

SPECIFICATION FOR APPROVAL

| | |
|-----------------|----------------------------------|
| CUSTOMER | _____ |
| CUST. PART NO. | _____ |
| CUST. DOC. REV. | _____ |
| DESCRIPTION | <u>CHIP INDUCTORS(RoHS+H.F.)</u> |
| SAMPLE LOT NO. | _____ |
| PART NO. | CF453232-XXXX-LRH |
| DOC. REV. | _____ |
| DATE | _____ |

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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| TESTED BY | CHECKED BY | APPROVED BY |
|-----------|------------|-------------|
| | | |

TABLE OF CONTENTS


| INDEX | Page |
|--|------|
| ■ Engineering Change Notice – Record | 2 |
| ■ Mechanical Dimension | 3 |
| ■ Material List | 3 |
| ■ Electrical Specification | 4 |
| ■ Reliability Performance | 5 |
| ■ Reflow Chart | 6 |
| ■ Packing | 7 |
| ■ Test Report | |



SPECIFICATION FOR APPROVAL

| | | | | |
|---|--------------------------------------|-----------|---------------|----------------------|
| CUSTOMER | CUSTOMER P/N | REV. - | SPL. LOT NO. | |
| PART NAME CHIP INDUCTOR (RoHS+HF) | PART NO. CF453232-XXXX-LRH | REV. | DATE OF ISSUE | Q'TY 0 PCS |

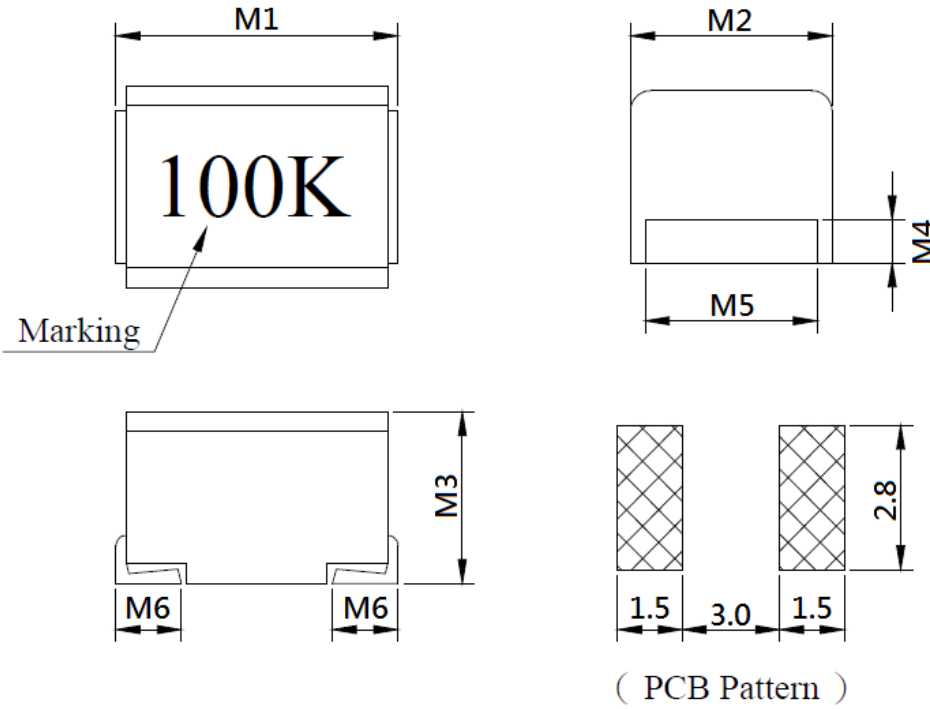
ENGINEERING CHANGE NOTICE – RECORD

| REVISION NO. | REVISION DESCRIPTION | AUTHOR | DATE | REMARK |
|--------------|---|--------|------|--------|
| |  | | | |

SPECIFICATION FOR APPROVAL

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

1. MECHANICAL DIMENSION

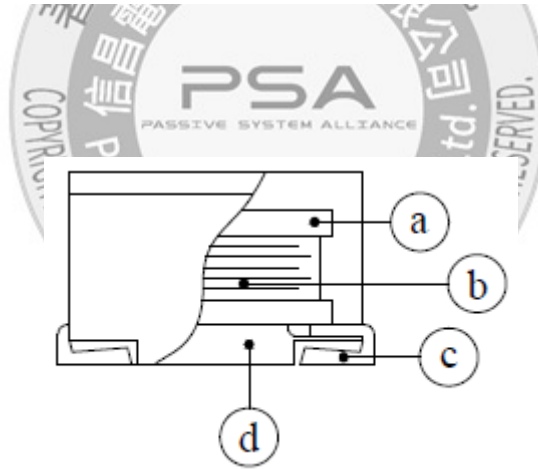


UNIT: mm

| | DIM. | TOL. |
|----|------|------|
| M1 | 4.5 | ±0.3 |
| M2 | 3.2 | ±0.2 |
| M3 | 3.2 | ±0.2 |
| M4 | 0.8 | TYP. |
| M5 | 2.6 | ±0.1 |
| M6 | 0.6 | ±0.1 |

(PCB Pattern)

2. MATERIAL LIST



| ITEM | MATERIAL CATEGORY | MATERIAL TYPE |
|------|-------------------|---------------------------------|
| a | Core | Ferrite DR core |
| b | Wire | Enamelled copper wire (class H) |
| c | Terminal | Cu / Ni / Sn |
| d | Encapsulate | Epoxy novolac molding compound |

SPECIFICATION FOR APPROVAL

3. ELECTRICAL SPECIFICATION

| Part number | Inductance (μH) | Inductance Tolerance | Q MIN. | Test Frequency (MHz) | SRF (MHz) MIN. | DC Resistance (Ω) MAX. | Rated Current (mA) |
|-------------------|-----------------|----------------------|--------|----------------------|----------------|------------------------|--------------------|
| CF453232-R10□-LRH | 0.100 | K,M | 35 | 25.2 | 300.0 | 0.180 | 800.0 |
| CF453232-R12□-LRH | 0.120 | K,M | 35 | 25.2 | 280.0 | 0.200 | 770.0 |
| CF453232-R15□-LRH | 0.150 | K,M | 35 | 25.2 | 250.0 | 0.220 | 730.0 |
| CF453232-R18□-LRH | 0.180 | K,M | 35 | 25.2 | 220.0 | 0.240 | 700.0 |
| CF453232-R22□-LRH | 0.220 | K,M | 40 | 25.2 | 200.0 | 0.250 | 665.0 |
| CF453232-R27□-LRH | 0.270 | K,M | 40 | 25.2 | 180.0 | 0.260 | 635.0 |
| CF453232-R33□-LRH | 0.330 | K,M | 40 | 25.2 | 165.0 | 0.280 | 605.0 |
| CF453232-R39□-LRH | 0.390 | K,M | 40 | 25.2 | 150.0 | 0.300 | 575.0 |
| CF453232-R47□-LRH | 0.470 | K,M | 40 | 25.2 | 145.0 | 0.320 | 545.0 |
| CF453232-R56□-LRH | 0.560 | K,M | 40 | 25.2 | 140.0 | 0.360 | 520.0 |
| CF453232-R68□-LRH | 0.680 | K,M | 40 | 25.2 | 135.0 | 0.400 | 500.0 |
| CF453232-R82□-LRH | 0.820 | K,M | 40 | 25.2 | 130.0 | 0.450 | 475.0 |
| CF453232-1R0□-LRH | 1.000 | K,M | 50 | 7.96 | 100.0 | 0.500 | 450.0 |
| CF453232-1R2□-LRH | 1.200 | K,M | 50 | 7.96 | 80.00 | 0.550 | 430.0 |
| CF453232-1R5□-LRH | 1.500 | K,M | 50 | 7.96 | 70.00 | 0.600 | 410.0 |
| CF453232-1R8□-LRH | 1.800 | K,M | 50 | 7.96 | 60.00 | 0.650 | 390.0 |
| CF453232-2R2□-LRH | 2.200 | K,M | 50 | 7.96 | 55.00 | 0.700 | 380.0 |
| CF453232-2R7□-LRH | 2.700 | K,M | 50 | 7.96 | 50.00 | 0.750 | 370.0 |
| CF453232-3R3□-LRH | 3.300 | K,M | 50 | 7.96 | 45.00 | 0.800 | 355.0 |
| CF453232-3R9□-LRH | 3.900 | K,M | 50 | 7.96 | 40.00 | 0.900 | 330.0 |
| CF453232-4R7□-LRH | 4.700 | K,M | 50 | 7.96 | 35.00 | 1.000 | 315.0 |
| CF453232-5R6□-LRH | 5.600 | J,K | 50 | 7.96 | 33.00 | 1.100 | 300.0 |
| CF453232-6R8□-LRH | 6.800 | J,K | 50 | 7.96 | 27.00 | 1.200 | 285.0 |
| CF453232-8R2□-LRH | 8.200 | J,K | 50 | 7.96 | 23.00 | 1.400 | 270.0 |
| CF453232-100□-LRH | 10.00 | J,K | 50 | 2.52 | 20.00 | 1.500 | 250.0 |
| CF453232-120□-LRH | 12.00 | J,K | 50 | 2.52 | 18.00 | 2.000 | 225.0 |
| CF453232-150□-LRH | 15.00 | J,K | 50 | 2.52 | 17.00 | 2.500 | 200.0 |
| CF453232-180□-LRH | 18.00 | J,K | 50 | 2.52 | 15.00 | 2.800 | 190.0 |
| CF453232-220□-LRH | 22.00 | J,K | 50 | 2.52 | 13.00 | 3.200 | 180.0 |
| CF453232-270□-LRH | 27.00 | J,K | 50 | 2.52 | 12.00 | 3.600 | 170.0 |
| CF453232-330□-LRH | 33.00 | J,K | 50 | 2.52 | 11.00 | 4.000 | 160.0 |
| CF453232-390□-LRH | 39.00 | J,K | 50 | 2.52 | 10.00 | 4.500 | 150.0 |
| CF453232-470□-LRH | 47.00 | J,K | 50 | 2.52 | 10.00 | 5.000 | 140.0 |
| CF453232-560□-LRH | 56.00 | J,K | 50 | 2.52 | 9.000 | 5.500 | 135.0 |
| CF453232-680□-LRH | 68.00 | J,K | 50 | 2.52 | 9.000 | 6.000 | 130.0 |
| CF453232-820□-LRH | 82.00 | J,K | 50 | 2.52 | 8.000 | 7.000 | 120.0 |
| CF453232-101□-LRH | 100.0 | J,K | 40 | 0.796 | 8.000 | 8.000 | 110.0 |
| CF453232-121□-LRH | 120.0 | J,K | 40 | 0.796 | 6.000 | 8.000 | 110.0 |
| CF453232-151□-LRH | 150.0 | J,K | 40 | 0.796 | 5.000 | 9.000 | 105.0 |
| CF453232-181□-LRH | 180.0 | J,K | 40 | 0.796 | 5.000 | 9.500 | 105.0 |
| CF453232-221□-LRH | 220.0 | J,K | 40 | 0.796 | 4.000 | 10.00 | 100.0 |
| CF453232-271□-LRH | 270.0 | J,K | 40 | 0.796 | 4.000 | 12.00 | 92.00 |
| CF453232-331□-LRH | 330.0 | J,K | 40 | 0.796 | 3.500 | 14.00 | 85.00 |
| CF453232-391□-LRH | 390.0 | J,K | 40 | 0.796 | 3.000 | 16.00 | 80.00 |
| CF453232-471□-LRH | 470.0 | J,K | 40 | 0.796 | 3.000 | 26.00 | 62.00 |
| CF453232-561□-LRH | 560.0 | J,K | 40 | 0.796 | 3.000 | 30.00 | 50.00 |
| CF453232-681□-LRH | 680.0 | J,K | 40 | 0.796 | 3.000 | 30.00 | 50.00 |
| CF453232-821□-LRH | 820.0 | J,K | 40 | 0.796 | 2.500 | 35.00 | 30.00 |
| CF453232-102□-LRH | 1000 | J,K | 20 | 0.252 | 2.500 | 40.00 | 30.00 |

TEST INSTRUMENT : HP4285A & CHROMA-16502

NOTE:

1. □Tolerance: M:±20%, K:±10%, J:±5%
2. Operating Temperature Range: -40°C ~ +105°C
3. IDC obtained when temp. rise to 20°C or the initial inductance drop by 10%, whichever is smaller.
4. MSL: Level 1

SPECIFICATION FOR APPROVAL

4. RELIABILITY PERFORMANCE

Mechanical Performance

| Item | Specification | Test Method |
|------------------------------|---|---|
| Vibration | Appearance: No damage Inductance: within $\pm 10\%$ of initial value | Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs |
| Resistance to Soldering Heat | Appearance: No damage | Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 260 \pm 5°C Immersion Time: 10 \pm 1sec |
| Solder ability | The electrodes shall be at least 90% covered with new solder coating | Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 245 \pm 5°C Immersion Time: 4 \pm 1sec |
| Resistance to solvent | There must be no change in appearance or obliteration of marking. | Inductors must withstand 6 minutes of alcohol or water. |

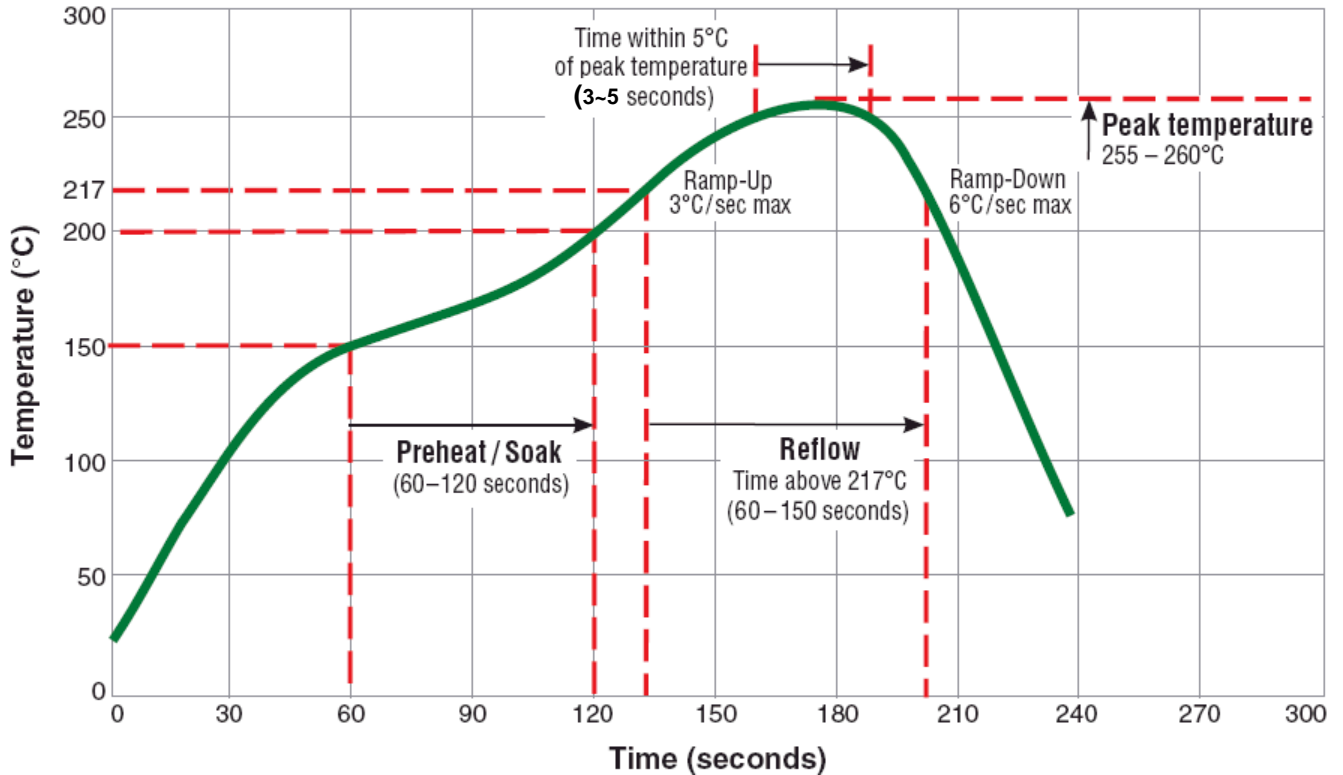
Environmental Performance

| Item | Specification | Test Method | | | | | | | | | | | | | | | |
|---------------------|---|---|------------|------------------|------------|---|-------------|----|---|------------|---|---|------------|----|---|------------|---|
| Temperature Shock | Appearance: No damage Inductance: within $\pm 10\%$ of initial value | 10 cycles (Air to Air) 1 cycles shall consist of: 30 minutes exposure to -55°C 30 minutes exposure to 125°C 15 seconds maximum transition between temperatures | | | | | | | | | | | | | | | |
| Temperature Cycle | | 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>-25\pm3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25\pm2</td> <td>3</td> </tr> <tr> <td>3</td> <td>85\pm3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25\pm2</td> <td>3</td> </tr> </tbody> </table> | Step | Temperature (°C) | Time (min) | 1 | -25 \pm 3 | 30 | 2 | 25 \pm 2 | 3 | 3 | 85 \pm 3 | 30 | 4 | 25 \pm 2 | 3 |
| Step | | Temperature (°C) | Time (min) | | | | | | | | | | | | | | |
| 1 | | -25 \pm 3 | 30 | | | | | | | | | | | | | | |
| 2 | | 25 \pm 2 | 3 | | | | | | | | | | | | | | |
| 3 | 85 \pm 3 | 30 | | | | | | | | | | | | | | | |
| 4 | 25 \pm 2 | 3 | | | | | | | | | | | | | | | |
| Humidity Resistance | Temperature: 40 \pm 2°C Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs | | | | | | | | | | | | | | | | |
| Heat Life | Temperature: 85 \pm 3°C Relative Humidity: 20% Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs | | | | | | | | | | | | | | | | |
| Cold Resistance | Temperature: -25 \pm 3°C Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs | | | | | | | | | | | | | | | | |

SPECIFICATION FOR APPROVAL

5. TYPICAL RoHS REFLOW PROFILE

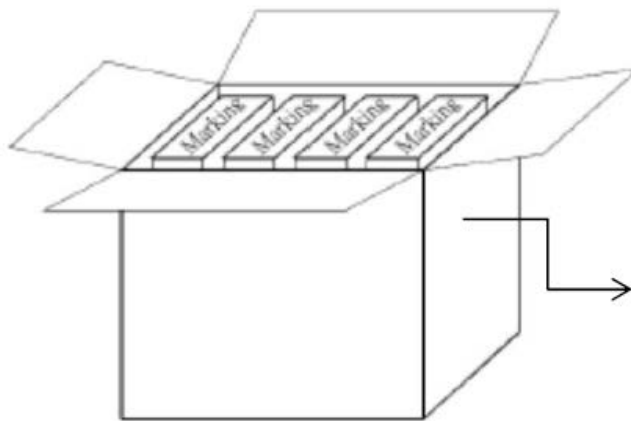
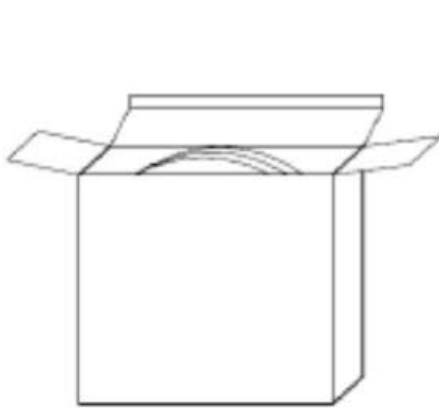
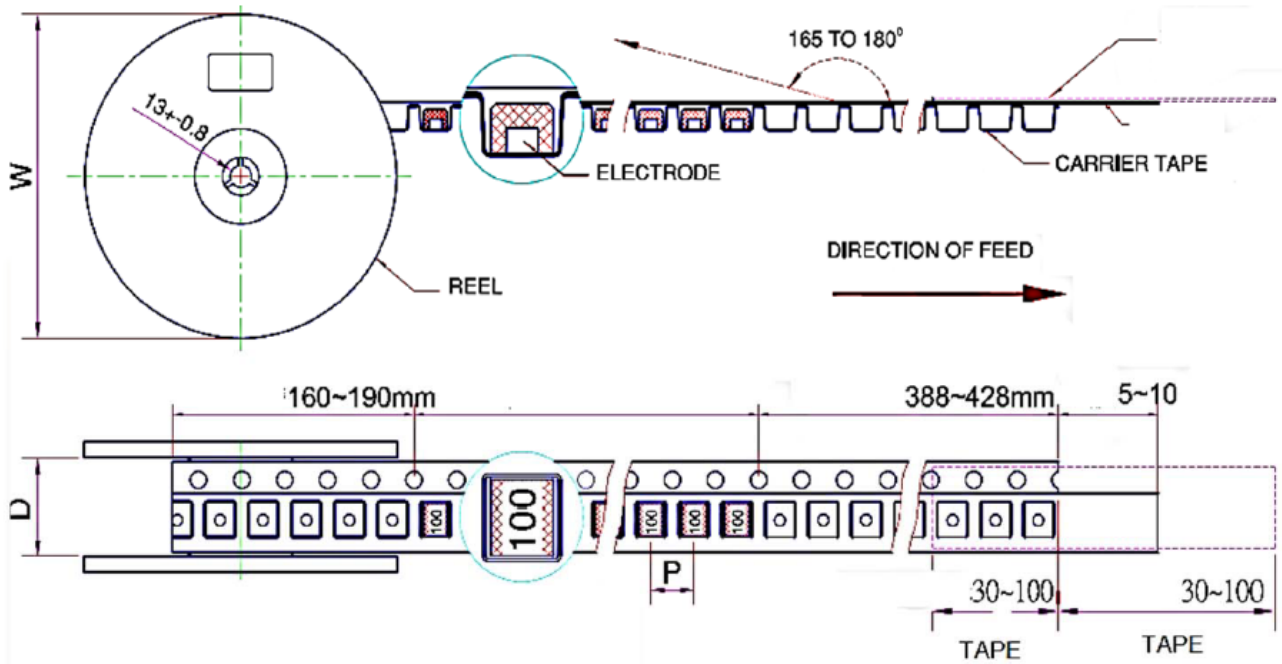
Typical RoHS Reflow Profile



PROPERTY DIELECTRICS CO., LTD.

SPECIFICATION FOR APPROVAL

6. PACKING



P/N NO.
 ITEM NO.
 LOT NO.
 Q'TY : PCS
 N.W. KGS
 G.W. KGS

UNIT: mm

| D | P | W | REEL | PCS/REEL | Inside Box | Outside Carton |
|----|---|-----|------|----------|------------|----------------|
| 12 | 8 | 178 | 7" | 500 | 2000 | 24000 |