



**●FEATURE**

1. Highly Reliable with a temperature range of -40 ~ +125 °C
2. Impedance variation: Extensive lineup are available for compatibility with various usages
3. Common mode EMI measure: Possible to suppress waveform common mode EMI without straining the waveform
4. Suitable for power line & signal line circuit
5. Pass the CE/FCC purpose
6. Chip Common Mode Choke Coil
7. Operating Temperature -40 ~ +125 °C
8. Compliant with AEC-Q200



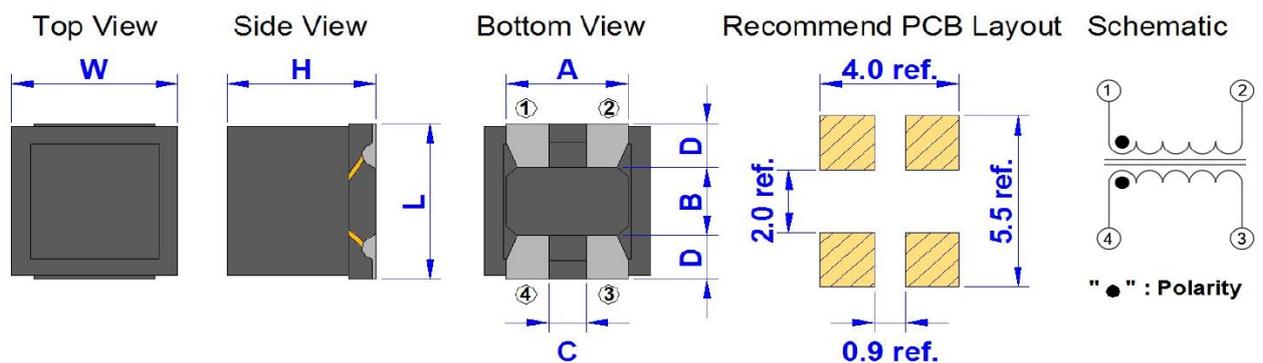
**●APPLICATION**

Radiated noise suppression for car multimedia interface (MOST, USB2.0, IDB-1394...etc), Mobile Device, Handheld Device, Low Profile Device, Panel

**●ORDERING INFORMATION**

<u>CMH</u>	<u>0504</u>	<u>-102</u>	<u>N</u>	<u>C</u>	<u>Q</u>
Series	Dimension (L*W)	Impedance (Ω)	Tolerance N=±25%	Customer	AEC-Q

**●SHAPE AND DIMENSION**



**●SPECIFICATION**

Unit: mm

TYPE	W	L	H	A	B	C	D
0502	4.8 ±0.3	5.0 ±0.3	2.5 max.	3.5 typ.	2.2 typ.	1.1 typ.	1.4 typ.
0504	4.8 ±0.3	5.0 ±0.3	4.8 max.	3.5 typ.	2.2 typ.	1.1 typ.	1.4 typ.



● **ELECTRICAL CHARACTERISTICS**

Part Number	Impedance ( $\Omega$ ) (Min.) @10MHz	Impedance ( $\Omega$ ) (Typ.) @100MHz	Rated Voltage V (DC)	Withstanding Voltage V (DC)	Rated Current (A)	DCR ( $\Omega$ )	Insulation Resistance (m $\Omega$ ) (Min.)
CMH0502-101N	10	100	50	125	6.0	0.009 $\pm$ 40%	10.0
CMH0502-251N	20	250	50	125	5.0	0.014 $\pm$ 40%	10.0
CMH0502-501N	30	500	50	125	4.0	0.019 $\pm$ 40%	10.0
CMH0502-102NC	60	1000	50	125	2.0	0.024 $\pm$ 40%	10.0
CMH0502-142N	100	1400	50	125	1.5	0.040 $\pm$ 40%	10.0

\* N=Tolerance= $\pm$ 25%

\* Rated Current : For a 40°C temperature rise from 25°C ambient.

Part Number	Impedance ( $\Omega$ ) (Min.) @10MHz	Impedance ( $\Omega$ ) (Typ.) @100MHz	Rated Voltage V (DC)	Withstanding Voltage V (DC)	Rated Current (A)	DCR ( $\Omega$ )	Insulation Resistance (m $\Omega$ ) (Min.)
CMH0504-251N	20	250	50	125	5.0	0.014 $\pm$ 40%	10.0
CMH0504-102NC	60	1000	50	125	4.5	0.016 $\pm$ 40%	10.0

\* N=Tolerance= $\pm$ 25%

\* Rated Current : For a 40°C temperature rise from 25°C ambient.



**●RELIABILITY**

Test Item	Test Condition	Specification												
Dimension	Actual Size ...	Meet Spec												
Thermal Shock (Temperature Cycle)	Temperature: -40 ~ +125°C kept stabilized for 30 min. each Cycle: 100 Cycles (power off)	Elec. no variation Appearance no deformation												
Humidity Resistance	Humidity: 90% ~ 95% RH Temperature: 60 ± 2°C Test Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												
High Temperature	Temperature: 125 ± 2°C Testing Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												
Low Temperature	Temperature: -40 ± 2°C Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												
Temperature and Humidity Cycle	<table border="1"> <thead> <tr> <th>Temperature</th> <th>Humidity</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>25°C</td> <td>90% ~ 95% RH</td> <td>3.0 Hr</td> </tr> <tr> <td>55°C</td> <td>95% ~ 96% RH</td> <td>5.0 Hr</td> </tr> <tr> <td>25°C</td> <td>90% ~ 95% RH</td> <td>3.0 Hr</td> </tr> </tbody> </table>	Temperature	Humidity	Time	25°C	90% ~ 95% RH	3.0 Hr	55°C	95% ~ 96% RH	5.0 Hr	25°C	90% ~ 95% RH	3.0 Hr	Elec. no variation Appearance no deformation
	Temperature	Humidity	Time											
	25°C	90% ~ 95% RH	3.0 Hr											
	55°C	95% ~ 96% RH	5.0 Hr											
25°C	90% ~ 95% RH	3.0 Hr												
Cycle: 20 Cycles														
Vibration	Frequency: 10Hz ~ 55Hz , Amplitude: 1.5 mm Direction: X, Y, Z, Time: 2 Hours each	Elec. no variation Appearance no deformation												
Solderability	Go through real SMT IR-Reflow .... The profile like our suggest profile. Preheat: 160 ± 10°C (90 sec) Peak: 245 ± 5°C Peak Time: 50 Sec. / up 217°C	Elec. no variation Appearance no deformation												
Soldering Heat Resistance	Preheat: 160 ± 10°C (90 sec) Solder: Sn / Ag / Cu (Pb Free) Solder Temp.: 260 ± 5°C, Time: 3 ± 1 seconds	Elec. no variation Appearance no deformation												
Iron Solder Heat Resistance	Solder Temp.: 350 ± 5°C Flux: Rosin, Time: 3 ± 1 seconds	Elec. no variation Appearance no deformation												
Bending Strength	<p>Unit : mm</p> <p>Force : 1Kg / min.</p>	Elec. no variation Appearance no deformation												
Flexure Strength	<p>Unit : mm</p> <p>Solder cream 0.15 mm</p>	Elec. no variation Appearance no deformation												
Terminal Strength	<p>Mount on PCB Solder Cream 0.15 mm</p> <p>Push 10N force to X , Y direction</p>	Elec. no variation Appearance no deformation												
High-Voltage	100 V DC between core & winding	Elec. no variation Appearance no deformation												
Load life	Temperature: 25 ± 3°C Load: Allowed DC Current, Test Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												



**●TEST EQUIPMENT**

- 1. HP4284A, HP42841A – L, Q, DCR, RDC
- 2. HP8753D Network Analyzer - SRF

**●OPERATING & STORAGE CONDITION**

- 1. Operating Temp: -40 ~ +125°C (Including self - temperature rise)
- 2. Storage Temp: a. Product with Taping: -10 ~ 45°C, 50 ~ 60% RH  
b. On Board: -40 ~ +125°C
- 3. Storage Life Time: 12 Month (Less than 40°C and 60% RH)

Standard Atmosphere Conditions:

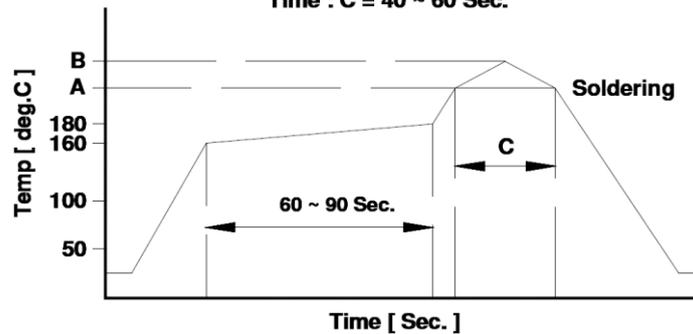
Ambient Temperature 20 ± 15°C; Humidity RH 65 ± 20%

If there may be any doubt on the test result, Measurement shall be made within the following limits:

Ambient Temperature 25 ± 5°C; Humidity RH 75 ± 10%

**●RECOMMEND REFLOW CURVE (TIME: Second)**

Lead Free Solder : A = 217 deg.C , B = 245+/-5 deg.C  
Time : C = 40 ~ 60 Sec.



Notice: Iron Soldering, Solder < 30 Watt,  
Direct touch the terminal x 3 Sec. Max. @ 350°C

**●ATTENTION & CAUTION:**

- \* Keep out of Splashing water or salt water
- \* Avoid Toxic Gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
- \* Vibrations or shocks which exceed the specified condition
- \* Dew condense
- \* Layout near the edge of PCB
- \* Over flexure after SMT mounting & PCBA
- \* Pin foot or SMD pad solder ability: Pb free type is best within 6 months after delivery
- \* Humidity sensitive, IPC/JEDEC J-STD-020 MSL if over Level 1, recommend bake 30mins@150°C before PCBA
- \* Caution for human life relative applications: PLS contact & consult with AiT team in design stage.



Care Note for Use:

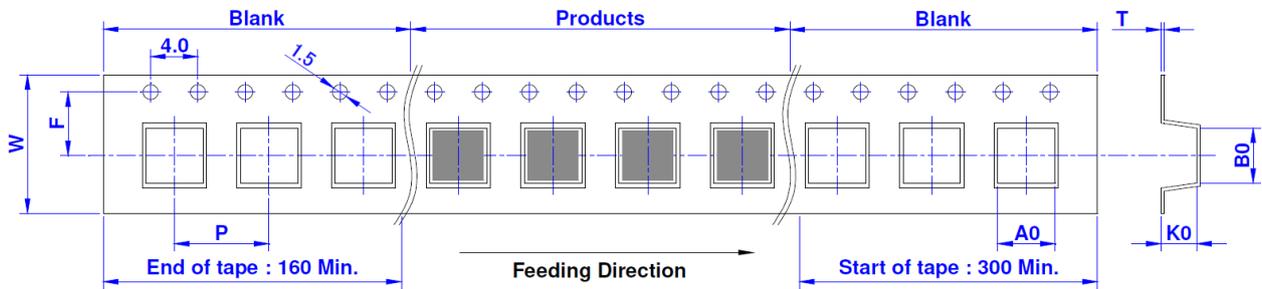
- (1) Storage Condition:  
Temperature 25 to 35°C, Humidity 45 to 60% RH
- (2) Use Temperature:
  - a. Minimum Temperature: -40°C Ambient temperature of this product.
  - b. Maximum Temperature: +125°C The value of temperature including ambient and temperature rise of this product.
  - c. Reliability test temperature range from -40 ~ +125°C
  - d. However, this is not meant as temperature grade guarantee for UL.
- (3) Model:  
When this product was used in a similar or as new product to the original one, sometimes it might be unable to satisfy the specifications due to difference in condition of usage.
- (4) Drop:  
If this product suffered mechanical stress such as drop, characteristics may become poor ( due to damage on coil / bobbin / ferrite ... etc. )  
Never use such stressed product.

Care Note for Safety:

- (1) Provision to Abnormal Condition:  
This product itself does not have any protective function in abnormal condition such as overload, short-circuit and open-circuit conditions, etc.  
Therefore, it shall be confirmed from the end product that there is no risk of smoking, fire, dielectric withstand voltage insulation resistance, etc. in abnormal conditions to provide protective devices and /or protection circuit in the end product.
- (2) Temperature Rise:  
Temperature rise on this product depends on the installation condition on end products.  
It shall be confirmed on the actual end product that temperature rise of this product is within the specified temperature class limit.
- (3) Dielectric Strength:  
Dielectric withstanding test with higher voltage than specific value will damage insulating material and shorten its life.
- (4) Water:  
This product must not be used in wet condition resulted from water, coffee or any liquid contact because insulation strength becomes very low under such condition.
- (5) Potting:  
If this product is potted in some compound, coating material of magnet wire might be occasionally damaged. Please ask us if you intend to pot this product.
- (6) Detergent:  
Please consult AiT Semi immediately once under such circumstances because product reliability confirmation etc. is needed when this product come in contact with these chemicals.

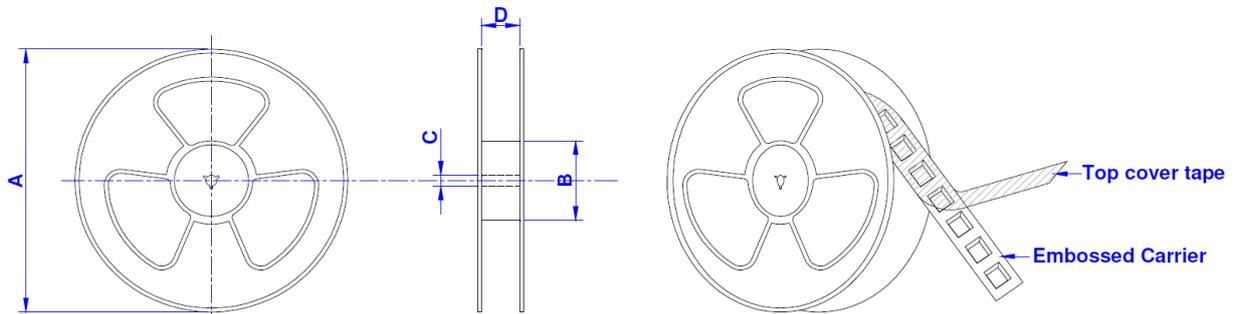


●TAPE DIMENSION: mm



SIZE/mm	W	P	A0	B0	K0	F	T
0502	12.00	8.00	5.40	5.40	2.60	5.50	0.35
0504	12.00	8.00	5.40	5.40	4.90	5.50	0.35

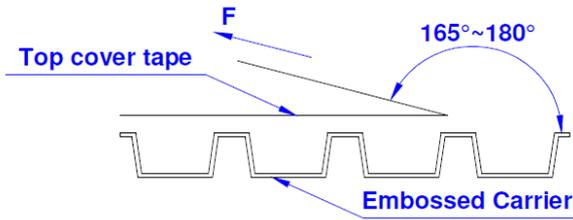
●REEL DIMENSION: mm



SIZE / mm	REEL SIZE	A	B	C	D	QTY/REEL
0502	13" x 12mm	330	100	13	12.5	2500 PCS
0504	13" x 12mm	330	100	13	12.5	1500 PCS



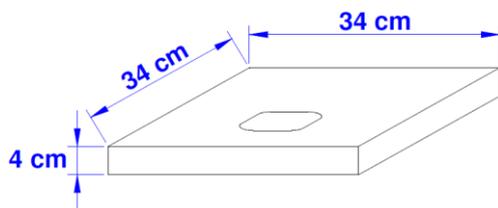
●TEARING OFF FORCE:



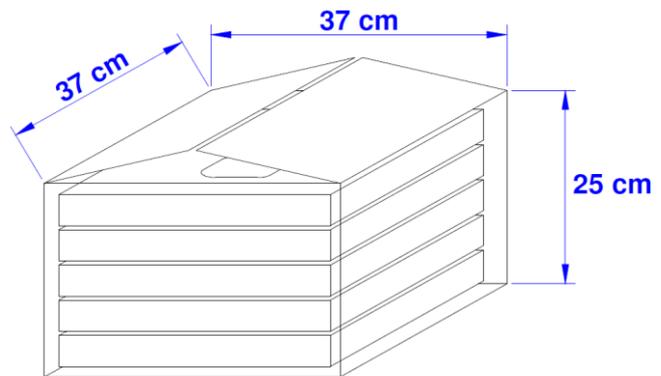
The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (referenced ANSI/EIA - 481 - D - 2008 of 4.11 standard).

Room Temp. (°C)	Room Humidity (%)	Room Atm. (hPa)	Tearing Speed (mm/min)
5 ~ 35	45 ~ 85	860~1060	300

●BOX PACKAGE: cm



13" Small Box



Large Box

SIZE/mm	Reels in Small Box	Small Box in Large Box
0502	2	5
0504	2	5



## **IMPORTANT NOTICE**

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