

COIL SPECIFICATION



ZenithTek

Brand

ZenithTek

Product Series Code

ZPFL - Series

File Version

V1.7

Description

Multilayer Chip Power Inductor



Features

- Multilayer Construction with Low Profile Package
- High Rated Current
- Low DC Resistance
- Halogen Free, Lead Free, RoHS and REACH Compliance

Applications

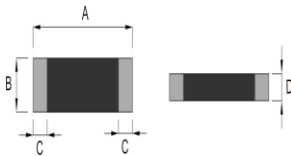
- DC to DC Converter
- Computing, Mobile, Networking
- IoT, Gaming, Audio Devices
- Industrial PC, Storage Devices

Product Identification

ZPFL - 0603 D/H/Y/W - 2R2 M/N
 1 2 3 4 5

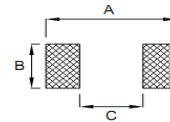
1. Product Code:
ZPFL = ZenithTek Code.
2. Dimension Code:
0603 = 1.6 * 0.8 * 0.8 mm.
3. Special Code:
D/H/Y/W = Body size
4. Inductance Code:
2R2 = 2.2μH.
5. Tolerance Code:
M = 20%.
N = 30%.

Dimension (Unit: mm)



| Type | A | B | C | D |
|------------|-----------|-----------|-----------|-----------|
| ZPFL-0603D | 1.60±0.15 | 0.80±0.15 | 0.30±0.20 | 0.50±0.10 |
| ZPFL-0603H | 1.60±0.15 | 0.80±0.15 | 0.30±0.20 | 0.80±0.15 |
| ZPFL-0805D | 2.00±0.30 | 1.25±0.20 | 0.50±0.30 | 0.50±0.10 |
| ZPFL-0805H | 2.00±0.30 | 1.25±0.20 | 0.50±0.30 | 0.90±0.10 |
| ZPFL-0805Y | 2.00±0.30 | 1.25±0.20 | 0.50±0.30 | 1.25±0.20 |
| ZPFL-0806H | 2.00±0.30 | 1.60±0.20 | 0.50±0.30 | 0.90±0.10 |
| ZPFL-1008H | 2.50±0.20 | 2.00±0.30 | 0.50±0.30 | 0.90±0.10 |
| ZPFL-1008W | 2.50±0.20 | 2.00±0.30 | 0.50±0.30 | 1.10±0.10 |

Land Pattern (Unit: mm)



| Type | A | B | C |
|------------|---------|---------|---------|
| ZPFL-0603D | 1.8-2.4 | 0.6-0.8 | 0.6-0.8 |
| ZPFL-0603H | 1.8-2.4 | 0.6-0.8 | 0.6-0.8 |
| ZPFL-0805D | 2.4-3.6 | 0.9-1.6 | 0.8-1.2 |
| ZPFL-0805H | 2.4-3.6 | 0.9-1.6 | 0.8-1.2 |
| ZPFL-0805Y | 2.4-3.6 | 0.9-1.6 | 0.8-1.2 |
| ZPFL-0806H | 2.4-3.6 | 1.2-2.0 | 0.8-1.2 |
| ZPFL-1008H | 2.2-3.4 | 1.8-2.2 | 1.0-1.4 |
| ZPFL-1008W | 2.2-3.4 | 1.8-2.2 | 1.0-1.4 |

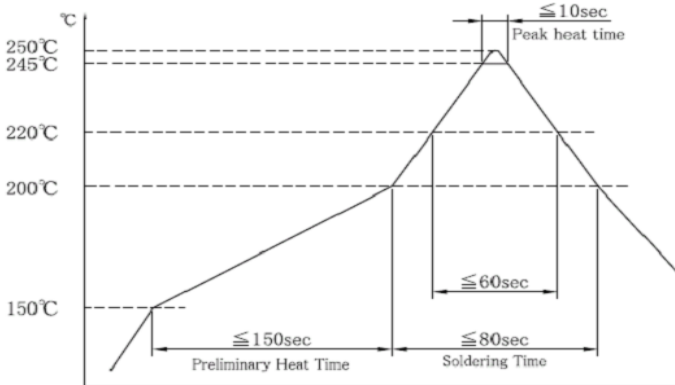
Product Structure



Schematic



Reflow Heat Endurance



Operating & Storage Conditions

Operating Temp. : -40°C~+85°C (including self-temp. rise)
 Storage Temp. : -40°C~+85°C (for PCBA)

Standard & Atmospheric Conditions

Ambient Temp. : 20°C±15°C / Relative Humidity : 65±20%.
 If there may be any doubt on the result, measurement shall be made within the following limits :
 Ambient Temp. : 25°C±5°C / Relative Humidity : 75±10%.

Test Equipment

HP4291B+HP16192A or equivalent. - L
 HP4284A, HOKIO3532-50 or equivalent. - IDC.
 HP4338B or equivalent. - DCR.

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ZenithTek

Brand **ZenithTek**
Product Series Code **ZPFL - Series**
File Version **V1.7**
Description **Multilayer Chip Power Inductor**



Electrical Characteristic

| Part Number | Inductance (μH) | Tolerance (%) | Test Frequency (MHz) | S.R.F (MHz)/(Min.) | DCR(Ω) (±25%) | Rated Current Ir* (mA)/(Max.) | Thickness (mm) |
|-----------------|-----------------|---------------|----------------------|--------------------|---------------|-------------------------------|----------------|
| ZPFL-0603D-R47M | 0.47 | 20 | 5 | 105 | 0.19 | 900 | 0.50±0.10 |

Note 1: Tolerance Code: M = ±20%, N = ±30%.
Note 2: *Definition of Ir: DC current causes temperature rise of 40°C.

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|-----------------|-----------------|---------------|----------------------|--------------------|---------------|-------------------------------|----------------|
| ZPFL-0603H-R47M | 0.47 | 20 | 5 | 105 | 0.25 | 800 | 0.80±0.15 |
| ZPFL-0603H-1R0M | 1.00 | 20 | 1 | 60 | 0.20 | 950 | 0.80±0.15 |
| ZPFL-0603H-1R5M | 1.50 | 20 | 1 | 50 | 0.25 | 800 | 0.80±0.15 |
| ZPFL-0603H-2R2M | 2.20 | 20 | 1 | 40 | 0.30 | 750 | 0.80±0.15 |

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|-----------------|-----------------|---------------|----------------------|--------------------|---------------|-------------------------------|----------------|
| ZPFL-0805D-R47M | 0.47 | 20 | 1 | 100 | 0.12 | 1100 | 0.50±0.10 |
| ZPFL-0805D-1R0M | 1.00 | 20 | 1 | 60 | 0.19 | 800 | 0.50±0.10 |
| ZPFL-0805D-1R5M | 1.50 | 20 | 1 | 50 | 0.26 | 700 | 0.50±0.10 |
| ZPFL-0805D-2R2M | 2.20 | 20 | 1 | 40 | 0.34 | 600 | 0.50±0.10 |

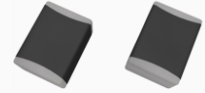
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| Part Number | Inductance (μH) | Tolerance (%) | Test Frequency (MHz) | S.R.F (MHz)/(Min.) | DCR(Ω) (±25%) | Rated Current Ir* (mA)/(Max.) | Thickness (mm) |
|-----------------|-----------------|---------------|----------------------|--------------------|---------------|-------------------------------|----------------|
| ZPFL-0805H-R47M | 0.47 | 20 | 1 | 100 | 0.09 | 1200 | 0.90±0.10 |
| ZPFL-0805H-1R0M | 1.00 | 20 | 1 | 60 | 0.11 | 1000 | 0.90±0.10 |
| ZPFL-0805H-1R5M | 1.50 | 20 | 1 | 50 | 0.16 | 900 | 0.90±0.10 |
| ZPFL-0805H-2R2M | 2.20 | 20 | 1 | 40 | 0.25 | 800 | 0.90±0.10 |
| ZPFL-0805H-3R3M | 3.30 | 20 | 1 | 30 | 0.19 | 900 | 0.90±0.10 |
| ZPFL-0805H-4R7M | 4.70 | 20 | 1 | 30 | 0.25 | 800 | 0.90±0.10 |

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 Note 2: *Definition of Ir: DC current causes temperature rise of 40°C.

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| Part Number | Inductance (μH) | Tolerance (%) | Test Frequency (MHz) | S.R.F (MHz)/(Min.) | DCR(Ω) (±30%) | Rated Current Ir* (mA)/(Max.) | Thickness (mm) |
|-----------------|-----------------|---------------|----------------------|--------------------|---------------|-------------------------------|----------------|
| ZPFL-0805Y-2R2M | 2.20 | 20 | 1 | 40 | 0.33 | 640 | 1.25±0.20 |
| ZPFL-0805Y-4R7M | 4.70 | 20 | 1 | 25 | 0.50 | 600 | 1.25±0.20 |

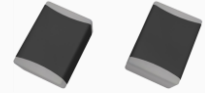
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| Part Number | Inductance (μH) | Tolerance (%) | Test Frequency (MHz) | S.R.F (MHz)/(Min.) | DCR(Ω) (±25%) | Rated Current Ir* (mA)/(Max.) | Thickness (mm) |
|-----------------|-----------------|---------------|----------------------|--------------------|---------------|-------------------------------|----------------|
| ZPFL-0806H-R47M | 0.47 | 20 | 1 | 100 | 0.06 | 1600 | 0.90±0.1 |
| ZPFL-0806H-1R0M | 1.00 | 20 | 1 | 70 | 0.09 | 1400 | 0.90±0.1 |
| ZPFL-0806H-1R5M | 1.50 | 20 | 1 | 60 | 0.11 | 1200 | 0.90±0.1 |
| ZPFL-0806H-2R2M | 2.20 | 20 | 1 | 50 | 0.11 | 1200 | 0.90±0.1 |
| ZPFL-0806H-3R3M | 3.30 | 20 | 1 | 40 | 0.12 | 1200 | 0.90±0.1 |
| ZPFL-0806H-4R7M | 4.70 | 20 | 1 | 30 | 0.14 | 1100 | 0.90±0.1 |

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| Part Number | Inductance (μH) | Tolerance (%) | Test Frequency (MHz) | S.R.F (MHz)/(Min.) | DCR(Ω) (±25%) | Rated Current Ir* (mA)/(Max.) | Thickness (mm) |
|-----------------|-----------------|---------------|----------------------|--------------------|---------------|-------------------------------|----------------|
| ZPFL-1008H-R47M | 0.47 | 20 | 1 | 100 | 0.04 | 1800 | 0.90±0.1 |
| ZPFL-1008H-1R0N | 1.00 | 30 | 1 | 60 | 0.06 | 1600 | 0.90±0.1 |
| ZPFL-1008H-1R5N | 1.50 | 30 | 1 | 50 | 0.07 | 1500 | 0.90±0.1 |
| ZPFL-1008H-2R2M | 2.20 | 20 | 1 | 40 | 0.08 | 1300 | 0.90±0.1 |
| ZPFL-1008H-3R3M | 3.30 | 20 | 1 | 30 | 0.10 | 1200 | 0.90±0.1 |
| ZPFL-1008H-4R7M | 4.70 | 20 | 1 | 25 | 0.11 | 1100 | 0.90±0.1 |

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| Part Number | Inductance (μH) | Tolerance (%) | Test Frequency (MHz) | S.R.F (MHz)/(Min.) | DCR(Ω) (±25%) | Rated Current Ir* (mA)/(Max.) | Thickness (mm) |
|-----------------|-----------------|---------------|----------------------|--------------------|---------------|-------------------------------|----------------|
| ZPFL-1008W-1R0M | 1.00 | 20 | 1 | 70 | 0.09 | 1500 | 1.10±0.1 |
| ZPFL-1008W-2R2M | 2.20 | 20 | 1 | 40 | 0.12 | 1000 | 1.10±0.1 |
| ZPFL-1008W-3R3M | 3.30 | 20 | 1 | 30 | 0.12 | 1000 | 1.10±0.1 |
| ZPFL-1008W-4R7M | 4.70 | 20 | 1 | 25 | 0.14 | 900 | 1.10±0.1 |
| ZPFL-1008W-100M | 10 | 20 | 1 | 15 | 0.30±30% | 800 | 1.10±0.1 |

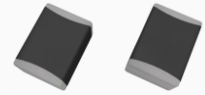
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Reliability Test

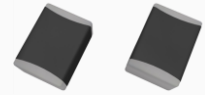
| No. | Item | Specification | Test Method |
|-----|------------------------------|--|--|
| 1 | Temperature Shock. | Appearance: No damage. Inductance: within $\pm 10\%$ of initial. | Temperature: $-40\pm 2^{\circ}\text{C}$ ~ $+85\pm 2^{\circ}\text{C}$ Kept for 30 minutes. Transition time : 5 minutes. 100 Cycles. |
| 2 | Humidity Resistance. | Appearance: No damage. Inductance: within $\pm 10\%$ of initial. | Temperature: $40\pm 2^{\circ}\text{C}$. Relative Humidity: 90%. Duration: 1000 +4/-0 hours. |
| 3 | High Temperature Resistance. | Appearance: No damage. Inductance: within $\pm 10\%$ of initial. | Temperature: $85\pm 2^{\circ}\text{C}$. Duration: 1000 +4/-0 hours. |
| 4 | Low Temperature Resistance. | Appearance: No damage. Inductance: within $\pm 10\%$ of initial. | Temperature: $-40\pm 2^{\circ}\text{C}$. Duration: 1000 +4/-0 hours. |
| 5 | Vibration test. | Appearance: No damage. Inductance: within $\pm 10\%$ of initial. | Oscillation Frequency: 10Hz to 55Hz to 10Hz in 60 seconds as a period. Total amplitude: 1.5mm. Testing Time: a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours). |
| 6 | Solderability Heat test. | Appearance: No damage. Inductance: within $\pm 10\%$ of initial. | Solder temperature: $260\pm 3^{\circ}\text{C}$. Duration: 5 sec. Allowed reflow time: 2 times. |
| 7 | Solderability test. | 90% or more of electrode area shall be coated by new solder. | Preheating: 160°C , 60sec. Solder temperature: $240\pm 2^{\circ}\text{C}$. Duration : 3 sec. |
| 8 | Flexure Strength. | No visible mechanical damage. | Flexure: 2mm. Pressurizing Speed: 0.5mm/sec. Keep time: 30 ± 1 sec. |
| 9 | Terminal Strength. | No visible mechanical damage. | Force: 2N for 0402 series Force: 5N for 0603 series Force: 10N for 0805 series above Keep time: 5 sec , X,Y directs. |
| 10 | Dropping. | No visible mechanical damage. Inductance: within $\pm 10\%$ of initial. | Drop component 10 times on a concrete floor from a height of 100cm. |

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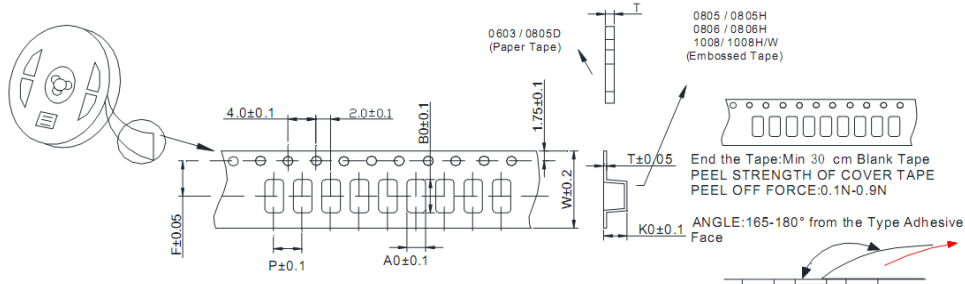
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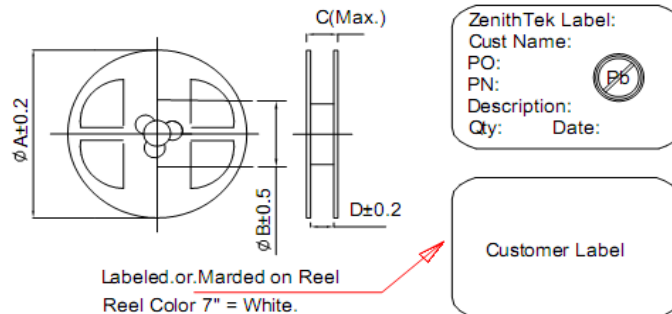
Package

Taping Dimension (mm)



| Size(mm) | W | P | A0 | B0 | K0 | T | F |
|------------|------|------|------|------|------|------|------|
| ZPFL-0603D | 8.00 | 4.00 | 1.00 | 1.80 | - | 0.80 | 3.50 |
| ZPFL-0603H | 8.00 | 4.00 | 1.00 | 1.80 | - | 1.10 | 3.50 |
| ZPFL-0805D | 8.00 | 4.00 | 1.60 | 2.30 | - | 0.80 | 3.50 |
| ZPFL-0805H | 8.00 | 4.00 | 1.55 | 2.30 | 1.45 | 0.30 | 3.50 |
| ZPFL-0805Y | 8.00 | 4.00 | 1.55 | 2.30 | 1.75 | 0.30 | 3.50 |
| ZPFL-0806H | 8.00 | 4.00 | 1.90 | 2.30 | 1.45 | 0.30 | 3.50 |
| ZPFL-1008H | 8.00 | 4.00 | 2.30 | 2.80 | 1.45 | 0.30 | 3.50 |
| ZPFL-1008W | 8.00 | 4.00 | 2.30 | 2.80 | 1.75 | 0.30 | 3.50 |

Reel Dimension (mm)



| Size(mm) | A | B | C | D | Reel/Size | Qty./Size |
|------------|-----|----|------|-----|-----------|-----------|
| ZPFL-0603D | 178 | 58 | 14.4 | 8.4 | 7" | 5000 Pcs |
| ZPFL-0603H | 178 | 58 | 14.4 | 8.4 | 7" | 4000 Pcs |
| ZPFL-0805D | 178 | 58 | 14.4 | 8.4 | 7" | 5000 Pcs |
| ZPFL-0805H | 178 | 58 | 14.4 | 8.4 | 7" | 3000 Pcs |
| ZPFL-0805Y | 178 | 58 | 14.4 | 8.4 | 7" | 3000 Pcs |
| ZPFL-0806H | 178 | 58 | 14.4 | 8.4 | 7" | 3000 Pcs |
| ZPFL-1008H | 178 | 58 | 14.4 | 8.4 | 7" | 3000 Pcs |
| ZPFL-1008W | 178 | 58 | 14.4 | 8.4 | 7" | 3000 Pcs |

Box Dimension (mm)

