



SPECIFICATION FOR APPROVAL

| | |
|-----------------|-------------------------|
| CUSTOMER | ROPLA ELEKTRINIK SP ZOO |
| CUST. PART NO. | |
| CUST. DOC. REV. | |
| DESCRIPTION | POWER CHOKE (RoHS+H.F.) |
| SAMPLE LOT NO. | S202309-0023 |
| PART NO. | CSMW0520D-1R5M-LRH |
| DOC. REV. | A |
| DATE | 2023/09/20 |

Once you approve this part, please sign and return this page to the following marked location.

Customer Signature: _____ Date: _____

This part currently development section.

Production line can produce this series of products.

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| ISSUE BY | CHECKED BY | APPROVED BY |
|--------------------|--------------------|------------------|
| <i>Jenny Tseng</i> | <i>Gillian Nan</i> | <i>K.C.Tseng</i> |

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| | | | | |
|--|---------------------------------------|------------------|-------------------------------------|----------------------|
| CUSTOMER ROPLA ELEKTRONIK SP ZOO | CUSTOMER P/N | REV. - | SPL. LOT NO. S202309-0023 | |
| PART NAME POWER CHOKE (RoHS+H.F.) | PART NO. CSMW0520D-1R5M-LRH | REV. A | DATE OF ISSUE 2023/09/20 | Q'TY 0 PCS |

ENGINEERING CHANGE NOTICE - RECORD

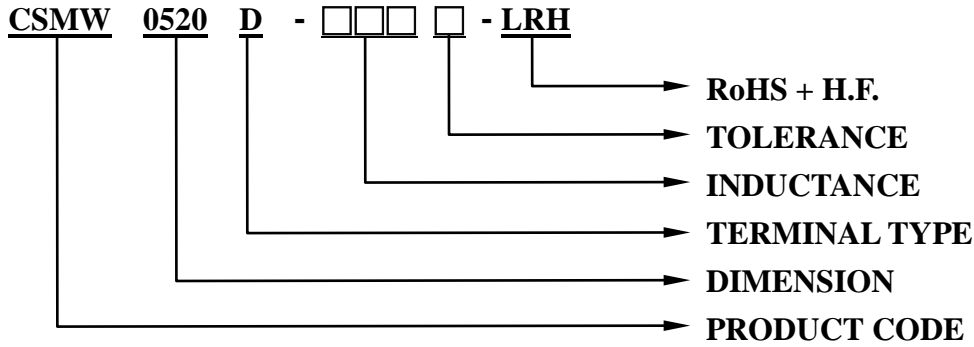
| REVISION NO. | REVISION DESCRIPTION | AUTHOR | DATE | REMARK |
|--------------|----------------------|--------------------|------------|--------|
| A | | <i>Gillian Nan</i> | 2023/09/20 | |



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※This is a RoHS and REACH compliant product whose related documents are available on request.
 ※Graphic is only for dimensionally application.

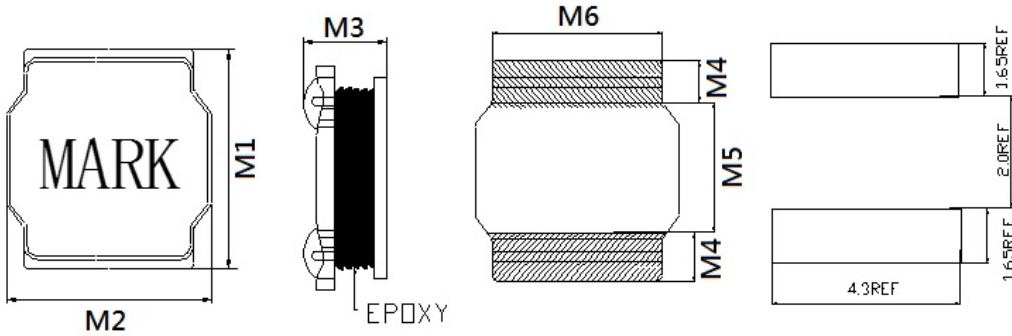
1. PART NUMBER IDENTIFICATION



2. MECHANICAL DIMENSION



UNIT: mm



| | DIM. | TOL. |
|----|------|------|
| M1 | 5.2 | MAX. |
| M2 | 5.2 | MAX. |
| M3 | 2.0 | MAX. |
| M4 | 1.35 | REF. |
| M5 | 2.3 | REF. |
| M6 | 4.0 | REF. |

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3. ELECTRICAL CHARACTERISTICS

| Part number | Mark | Inductance (μ H) | DC Resistance (m Ω) MAX. | Isat (A) | Irms (A) |
|--------------------|------|--------------------------|--|-------------|-------------|
| CSMW0520D-R47N-LRH | R47 | 0.47 | 20 | 8.00 | 4.50 |
| CSMW0520D-1R0N-LRH | 1R0 | 1.0 | 26 | 4.33 | 3.80 |
| CSMW0520D-1R5M-LRH | 1R5 | 1.5 | 34 | 4.10 | 3.20 |
| CSMW0520D-2R2N-LRH | 2R2 | 2.2 | 48 | 3.60 | 2.90 |
| CSMW0520D-3R3N-LRH | 3R3 | 3.3 | 56 | 3.25 | 2.90 |
| CSMW0520D-4R7M-LRH | 4R7 | 4.7 | 78 | 2.50 | 2.20 |
| CSMW0520D-6R8M-LRH | 6R8 | 6.8 | 108 | 2.05 | 1.80 |
| CSMW0520D-100M-LRH | 100 | 10 | 150 | 1.55 | 1.55 |
| CSMW0520D-220M-LRH | 220 | 22 | 300 | 1.15 | 1.10 |
| CSMW0520D-330M-LRH | 330 | 33 | 463 | 1.00 | 0.80 |

TOLERANCE: M:±20%、N:±30%

※ INDUCTANCE: @ 100KHZ/0.25V

※ TEST MACHINE: HP-4284A OR EQUIVALENT

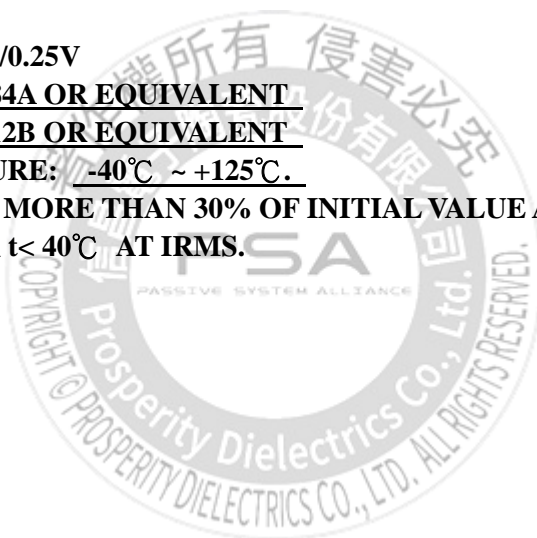
※ DC RESISTANCE: TH2512B OR EQUIVALENT

※ OPERATING TEMPERATURE: -40°C ~ +125°C.

※ INDUCTANCE DROPS NO MORE THAN 30% OF INITIAL VALUE AT ISAT.

※ TEMPERATURE RISES: $\Delta t < 40^{\circ}\text{C}$ AT IRMS.

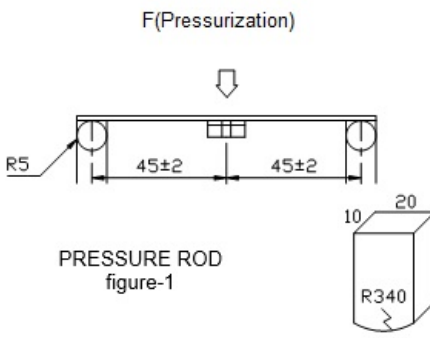
※ MSL: LEVEL 1.



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4. RELIABILITY PERFORMANCE

MECHANICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|-------------------|--|---|
| Substrate bending | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage or electrical damage. | The sample shall be soldered onto the printed circuit board in figure 1 and a load applied until the figure in the arrow direction is made approximately 3mm.(keep time 30 seconds) PCB dimension shall the page 7/9  |
| Vibration | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be soldered onto the printed circuit board and when a vibration having an amplitude of 1.52mm and a frequency of from 10 to 55Hz/1 minute repeated should be applied to the 3 directions (X,Y,Z) for 2 hours each. (A total of 6 hours) |
| Solderability | New solder More than 90% | Flux (rosin, isopropyl alcohol{JIS-K-1522}) shall be coated over the whole of the sample before hard, the sample shall then be preheated for about 2 minutes in a temperature of 130~150°C and after it has been immersed to a depth 0.5mm below for 3±0.2 seconds fully in molten solder M705 with a temperature of 245±2°C. More than 90% of the electrode sections shall be covered with new solder smoothly when the sample is taken out of the solder bath. |

ELECTRICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|------------------------------|--|---|
| Insulation resistance | There shall be no other damage or problems. | DC 100V voltage shall be applied across this sample of top surface and the terminal. The insulation resistance shall be more than $1 \times 10^8 \Omega$. |
| Dielectric withstand voltage | There shall be no other damage or problems. | AC 100V voltage shall be applied for 1 minute across the top surface and the terminal of this sample |
| Temperature characteristics | $\Delta L/L_{20^\circ\text{C}} \leq \pm 10\%$ 0~2000 ppm/°C | The test shall be performed after the sample has stabilized in an ambient temperature of - 40 to + 125°C, and the value calculated based on the value applicable in a normal temperature and normal humidity shall be $\Delta L/L_{20^\circ\text{C}} \leq \pm 10\%$. |

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ENVIROMENT CHARACTERISTICS

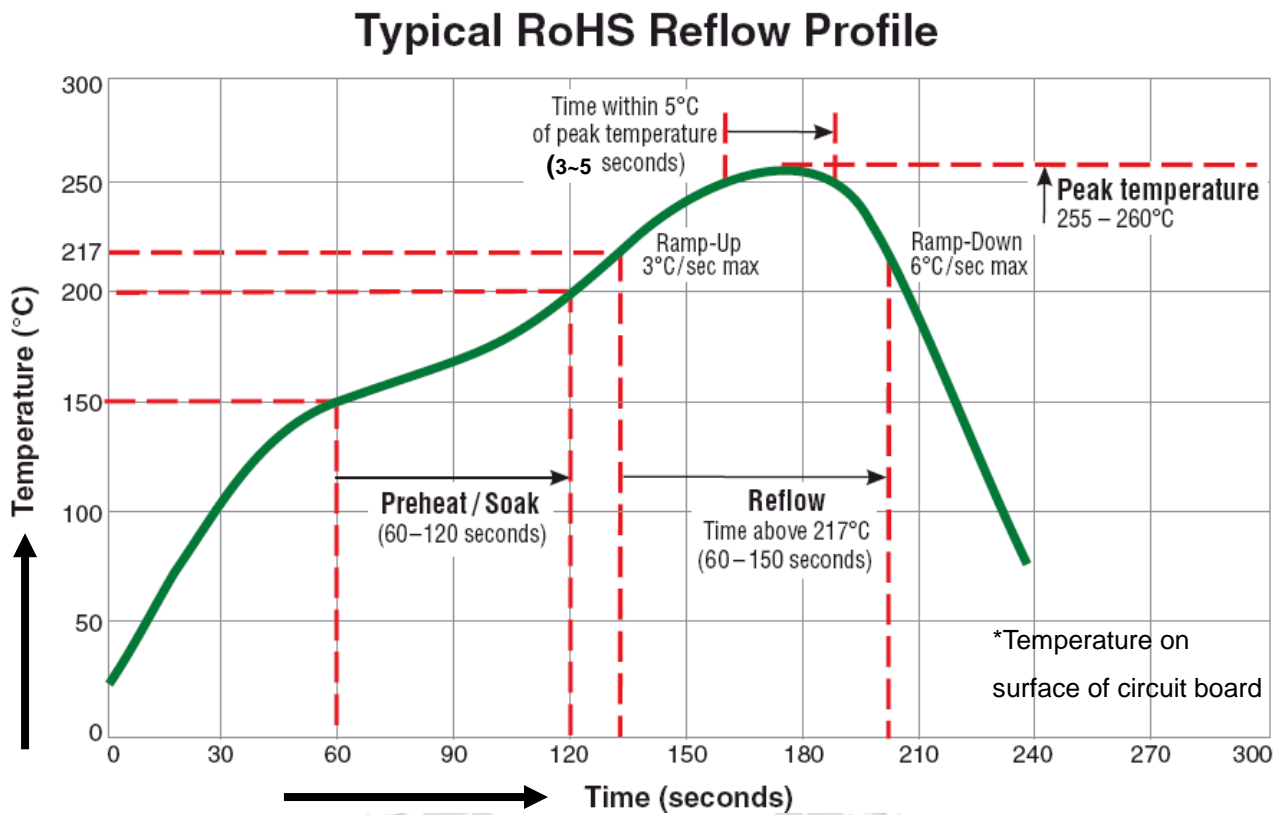
| TEST ITEM | SPECIFICATION | TEST DETAILS | | | | | | | | | | | | | | | |
|--------------------------|---|--|--|-------------|----------|---|--|---------|---|----------------------|-----------------------------|---|--|---------|---|----------------------|-----------------------------|
| High temperature storage | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be left for 500hours in an atmosphere with a temperature of $125 \pm 2^\circ\text{C}$ and a normal humidity. Upon completion of the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour. | | | | | | | | | | | | | | | |
| Low temperature storage | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be left for 500 hours in an atmosphere with a temperature of $-40 \pm 3^\circ\text{C}$. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour. | | | | | | | | | | | | | | | |
| Change of temperature | $\Delta L/L_0 \leq \pm 5\%$ There shall be no other damage of problems | The sample shall be subject to 5 continuous cycles, such as shown in the table 2 below and then it shall be subjected to standard atmospheric conditions for 1 hour, after which measurement shall be made. <p style="text-align: center;">table 2</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Temperature</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>$-40 \pm 3^\circ\text{C}$ (Thermostat No.1)</td> <td>10 min.</td> </tr> <tr> <td>2</td> <td>Standard atmospheric</td> <td>5 sec. or less No.1→No.2</td> </tr> <tr> <td>3</td> <td>$125 \pm 2^\circ\text{C}$ (Thermostat No.2)</td> <td>30 min.</td> </tr> <tr> <td>4</td> <td>Standard atmospheric</td> <td>5 sec. or less No.2→No.1</td> </tr> </tbody> </table> | | Temperature | Duration | 1 | $-40 \pm 3^\circ\text{C}$ (Thermostat No.1) | 10 min. | 2 | Standard atmospheric | 5 sec. or less No.1→No.2 | 3 | $125 \pm 2^\circ\text{C}$ (Thermostat No.2) | 30 min. | 4 | Standard atmospheric | 5 sec. or less No.2→No.1 |
| | Temperature | Duration | | | | | | | | | | | | | | | |
| 1 | $-40 \pm 3^\circ\text{C}$ (Thermostat No.1) | 10 min. | | | | | | | | | | | | | | | |
| 2 | Standard atmospheric | 5 sec. or less No.1→No.2 | | | | | | | | | | | | | | | |
| 3 | $125 \pm 2^\circ\text{C}$ (Thermostat No.2) | 30 min. | | | | | | | | | | | | | | | |
| 4 | Standard atmospheric | 5 sec. or less No.2→No.1 | | | | | | | | | | | | | | | |
| Moisuture storage | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be left for 500 hours in a temperature of $40 \pm 2^\circ\text{C}$ and a humidity(RH) of 90~95%. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity more than 1 hour. | | | | | | | | | | | | | | | |

Test conditions :

The sample shall be reflow soldered onto the printed circuit board in every test.

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5. TYPICAL RoHS REFLOW PROFILE

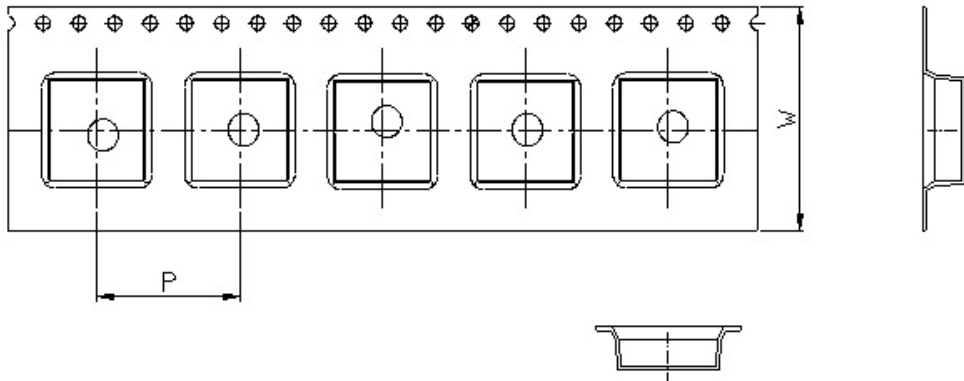


The products may be exposed to reflow soldering process of above profile up to two times.

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6. PACKING

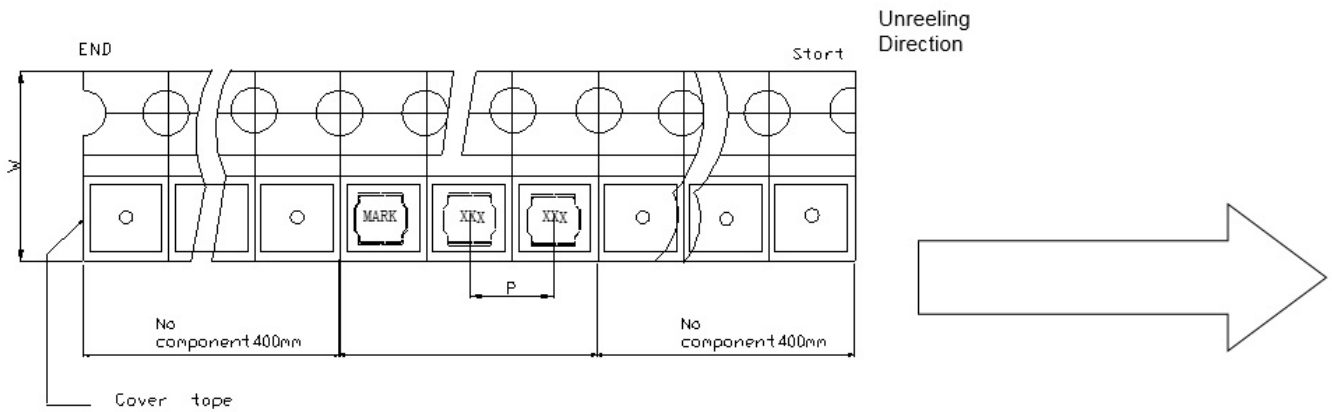
6-1 CARRIER TAPE DIMENSIONS



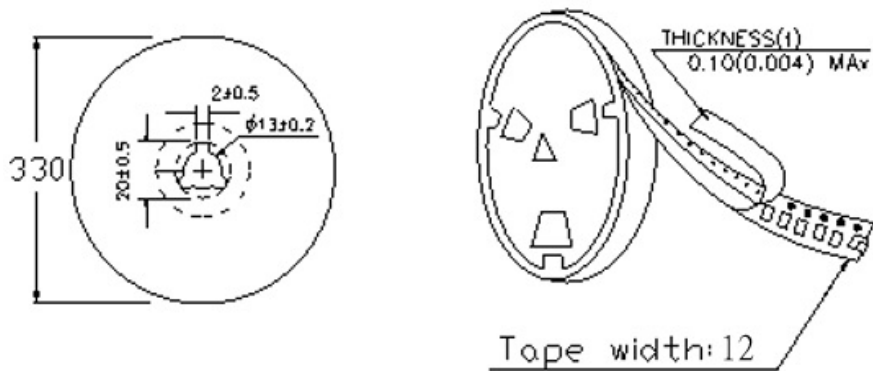
UNIT: mm

| W | P |
|----|---|
| 12 | 8 |

6-2 TAPING DIMENSIONS(mm)



6-3 REEL DIMENSIONS(mm)



6-4 QUANTITY : 2500pcs/Reel