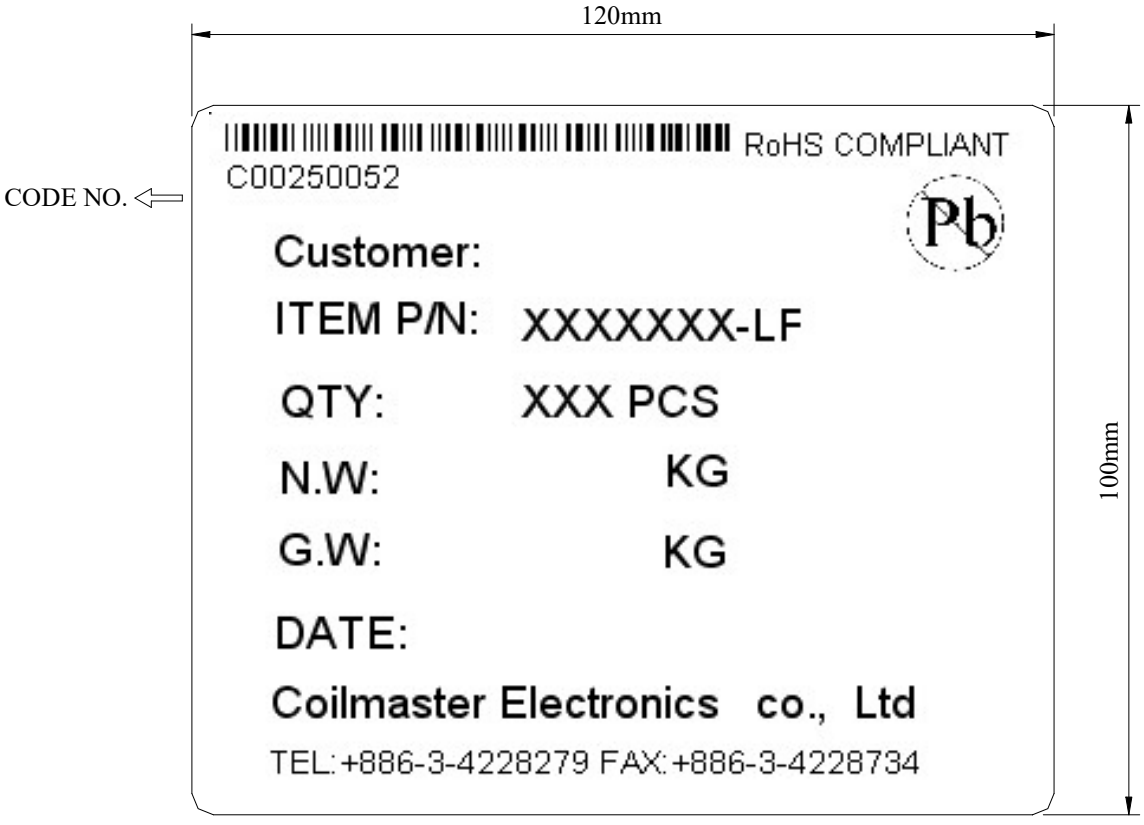
12-5 Solderability specified in composite specification 4/8 shall be for 6 months from the date of delivery on condition that they are stored at the environment specified clause 12-1 & 12-2. For those parts which passed more than 6 months shall be checked solderability before it is used.

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LABLE：



INNER BOX LABEL



OUT BOX LABEL

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Cautions and Warnings：

1. All of the components are manufactured, designed, and promoted for applying in general electronics devices, for the specific area such as automotive, medical, military and aerospace except for general electronic devices, Coilmaster must be asked for written approval before incorporating the components into these areas.

2. The components that will be used in high-reliability / high level of safety applications should be pre-evaluated by the end customer. Especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health. The customer shall be responsible for evaluating and confirming Coilmaster product is suitable for use in customer's applications.

3. Customer must be cautioned to verify that data sheets are the updated ones before placing orders. In the individual cases, any trouble or failure of electronic components happens during their long span cannot be eliminated even follow the instruction with existing technology.

4. Washing / Cleaning process may jeopardize the product and cause the defect. Washing agents may harm the long-term functionality of the product

5. The storage period should not be longer than 12 months (In the specific storage environment). The oxidization may happen on the terminals. Hence all the products shall be used within 12 months after the shipping date. If the time is over 12 months, please check the solderability before use it.

6. Products should not be kept in unsuitable storage conditions, such as areas susceptible to high humidity, high temperatures, dust or corrosion.

7. Don't touch electrodes directly with bare hands as oil secretions may inhibit soldering. Always ensure optimum conditions for soldering.

8. Don't bend the terminals or subject them to excessive stress.

9. Please ensure that all terminals and case lugs are completely fixed with solder onto PCB

10. Ensure the tuning slug or cap is not fixed by solder flux during the production process.

11. Avoid placing coils near the edge of the PCB

12. Don't touch any exposed winding part and avoid coming into contact with the guide of the electrode in automatic mounting

13. The inductor / coil / common mode choke generates heat when current is applied. Please take care of this during the design.

14. Always handle the product with care to prevent the damage.

15. Our specification specifies the quality of the component as a single unit. Please ensure the component is thoroughly evaluated in your application circuit. Even for customized products, conclusive validation of the component in the circuit can only be carried out by customer.

16. The general testing condition is in the room temperature 25 +/- 5°C and humidity under 65% RH, which is applied to all products.

17. If have any query, please feel free to contact our sales department.