MAX ECHO 鈺鎧科技股份有限公司規格標準書
COMPONENT SPECIFICATION

版次：第1.0版 MAX ECHO

Name	Wirewound Common Mode Filter AEOI-322525(for Automotive)	COMPONENT SPECIFICATION		1/8
		SPEC#	AEOI3225-201NZ	

1. SCOPE

This specification applies to the AEOI-3225 series SMD WirewoundCommon Mode Filter.

2. 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 : 65±20%

If there may be any doubt on the results, measurements shall be made within the following limits :

Ambient temperature : 25±5℃

Relative humidity : 75±10%

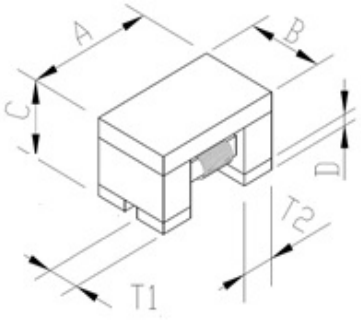
3. RATINGS

PART NO.	Inductance(uH) AT0.1 MHz / 500mV	DC RESISTANCE (Ω) MAX	RATED CURRENT (mA) MAX	RATED VOLTAGE (V)	INSULATION RESISTANCE (MΩ) MIN	WITHSTANDING TEST VOLTAGE (V)(DC) MAX
AEOI3225-201NZ	200(uH) -30%/+50%	5.5	70	80	10	125

4. DIMENSION

OPERATING TEMP. RANGE : -40℃ ~ +125℃

STORAGE TEMP. RANGE : -40℃ ~ +85℃



unit: mm (inch)

TYPE	A	B	C
AEOI-3225	3.2±0.2 (0.126±0.008)	2.5±0.2 (0.098±0.008)	2.5±0.2 (0.098±0.008)

unit: mm (inch)

TYPE	D	T1	T2
AEOI-3225	0.4±0.1 (0.016±0.004)	1.0±0.1 (0.039±0.004)	0.6±0.1 (0.024±0.004)

5. The place of origin :

Taichung, Taiwan

PLANNED BY	CHECKED BY	APPROVED BY	
Marco	LUN	Tina Hsu	鈺鎧文件中心 發行章

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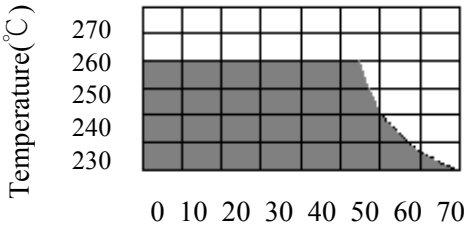
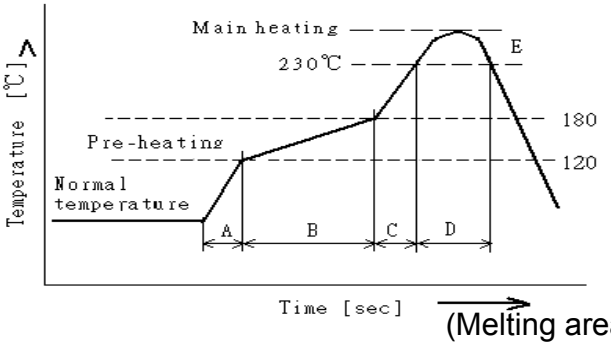
Reflow soldering conditions

- Pre－heating should be in such a way that the temperature difference between solder and ceramic 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.
  Insufficient pre－heating may cause cracks on the ceramic, 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



(Melting area of solder)

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

Reworking with soldering iron

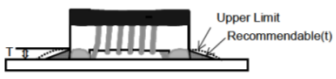
Preheating	150℃, 1 minute
Tip temperature	280℃ max.
Soldering time	3 seconds max.
Soldering iron output	30w max.
End of soldering iron	f3mm max.

- 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.

Solder Volume

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



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

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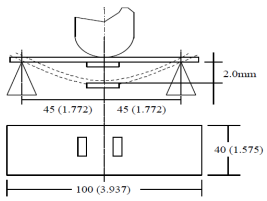
Mechanical Characteristics

ITEM	CONDITION	SPECIFICATION
Flexure Strength		Change In Appearance Without distinct damage Change In Common Mode Inductance: Within ± 20% Insulation Resistance: 10MΩ min Withstanding Voltage: No damaged
Drop Test	Components shall be dropped three times on a concrete or steel board at height of 1M naturally at any directions.	
Vibration (Random)	1.Frequency and Amplitude:10-2000-10Hz 2.Direction:X,Y,Z. 3.Test duration:5g's for 20 minutes , 12 cycles each of 3 orientations.	
Resistance to Soldering Heat	Preheat components at 80 to 120°C for 1 minute. Dip components into flux and then into a melted solder bath at 260 ± 5°C for 5 ± 1 seconds. Then components are to be tested after 4-48 hours at room temperature.	
Solderability	Dip pads in flux and then in a solder bath at 240 ± 5°C for 5 seconds.	A minimum of 80% of the metalized area must be covered with new solder.
Component Adhesion (Push Test)	Components shall be reflow solder onto a P.C. Board (240 ± 5°C for 20 seconds). Then a dynometer force gauge shall be applied to any side of the component.	Components must withstand a minimum force of 0.5 Kg without any failure of the termination to component attachment.

Electrical Characteristics

ITEM	CONDITION	SPECIFICATION
Common Mode Inductance (Lp) and Tolerance	Measuring Equipment : E5061B or equivalent. Measuring Frequency : 100KHZ Measuring Temperature : 25 ± 5°C (Refer to Measurement Diagram)	
Insulation Resistance	Measuring Voltage : Rated Voltage Measuring Time : 1 minute max. (Refer to Measurement Diagram)	10 megaohms minimum
Withstanding Voltage	Test Voltage : Withstanding Voltage Time : 1 to 5 seconds. Charge current : 1mA max. (Refer to Measurement Diagram)	No damage occurs when the test voltage is applied.
Rated Current	Test Current : Rated Current (Refer to Measurement Diagram)	Temperature Rise : ≦40°C
DC Resistance (RDC)	Measured with current of 100mA max. In case of doubt, measured by four terminal method. (Refer to Measurement Diagram)	Within Specified Tolerance.

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Endurance Characteristics

ITEM	CONDITION	SPECIFICATION
High Temperature with Loaded (Rated Current)	Components shall be stored at temperature of +85 ± 2°C for 1000 (+48 hours -0 hour). with rated current applied. Then components shall be subjected to standard atmospheric conditions for 4-48 hour. After that, measurement shall be made.	Change In Appearance Without distinct damage Common Mode Inductance:Within ± 20% Insulation Resistance: 10MΩ min Withstanding Voltage: No damaged
High Temperature Storage	Components shall be stored at temperature +125 ± 2°C for 1000 (+48 hours -0 hour). Then components shall be subjected to standard atmospheric conditions for 4-48 hours. After that, measurement shall be made.	
Moisture Resistance	Components shall be stored in the chamber at 85°C at 85-95% R. H. for 1000 (+48 hours -0 hour). Then components are to be tested after 4-48 hours at room temperature.	
Temperature Cycle	Each cycle shall consist of 30 minutes at -55°C followed by 30 minutes at +125°C with a 10-15 minutes maximum transition time between temperature extremes. Test duration is 1000 cycles, then components are to be tested after 4-48 hours at room temperature.	
Mechanical Shock	1.peak acceleration ：1500 g's 2.Duration of pulse：0.5 ms 3.Waveform ：Half-sine 4.Velocity change ：15.4 ft/sec 5. Direction：X，Y，Z（3axes/3 times）	
Electrostatic discharge test	1.ESD voltage: 15k volts 2.Mode 1:150 pF/330 Ohm 3.Mode 2:150 pF/2000 Ohm	

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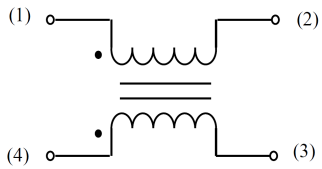
Measurement Diagram

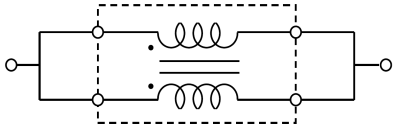
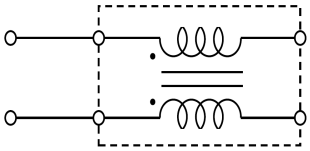
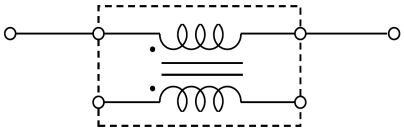
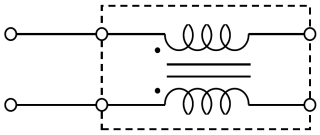
EQUIVALENT CIRCUIT



No polarity

Terminal to be Tested

When measuring and supplying the voltage, the following terminal is applied.

No.	Item	Terminal to be Tested
1	Common Mode Inductance (Measurement Terminal)	Terminal  Terminal
2	Withstanding Voltage (Measurement Terminal)	Terminal Terminal 
3	DC Resistance (Measurement Terminal)	Terminal  Terminal
4	Rated Current	
5	Insulation Resistance	Terminal Terminal 

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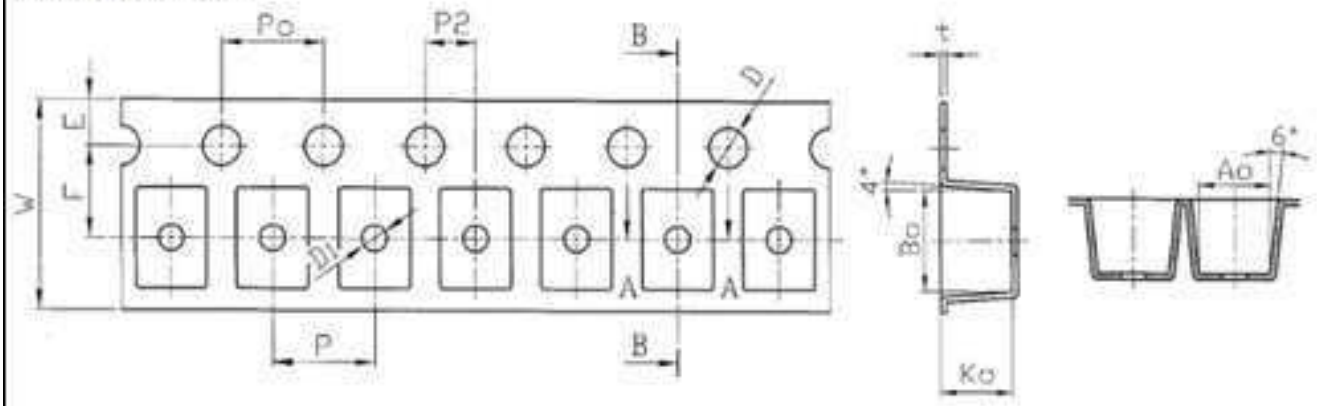
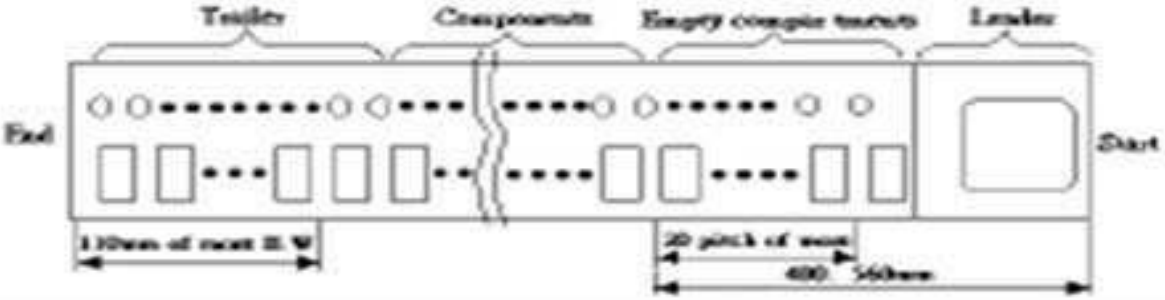
EMBOSSED CARRIER TAPE PACKING(TYP)

10-1 DIMENSIONS



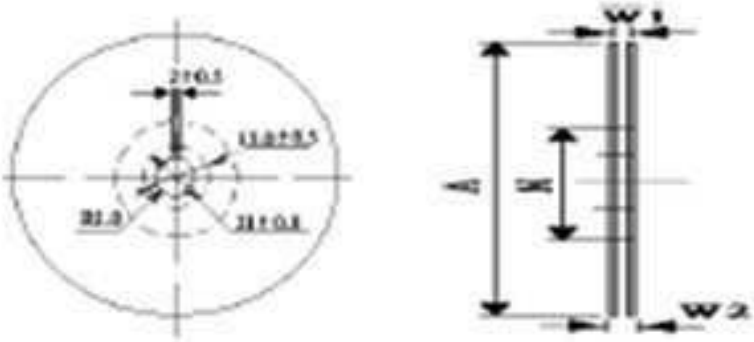
W	P	E	F	P2	D	D1	Po	10Po	Ao	Bo	Ko	t
8.00 ±0.10	4.00 ±0.10	1.75 ±0.10	3.50 ±0.05	2.00 ±0.05	1.50 +0.10/-0.00	1.00 ±0.10	4.00 ±0.10	40.00 ±0.20	2.82 ±0.10	3.84 ±0.10	2.82 ±0.10	0.26 ±0.05

10-2 LEADER AND TRAILER TAPE



10-3 DIRECTION THE DIRECTION SHALL BE SEEN FROM THE TOP OFCOVER TAPE

10-4 REELS



PACKING QTY.
1,000 PCS REEL

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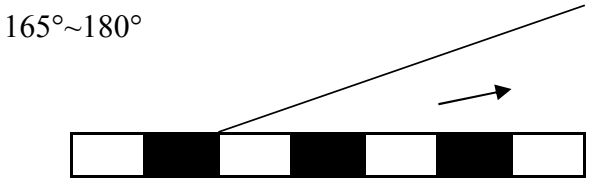
PEELING STRENGTH OF COVER TAPE

Cover tape (10g~100g)



Test condition

1. peel angle：165°~180° vs carrier tape
2. peel speed：300mm/min

Packaging

1.) Tape & Reel packaging in component specification 6/8
2) Reel and a bag of desiccant shall be packed in Nylon or plastic bag
3) Maximum of 5 reels shall be packaged in a inner box
4) Maximum of 6 inner box shall be packaged in a outer box

Reel Label

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

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Storage

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.
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).
3. Packaging material may be deformed if packages are stored where they are exposed to heat or direct sun－light.
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.
5. Solderability specified in component specification 4/8 shall be for 12 months from the date of delivery on condition that they are stored at the environment specified clause 1. & 2. For those parts which passed more than 12 months shall be checked solderability before it is used.

Quality System

- ISO/IATF16949
- IECQ QC 080000
- AEC-Q200 COMPLIANT

Recommended Land Pattern

Dimension