



ISO9001 & ISO14001 & TS16949 **CHILISIN ELECTRONICS CORP.**

Halogen Free & RoHs Compliance

SPECIFICATION FOR APPROVAL

CUSTOMER : Eltech

CUSTOMER P/N : _____

OUR DWG No : _____

QUANTITY : 0 Pcs. **DATE :** 2014/06/04

ITEM : CMF21T-SERIES

| SPECIFICATION ACCEPTED BY: | |
|---------------------------------------|--|
| COMPONENT ENGINEER | |
| ELECTRICAL ENGINEER | |
| MECHANICAL ENGINEER | |
| APPROVED | |
| REJECTED | |

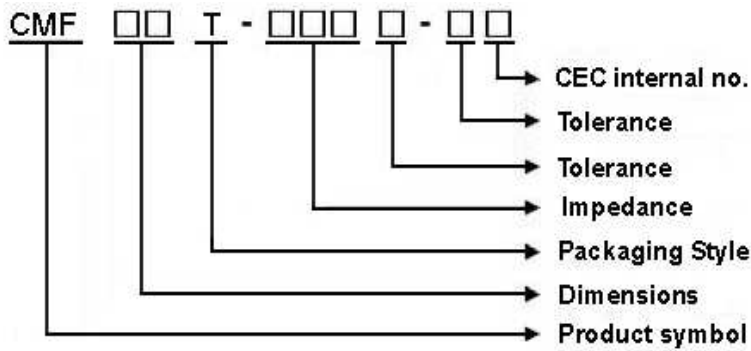
| | |
|--|--|
| <p>奇力新電子股份有限公司 Chilisin Electronic sCorp No. 29, Alley 301, Tehhsin Rd., Hukou,Hsinchu 303, Taiwan TEL : +886-3- 599-2646 FAX : +886-3- 599-9176 E-mail : sales@chilisin.com.tw http : //www.chilisin.com.tw</p> | <p>東莞奇力新電子有限公司 Chilisin Electronics (Dongguan) Co., Ltd. No. 78, Puxing Rd., Yuliangwei Administration Area, Qingxi Town, Dongguan City, Guangdong,China TEL : +86-769-8773-0251~3 FAX : +86-769-8773-0232 E-mail : cect@chilisin.com.tw</p> |
| <p>奇力新電子(河南)有限公司 Chilisin Electronics (Henan) Co., Ltd. XiuWu Xian, industry gathering area JiaoZuo, Henan China Postal Code:454350 TEL:+86-391-717-0682 FAX:+86-391-717-0666</p> | <p>奇力新電子(蘇州)有限公司 Chilisin Electronics (Suzhou) Co., Ltd. No.143,Song Shan Rd., Suzhou New District, Suzhou,China Postal Code:215129 TEL:+86-512-6841-2350 FAX:+86-512-6841-2356</p> |

| | | |
|-------------------------------------|--|---|
| DRAWN BY 張瑞滿 rammi | CHECKED BY 林青宏 ch.lin | APPROVED BY 詹嘉皓 allen.chan |
|-------------------------------------|--|---|

CMF21T Series Specification

1 Scope: This specification applies to SMD Multilayer common mode filter

2 Part Numbering: Product Identification



3 Rating:

Operating Temperature: - 4 0 °C ~ 1 0 5 °C (Including self - temperature rise)

Storage Temperature: 2 0 °C ~ 2 5 °C **R.H. 6 5 % (For Reference)**

4 Marking:

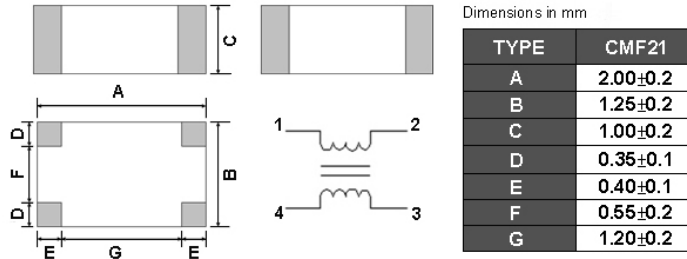
No Marking

5 Standard Testing Condition

| | Unless otherwise specified | In case of doubt |
|--------------------|----------------------------------|------------------|
| Temperature | Ordinary Temperature(15 to 35°C) | 20±2°C |
| Humidity | Ordinary Humidity(25 to 85% RH) | 60 to 70 % RH |

CMF21T Series Specification

6 Configuration and Dimensions:



7 ELECTRICAL CHARACTERISTICS :

| Part No. | Z (Ω) | RDC (Ω)Max. | Rated Current (mA)Max. | Rated Voltage (Vdc)Max. | Insulation Resistance (MΩ)(min) | Tolerance (±%) | Test Freq. (MHz) |
|----------------|----------|----------------|------------------------------|-------------------------------|---------------------------------------|-------------------|---------------------|
| CMF21T-670M-N2 | 67 | 0.8 | 400 | 30 | 200 | 20 | 100 |
| CMF21T-900M-N2 | 90 | 0.85 | 400 | 30 | 200 | 20 | 100 |
| CMF21T-121M-N2 | 120 | 0.9 | 300 | 30 | 200 | 20 | 100 |

NOTE: □-tolerance M=±20%

1. Operating temperature range - 40 °C ~ 105 °C (Including self - temperature rise)

2. RDC: SINGLE WIRE TEST VALUE

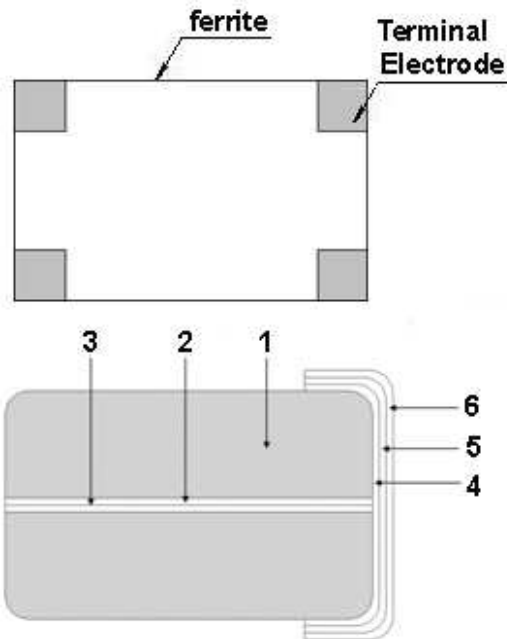
3. Rated current: ΔT=30°C

"-N" FOR COMPLETELY LEAD FREE TYPE (INCLUDING FERRITE BODY & SOLDER)

CMF21T Series Specification

8 CMF21T Series

8.1 Construction:



8.2 Material List:

| NO | PART | MATERIAL |
|----|-------------------|---|
| 1 | Ferrite substance | NiO-CuO-ZnO-Ferrite |
| 2 | Ceramic substance | Al ₂ O ₃ -SiO ₂ -Ceramic |
| 3 | Silver electrode | Ag |
| 4 | Silver electrode | Ag |
| 5 | Ni plating | Ni |
| 6 | Sn plating | Sn |



CMF21T Series Specification

9 Common Mode Choke / RELIABILITY TEST

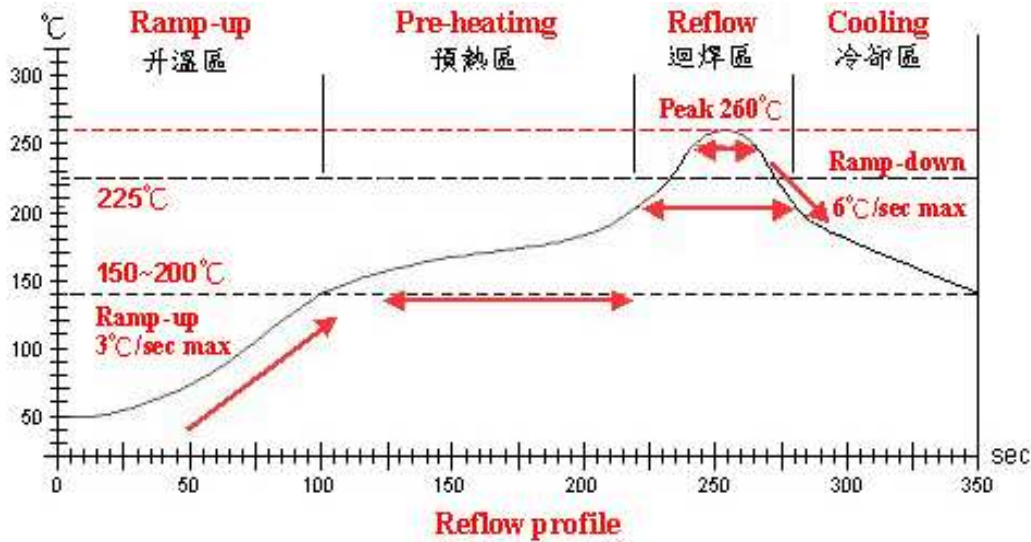
1-1.Environmental Performance

| No | Item | Specification | Test Method | | | | | | | | | | | | | | | |
|-------|-----------------------------|---|--|------|------------------|------------|---|-------|----|---|------|---|---|-------|----|---|------|---|
| 1-1-1 | Temperature Cycle | Appearance: No Damage Impedance: within±20% of initial value | One cycle: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40±3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25±2</td> <td>3</td> </tr> <tr> <td>3</td> <td>105±3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25±2</td> <td>3</td> </tr> </tbody> </table> Total: 5 cycles Measured After Exposure in The Room Condition For 1hrs | Step | Temperature (°C) | Time (min) | 1 | -40±3 | 30 | 2 | 25±2 | 3 | 3 | 105±3 | 30 | 4 | 25±2 | 3 |
| Step | Temperature (°C) | Time (min) | | | | | | | | | | | | | | | | |
| 1 | -40±3 | 30 | | | | | | | | | | | | | | | | |
| 2 | 25±2 | 3 | | | | | | | | | | | | | | | | |
| 3 | 105±3 | 30 | | | | | | | | | | | | | | | | |
| 4 | 25±2 | 3 | | | | | | | | | | | | | | | | |
| 1-1-2 | Humidity Resistance | | Temperature: 40±2°C Relative Humidity: 90 ~ 95% Time: 100hrs Measured After Exposure In The Room Condition For 1hrs | | | | | | | | | | | | | | | |
| 1-1-3 | High Temperature Resistance | | Temperature: 85±3°C Time: 50Hrs Measured After Exposure In The Room Condition For 1Hrs | | | | | | | | | | | | | | | |
| 1-1-4 | Low Temperature Resistance | | Temperature: -40±3°C Time: 50Hrs Measured After Exposure In The Room Condition For 1Hrs | | | | | | | | | | | | | | | |
| 1-1-5 | High Temperature Load Life | There should be no evidence of short or open circle | Temperature: 85±3°C Load: Allowed DC Current Time: 500Hrs | | | | | | | | | | | | | | | |
| 1-1-6 | Humidity Load Life | | Temperature: 40±2°C Relative Humidity: 90~95% Load: Allowed DC Current Time: 500Hrs | | | | | | | | | | | | | | | |

1-2.Mechanical Performance

| No | Item | Specification | Test Method |
|-------|---------------------------------|--|---|
| 1-2-1 | Resistance To Soldering Heat | Appearance: No Damage | 1. The device should be reflow soldered on PCB (peak 260°C ±5°C for 10 seconds) 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Test time: 6 minutes |
| 1-2-2 | Solder ability | The electrodes shall be at least 95% covered with new solder coating | 1. Pre-Heating: 150°C, 1min. 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Solder Temperature: 245±5°C. 4. Immersion Time: 4±1 sec. |
| 1-2-3 | Componment Adhesion (Push Test) | 1 Lbs. For CMM11/CMF11 2 Lbs. For other | The device should be reflow soldered (245±5°C For 10 seconds) to a tinned copper substrate. A force gauge should be applied to the side of the component. The device must withstand a minimum force of 2 pounds without a failure of the termination attached to component |

CMF21T Series Specification



Lead-Free(LF) 標準溫度分析範圍

Refer to J-STD-020C

| 管制項目 Item. | 升温區 Ramp-up | 預熱區 Pre-heating | 迴焊區 Reflow | Peak Temp | 冷卻區 Cooling |
|---------------------|----------------|--------------------|---------------|------------|--------------------|
| 溫度範圍 Temp.scope | R.T. ~ 150°C | 150°C ~ 200°C | 225°C | 260±5°C | Peak Temp. ~ 150°C |
| 實際時間 Time result | — | 60 ~ 180 sec | 20 ~ 60 sec | 5 ~ 10 sec | — |

NOTE :

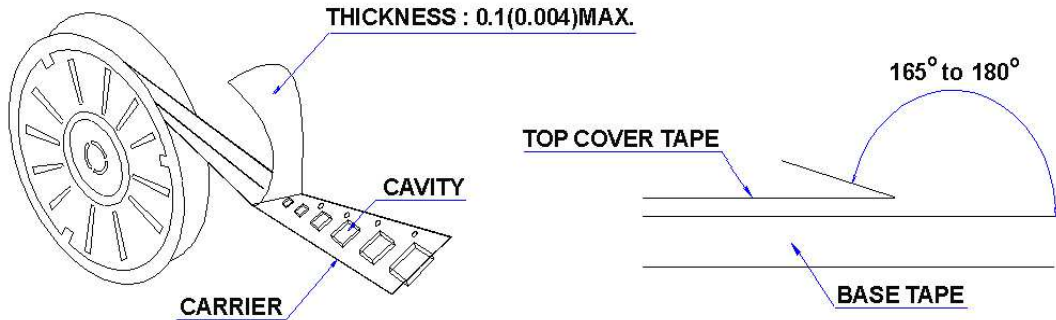
1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow

CMF21T Series Specification

11 PACKAGING

11.1 Packaging -Cover tape

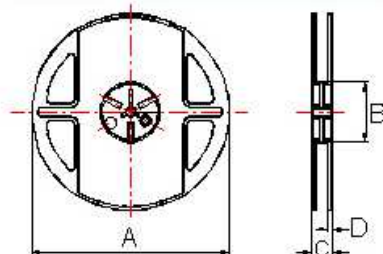
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



11.2 Packaging Quantity

| TYPE | BULK | PCS/REEL |
|-------|------|----------|
| CMF21 | X | 3000 |

11.3 Reel Dimensions



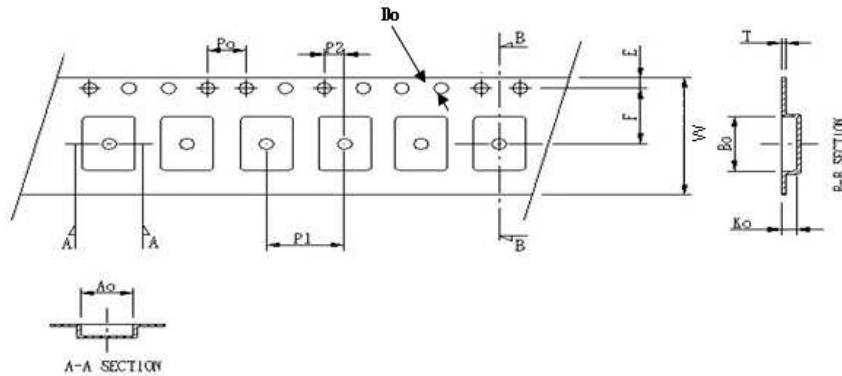
Dimensions in mm

| TYPE | A | B | C | D |
|--------|-----|----|----|-----|
| CMF 21 | 178 | 60 | 12 | 1.5 |

CMF21T Series Specification

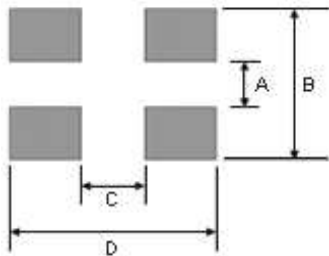
11 PACKAGING

11.4 Tape Dimensions in mm



| TYPE | A_0 | B_0 | W | E | F | P_0 | P_1 | P_2 | D_0 | T | K_0 |
|-------|-----------------|-----------------|---------------|-----------------|----------------|---------------|---------------|----------------|----------------|-----------------|-----------------|
| CMF21 | 1.45 ± 0.10 | 2.30 ± 0.10 | 8.1 ± 0.2 | 1.75 ± 0.10 | 3.5 ± 0.05 | 4.0 ± 0.1 | 4.0 ± 0.1 | 2.0 ± 0.10 | 1.5 ± 0.10 | 0.22 ± 0.05 | 1.13 ± 0.10 |

12 Recommended Pattern



Dimensions in mm

| TYPE | A(m/m) | B(m/m) | C(m/m) | D(m/m) |
|-------|--------|--------|--------|--------|
| CMF21 | 0.50 | 1.30 | 0.80 | 2.60 |

13 Note:

1. Please make sure that your product is has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock nor drop.
3. All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.
4. Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)