

## Type CPF Series

### Key Features

- Thin film precision resistors with TC's of 15ppm, 25ppm and 50ppm and tolerances to 0.1%. Applications in measurement, telemetry and for sensing circuits.
- Wide range of case sizes from 0201 to 2512
- CPF chip resistors are suitable for all applications where close accuracy and stability are essential
- Terminal finish - electroplated 100% matte Sn



### Applications

- Communications
- Industrial Controls
- Instrumentation
- Medical

The CPF series is a high stability precision chip resistor range offering various power dissipations relating to a wide range of chip sizes. The CPF series offers TCR's down to 15ppm/°C and resistance tolerances to 0.1%. Standard values are within the IEC 63 E96 and E24 value grids. The CPF has accurate and uniform physical dimensions to facilitate placement.

### Characteristics - Electrical

|                                | 0201          |      |      |      | 0402          |     |      |      | 0402          |      |      |     |      |
|--------------------------------|---------------|------|------|------|---------------|-----|------|------|---------------|------|------|-----|------|
| Rated Power @ 70°C:            | 0.03125W      |      |      |      | 0.063W        |     |      |      | 0.063W        |      |      |     |      |
| Resistance Range (Ohms)        | Min:          | 49R9 | 49R9 | 49R9 | 49R9          | 10R | 10R  | 49R9 | 10R           | 1R0  | 49R9 | 10R | 1R0  |
|                                | Max:          | 5K0  | 33K  | 5K0  | 33K           | 70K | 255K | 205K | 70K           | 255K | 205K | 70K | 255K |
| Tolerance (%):                 | 0.5           |      | 1    |      | 0.1           |     | 0.5  |      | 1             |      |      |     |      |
| Code letter:                   | D             |      | F    |      | B             |     | D    |      | F             |      |      |     |      |
| Selection Series:              | E24 & E96     |      |      |      | E24 & E96     |     |      |      | E24 & E96     |      |      |     |      |
| Temp. Coefficient (ppm/°C):    | 25            | 50   | 25   | 50   | 15            | 25  | 50   | 15   | 25            | 50   | 15   | 25  | 50   |
| Code Letter:                   | E             | C    | E    | C    | D             | E   | C    | D    | E             | C    | D    | E   | C    |
| Limiting Element Voltage:      | 15V           |      |      |      | 25V           |     |      |      | 25V           |      |      |     |      |
| Max. Overload Voltage:         | 30V           |      |      |      | 50V           |     |      |      | 50V           |      |      |     |      |
| Operating Temp. Range:         | -55 to +155°C |      |      |      | -55 to +155°C |     |      |      | -55 to +155°C |      |      |     |      |
| Climatic Category (°C):        | 55/125/55     |      |      |      | 55/125/55     |     |      |      | 55/125/55     |      |      |     |      |
| Insulation Resistance Dry Min: | 1000MΩ        |      |      |      | 1000MΩ        |     |      |      | 1000MΩ        |      |      |     |      |
| Stability:                     | 0.5%          |      |      |      | 0.5%          |     |      |      | 0.5%          |      |      |     |      |

|                                | 0603          |      |     |      |     |      | 0805          |      |     |      |     |      |     |    |    |
|--------------------------------|---------------|------|-----|------|-----|------|---------------|------|-----|------|-----|------|-----|----|----|
| Rated Power @ 70°C:            | 0.063W        |      |     |      |     |      | 0.1W          |      |     |      |     |      |     |    |    |
| Resistance Range (Ohms)        | Min:          | 4R7  | 4R7 | 4R7  | 2R0 | 4R7  | 2R0           | 4R3  | 4R7 | 4R3  | 1R0 | 4R3  | 1R0 |    |    |
|                                | Max:          | 332K | 1M0 | 332K | 1M0 | 332K | 1M0           | 511K | 2M0 | 511K | 2M0 | 511K | 2M0 |    |    |
| Tolerance (%):                 | 0.1           |      | 0.5 |      | 1   |      | 0.1           |      | 0.5 |      | 1   |      |     |    |    |
| Code letter:                   | B             |      | D   |      | F   |      | B             |      | D   |      | F   |      |     |    |    |
| Selection Series:              | E24 & E96     |      |     |      |     |      | E24 & E96     |      |     |      |     |      |     |    |    |
| Temp. Coefficient (ppm/°C):    | 15            | 25   | 50  | 15   | 25  | 50   | 15            | 25   | 50  | 15   | 25  | 50   | 15  | 25 | 50 |
| Code Letter:                   | D             | E    | C   | D    | E   | C    | D             | E    | C   | D    | E   | C    | D   | E  | C  |
| Limiting Element Voltage:      | 50V           |      |     |      |     |      | 100V          |      |     |      |     |      |     |    |    |
| Max. Overload Voltage:         | 100V          |      |     |      |     |      | 200V          |      |     |      |     |      |     |    |    |
| Operating Temp. Range:         | -55 to +155°C |      |     |      |     |      | -55 to +155°C |      |     |      |     |      |     |    |    |
| Climatic Category (°C):        | 55/125/55     |      |     |      |     |      | 55/125/55     |      |     |      |     |      |     |    |    |
| Insulation Resistance Dry Min: | 1000MΩ        |      |     |      |     |      | 1000MΩ        |      |     |      |     |      |     |    |    |
| Stability:                     | 0.5%          |      |     |      |     |      | 0.5%          |      |     |      |     |      |     |    |    |

## Type CPF Series

|                                | 1206          |     |     |     |     |     | 1210          |     |     |     |     |     |     |    |    |
|--------------------------------|---------------|-----|-----|-----|-----|-----|---------------|-----|-----|-----|-----|-----|-----|----|----|
| Rated Power @ 70°C:            | 0.125W        |     |     |     |     |     | 0.2W          |     |     |     |     |     |     |    |    |
| Resistance Range (Ohms)        | Min:          | 4R7 | 4R7 | 4R7 | 1R0 | 4R7 | 1R0           | 4R7 | 4R7 | 4R7 | 1R0 | 4R7 | 1R0 |    |    |
|                                | Max:          | 1M0 | 2M5 | 1M0 | 2M5 | 1M0 | 2M5           | 1M0 | 2M5 | 1M0 | 2M5 | 1M0 | 2M5 |    |    |
| Tolerance (%):                 | 0.1           |     | 0.5 |     | 1   |     | 0.1           |     | 0.5 |     | 1   |     |     |    |    |
| Code Letter:                   | B             |     | D   |     | F   |     | B             |     | D   |     | F   |     |     |    |    |
| Selection Series:              | E24 & E96     |     |     |     |     |     | E24 & E96     |     |     |     |     |     |     |    |    |
| Temp. Coefficient (ppm/°C):    | 15            | 25  | 50  | 15  | 25  | 50  | 15            | 25  | 50  | 15  | 25  | 50  | 15  | 25 | 50 |
| Code Letter:                   | D             | E   | C   | D   | E   | C   | D             | E   | C   | D   | E   | C   | D   | E  | C  |
| Limiting Element Voltage:      | 150V          |     |     |     |     |     | 150V          |     |     |     |     |     |     |    |    |
| Max. Overload Voltage:         | 300V          |     |     |     |     |     | 300V          |     |     |     |     |     |     |    |    |
| Operating Temp. Range:         | -55 to +155°C |     |     |     |     |     | -55 to +155°C |     |     |     |     |     |     |    |    |
| Climatic Category (°C):        | 55/125/55     |     |     |     |     |     | 55/125/55     |     |     |     |     |     |     |    |    |
| Insulation Resistance Dry Min: | 1000MΩ        |     |     |     |     |     | 1000MΩ        |     |     |     |     |     |     |    |    |
| Stability:                     | 0.5%          |     |     |     |     |     | 0.5%          |     |     |     |     |     |     |    |    |

|                                | 2010          |     |     |     |     |     | 2512          |     |     |     |     |     |     |    |    |
|--------------------------------|---------------|-----|-----|-----|-----|-----|---------------|-----|-----|-----|-----|-----|-----|----|----|
| Rated Power @ 70°C:            | 0.25W         |     |     |     |     |     | 0.5W          |     |     |     |     |     |     |    |    |
| Resistance Range (Ohms)        | Min:          | 4R7 | 4R7 | 4R7 | 1R0 | 4R7 | 1R0           | 4R7 | 4R7 | 4R7 | 1R0 | 4R7 | 1R0 |    |    |
|                                | Max:          | 1M0 | 3M0 | 1M0 | 3M0 | 1M0 | 3M0           | 1M0 | 3M0 | 1M0 | 3M0 | 1M0 | 3M0 |    |    |
| Tolerance (%):                 | 0.1           |     | 0.5 |     | 1   |     | 0.1           |     | 0.5 |     | 1   |     |     |    |    |
| Code letter:                   | B             |     | D   |     | F   |     | B             |     | D   |     | F   |     |     |    |    |
| Selection Series:              | E24 & E96     |     |     |     |     |     | E24 & E96     |     |     |     |     |     |     |    |    |
| Temp. Coefficient (ppm/°C):    | 15            | 25  | 50  | 15  | 25  | 50  | 15            | 25  | 50  | 15  | 25  | 50  | 15  | 25 | 50 |
| Code Letter:                   | D             | E   | C   | D   | E   | C   | D             | E   | C   | D   | E   | C   | D   | E  | C  |
| Limiting Element Voltage:      | 150V          |     |     |     |     |     | 150V          |     |     |     |     |     |     |    |    |
| Max. Overload Voltage:         | 300V          |     |     |     |     |     | 300V          |     |     |     |     |     |     |    |    |
| Operating Temp. Range:         | -55 to +155°C |     |     |     |     |     | -55 to +155°C |     |     |     |     |     |     |    |    |
| Climatic Category (°C):        | 55/125/55     |     |     |     |     |     | 55/125/55     |     |     |     |     |     |     |    |    |
| Insulation Resistance Dry Min: | 1000MΩ        |     |     |     |     |     | 1000MΩ        |     |     |     |     |     |     |    |    |
| Stability:                     | 0.5%          |     |     |     |     |     | 0.5%          |     |     |     |     |     |     |    |    |

### Characteristics - Environmental

| Item   | Requirement   |                       | Test Method   |
|--|---|-----------------------|---|
|  | Tol. ≤ 0.05%  | Tol. > 0.05%          |   |
| Temperature Coefficient of Resistance (TCR): | AS per TCRs specified in value range table on page 1  |                       | +25/-55/+25/+125/+25°C  |
| Short Time Overload:                         | $\Delta R \pm 0.05\%$                                 | $\Delta R \pm 0.2\%$  | RCWV* 2.5 or max. overload voltage for 5 seconds                                  |
| Insulation Resistance:                       | $\Delta R \pm 0.2\%$ for high power rating<br>>1000MΩ |                       | Apply 100VDC for 1 minute   |
| Endurance:                                   | $\Delta R \pm 0.05\%$                                 | $\Delta R \pm 0.2\%$  | 70 ±2°C, max. working voltage for 1000hrs with 1.5hrs "ON" and 0.5 hrs "OFF"      |
| Damp Heat with Load:                         | $\Delta R \pm 0.05\%$                                 | $\Delta R \pm 0.3\%$  | 40 ±2°C, 90 - 95% R.H. max. working voltage hrs with 1.5hrs "ON" and 0.5hrs "OFF" |
| Bending Strength:                            | $\Delta R \pm 0.05\%$                                 | $\Delta R \pm 0.2\%$  | Bending amplitude 3mm for 10 seconds  |
| Solderability:                               | 95% min. coverage                                     |                       | 245 ±5°C for 3 seconds  |
| Resistance to Soldering Heat:                | $\Delta R \pm 0.05\%$                                 | $\Delta R \pm 0.2\%$  | 260 ±5°C for 10 seconds   |
| Dielectric Withstand Voltage:                | By Type   |                       | Max. overload voltage for 1 minute  |
| Thermal Shock:                               | $\Delta R \pm 0.05\%$                                 | $\Delta R \pm 0.25\%$ | -55°C to +150°C, 100 cycles   |
| Low Temperature Operation:                   | $\Delta R \pm 0.05\%$                                 | $\Delta R \pm 0.2\%$  | 1 hour, -65°C, followed by 45 minutes of RCWV                                     |
|  | $\Delta R \pm 0.5\%$ for high power rating            |                       |   |

Reference Standards: MIL-STD-202, JIS-C 5201-1

Storage Temperature: 25±3°C; Humidity < 80%RH

## Type CPF Series

### Marking Codes - Case Sizes 0805 to 2512

#### IEC 4 Digit Marking

|               |      |       |      |        |       |
|---------------|------|-------|------|--------|-------|
| Resistance:   | 100Ω | 2.2KΩ | 10KΩ | 49.9KΩ | 100KΩ |
| Marking Code: | 1000 | 2201  | 1002 | 4992   | 1003  |

### Case Sizes 0603

#### E24 3 Digit Marking - Example: 101=100Ω 102=1KΩ

|     |    |    |    |    |    |    |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|----|----|----|----|----|----|
| E24 | 10 | 11 | 12 | 13 | 15 | 16 | 18 | 20 | 22 | 24 | 27 | 30 |
|     | 33 | 36 | 39 | 43 | 47 | 51 | 56 | 62 | 68 | 75 | 82 | 91 |

#### E96 3 Digit Marking - Examples: 14C=13K7Ω, 13C=13K3Ω, 68B=4K99Ω, 68X=49.9Ω



#### 0603 E96 Marking Code Table

| Code       | E96             | Code            | E96             | Code            | E96             | Code            | E96             |                 |                  |                  |                  |
|------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| 01         | 100             | 25              | 178             | 49              | 316             | 73              | 562             |                 |                  |                  |                  |
| 02         | 102             | 26              | 182             | 50              | 324             | 74              | 576             |                 |                  |                  |                  |
| 03         | 105             | 27              | 187             | 51              | 332             | 75              | 590             |                 |                  |                  |                  |
| 04         | 107             | 28              | 191             | 52              | 340             | 76              | 604             |                 |                  |                  |                  |
| 05         | 110             | 29              | 196             | 53              | 348             | 77              | 619             |                 |                  |                  |                  |
| 06         | 113             | 30              | 200             | 54              | 357             | 78              | 634             |                 |                  |                  |                  |
| 07         | 115             | 31              | 205             | 55              | 365             | 79              | 649             |                 |                  |                  |                  |
| 08         | 118             | 32              | 210             | 56              | 374             | 80              | 665             |                 |                  |                  |                  |
| 09         | 121             | 33              | 215             | 57              | 383             | 81              | 681             |                 |                  |                  |                  |
| 10         | 124             | 34              | 221             | 58              | 392             | 82              | 698             |                 |                  |                  |                  |
| 11         | 127             | 35              | 226             | 59              | 402             | 83              | 715             |                 |                  |                  |                  |
| 12         | 130             | 36              | 232             | 60              | 412             | 84              | 732             |                 |                  |                  |                  |
| 13         | 133             | 37              | 237             | 61              | 422             | 85              | 750             |                 |                  |                  |                  |
| 14         | 137             | 38              | 243             | 62              | 432             | 86              | 768             |                 |                  |                  |                  |
| 15         | 140             | 39              | 249             | 63              | 442             | 87              | 787             |                 |                  |                  |                  |
| 16         | 143             | 40              | 255             | 64              | 453             | 88              | 806             |                 |                  |                  |                  |
| 17         | 147             | 41              | 261             | 65              | 464             | 89              | 825             |                 |                  |                  |                  |
| 18         | 150             | 42              | 267             | 66              | 475             | 90              | 845             |                 |                  |                  |                  |
| 19         | 154             | 43              | 274             | 67              | 487             | 91              | 866             |                 |                  |                  |                  |
| 20         | 158             | 44              | 280             | 68              | 499             | 92              | 887             |                 |                  |                  |                  |
| 21         | 162             | 45              | 287             | 69              | 511             | 93              | 909             |                 |                  |                  |                  |
| 22         | 165             | 46              | 294             | 70              | 523             | 94              | 931             |                 |                  |                  |                  |
| 23         | 169             | 47              | 301             | 71              | 536             | 95              | 953             |                 |                  |                  |                  |
| 24         | 174             | 48              | 309             | 72              | 549             | 96              | 976             |                 |                  |                  |                  |
| Code       | A               | B               | C               | D               | E               | F               | G               | H               | X                | Y                | Z                |
| Multiplier | 10 <sup>0</sup> | 10 <sup>1</sup> | 10 <sup>2</sup> | 10 <sup>3</sup> | 10 <sup>4</sup> | 10 <sup>5</sup> | 10 <sup>6</sup> | 10 <sup>7</sup> | 10 <sup>-1</sup> | 10 <sup>-2</sup> | 10 <sup>-3</sup> |

## Type CPF Series

### Power Derating Curve



For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with this curve.

### Dimensions



- |                          |                            |                          |
|--------------------------|----------------------------|--------------------------|
| 1. Alumina Substrate     | 4. Edge Electrode (NiCr)   | 7. Resistor Layer (NiCr) |
| 2. Bottom Electrode (Ag) | 5. Barrier Layer (Ni)      | 8. Overcoat (Epoxy)      |
| 3. Top Electrode (Ag-Pd) | 6. External Electrode (Sn) | 9. Marking               |

| Part Number | L          | W          | H          | a          | b          | Weight (g)<br>1000 pieces |
|-------------|------------|------------|------------|------------|------------|---------------------------|
| CPF0201     | 0.58 ±0.05 | 0.29 ±0.05 | 0.23 ±0.05 | 0.12 ±0.05 | 0.15 ±0.05 | 0.14                      |
| CPF0402     | 1.00 ±0.05 | 0.50 ±0.05 | 0.30 ±0.05 | 0.20 ±0.10 | 0.20 ±0.10 | 0.54                      |
| CPF0603     | 1.55 ±0.10 | 0.80 ±0.10 | 0.45 ±0.10 | 0.30 ±0.20 | 0.30 ±0.20 | 1.83                      |
| CPF0805     | 2.00 ±0.15 | 1.25 ±0.15 | 0.55 ±0.10 | 0.30 ±0.20 | 0.40 ±0.25 | 4.71                      |
| CPF1206     | 3.05 ±0.15 | 1.55 ±0.15 | 0.55 ±0.10 | 0.42 ±0.20 | 0.35 ±0.25 | 9.02                      |
| CPF1210     | 3.10 ±0.15 | 2.40 ±0.15 | 0.55 ±0.10 | 0.40 ±0.20 | 0.55 ±0.25 | 10.00                     |
| CPF2010     | 4.90 ±0.15 | 2.40 ±0.15 | 0.55 ±0.10 | 0.60 ±0.30 | 0.50 ±0.25 | 23.61                     |
| CPF2512     | 6.30 ±0.15 | 3.10 ±0.15 | 0.55 ±0.10 | 0.60 ±0.30 | 0.50 ±0.25 | 38.08                     |

### Recommend Land Pattern



| Type    | A    | B    | C         |
|---------|------|------|-----------|
| CPF0201 | 0.25 | 0.3  | 0.40 ±0.2 |
| CPF0402 | 0.5  | 0.5  | 0.60 ±0.2 |
| CPF0603 | 0.8  | 1.0  | 0.90 ±0.2 |
| CPF0805 | 1.0  | 1.0  | 1.35 ±0.2 |
| CPF1206 | 2.0  | 1.15 | 1.70 ±0.2 |
| CPF1210 | 2.0  | 1.15 | 2.50 ±0.2 |
| CPF2010 | 3.6  | 1.4  | 2.50 ±0.2 |
| CPF2512 | 4.9  | 1.6  | 3.10 ±0.2 |

## Type CPF Series

### Packaging Quantity & Reel Specifications



| Type    | øA         | øB        | øC        | W         | T         | Paper Tape (EA) | Embossed Plastic Tape (EA) |
|---------|------------|-----------|-----------|-----------|-----------|-----------------|----------------------------|
| CPF0201 | 178.0 ±1.0 | 60.0 +1.0 | 13.5 ±0.7 | 9.5 ±1.0  | 11.5 ±1.0 | 1000 / 5000     | -                          |
| CPF0402 | 178.0 ±1.0 | 60.0 +1.0 | 13.5 ±0.7 | 9.5 ±1.0  | 11.5 ±1.0 | 1000 / 5000     | -                          |
| CPF0603 | 178.0 ±1.0 | 60.0 +1.0 | 13.5 ±0.7 | 9.5 ±1.0  | 11.5 ±1.0 | 1000 / 5000     | -                          |
| CPF0805 | 178.0 ±1.0 | 60.0 +1.0 | 13.5 ±0.7 | 9.5 ±1.0  | 11.5 ±1.0 | 1000 / 5000     | -                          |
| CPF1206 | 178.0 ±1.0 | 60.0 +1.0 | 13.5 ±0.7 | 9.5 ±1.0  | 11.5 ±1.0 | 1000 / 5000     | -                          |
| CPF1210 | 178.0 ±1.0 | 60.0 +1.0 | 13.5 ±0.7 | 9.5 ±1.0  | 11.5 ±1.0 | 1000 / 5000     | -                          |
| CPF2010 | 178.0 ±1.0 | 60.0 +1.0 | 13.5 ±0.7 | 13.5 ±1.0 | 15.5 ±1.0 | -               | 4000                       |
| CPF2512 | 178.0 ±1.0 | 60.0 +1.0 | 13.5 ±0.7 | 13.5 ±1.0 | 15.5 ±1.0 | -               | 4000                       |

### Paper Tape Specification



| Type    | A          | B          | W          | E          | F         | P <sub>0</sub> | P <sub>1</sub> | P <sub>2</sub> | øD <sub>0</sub> | T          |
|---------|------------|------------|------------|------------|-----------|----------------|----------------|----------------|-----------------|------------|
| CPF0201 | 0.40 ±0.05 | 0.70 ±0.05 | 8.00 ±0.10 | 1.75 ±0.05 | 3.5 ±0.05 | 4.00 ±0.10     | 2.00 ±0.05     | 2.00 ±0.05     | 1.55 ±0.03      | 0.42 ±0.02 |
| CPF0402 | 0.70 ±0.05 | 1.16 ±0.05 | 8.00 ±0.10 | 1.75 ±0.05 | 3.5 ±0.05 | 4.00 ±0.10     | 2.00 ±0.05     | 2.00 ±0.05     | 1.55 ±0.05      | 0.40 ±0.03 |
| CPF0603 | 1.10 ±0.05 | 1.90 ±0.05 | 8.00 ±0.10 | 1.75 ±0.05 | 3.5 ±0.05 | 4.00 ±0.10     | 4.00 ±0.10     | 2.00 ±0.05     | 1.55 ±0.05      | 0.60 ±0.03 |
| CPF0805 | 1.60 ±0.05 | 2.37 ±0.05 | 8.00 ±0.10 | 1.75 ±0.05 | 3.5 ±0.05 | 4.00 ±0.10     | 4.00 ±0.10     | 2.00 ±0.05     | 1.55 ±0.05      | 0.75 ±0.05 |
| CPF1206 | 2.00 ±0.05 | 3.55 ±0.05 | 8.00 ±0.10 | 1.75 ±0.05 | 3.5 ±0.05 | 4.00 ±0.10     | 4.00 ±0.10     | 2.00 ±0.05     | 1.55 ±0.05      | 0.75 ±0.05 |
| CPF1210 | 2.75 ±0.05 | 3.40 ±0.05 | 8.00 ±0.10 | 1.75 ±0.05 | 3.5 ±0.05 | 4.00 ±0.05     | 4.00 ±0.10     | 2.00 ±0.05     | 1.60 ±0.10      | 0.75 ±0.05 |

## Type CPF Series

### Embossed Plastic Tape Specifications



| Type    | A          | B          | W          | E          | F         | P <sub>0</sub> | P <sub>1</sub> | P <sub>2</sub> | øD <sub>0</sub> | T          |
|---------|------------|------------|------------|------------|-----------|----------------|----------------|----------------|-----------------|------------|
| CPF2010 | 2.85 ±0.10 | 5.45 ±0.10 | 12.0 ±0.10 | 1.75 ±0.10 | 5.5 ±0.05 | 4.00 ±0.05     | 4.00 ±0.10     | 2.00 ±0.05     | 1.50 +0.10      | 1.00 ±0.20 |
| CPF2512 | 3.40 ±0.10 | 6.65 ±0.10 | 12.0 ±0.10 | 1.75 ±0.10 | 5.5 ±0.05 | 4.00 ±0.05     | 4.00 ±0.10     | 2.00 ±0.05     | 1.50 +0.10      | 1.00 ±0.20 |

### How to Order

| CPF                                | 0603   | B                                   | 100R  | E                                   | 1                              |
|------------------------------------|--|-------------------------------------|---|-------------------------------------|--------------------------------|
| Common Part                        | Package Size                                     | Tolerance                           | Value   | TCR                                 | Packaging                      |
| CPF - Chip precision film resistor | 0201 1206<br>0402 1210<br>0603 2010<br>0805 2512 | B - ± 0.1%<br>D - ±0.5%<br>F - ± 1% | 100R (100 Ohms)<br>1K0 (1000 Ohms)<br>100K (100,000 Ohms) | D - 15ppm<br>E - 25ppm<br>C - 50ppm | 1 - 1K REEL<br>Blank - 5K REEL |

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Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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