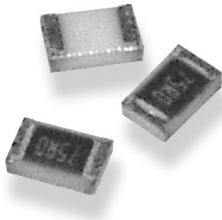


## Type CPF Series

### Type CPF Series



Precision metal terminations are screen printed onto a ceramic base and fired. The resistive element is sputtered and fired and the passivation layer added. The pre-scribed tile is broken into strips, the end plating is fired on and the strips broken into individual components. Final termination is made by electroplating.

### Key Features

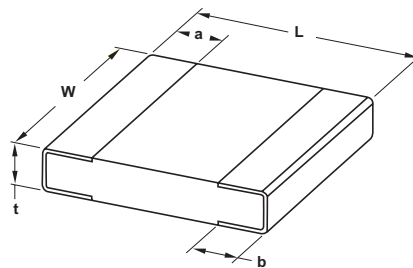
- Thin film precision resistors with TC's of 15ppm, 25ppm and 50ppm and tolerances to 0.1%. Applications in measurement, telemetry and for sensing circuits.
- Case sizes 0402, 0603, 0805, 1206, 2010 and 2512
- CPF chip resistors are suitable for all applications where close accuracy and stability are essential

### Characteristics - Electrical

	0402			0603			0805						
Rated Power @ 70 °C (W)	0.063			0.063			0.1						
Resistance Range (Ohms) Min	10R			4R7		2R0	4R7			1R0			
Max	200K			800K		4R6	2M0		4R6				
Tolerance (%)	0.1	0.5	1	0.1	0.5	1	0.5	1	0.1	0.5	1	0.5	1
Code letter	B	D	F	B	D	F	D	F	B	D	F	D	F
Selection Series	E24 + E96			E24 + E96			E24 + E96						
Temperature Coefficient (ppm/°C)	15ppm	25ppm	50ppm	15ppm	25ppm	50ppm	50ppm	15ppm	25ppm	50ppm	50ppm		
Code Letter	D	E	C	D	E	C	C	D	E	C	C		
Limiting Element Voltage (V)	25			60			100						
Maximum Overload Voltage (V)	50			120			200						
Operating Temp. Range (°C)	-55 to +125			-55 to +125			-55 to +125						
Climatic Category (°C)	55/125/55			55/125/55			55/125/55						
Insulation Resistance Dry Min (Mohms)	10000			10000			10000						
Stability (%)	0.5			0.5			0.5						

	1206				2010				2512			
Rated Power @ 70 °C (W)	0.125				0.25				0.5			
Resistance Range (Ohms) Min	4R7		1R0		4R7		1R0		4R7		1R0	
Max	2M0		4R6		2M0		4R6		2M0		4R6	
Tolerance (%)	0.1	0.5	1	0.5	0.1	0.5	1	0.5	0.1	0.5	1	0.5
Code letter	B	C	F	C	B	C	F	C	B	C	F	C
Selection Series	E24 + E96				E24 + E96				E24 + E96			
Temperature Coefficient (ppm/°C)	15ppm	25ppm	50ppm	50ppm	15ppm	25ppm	50ppm	50ppm	15ppm	25ppm	50ppm	50ppm
Code Letter	D	E	C	C	D	E	C	C	D	E	C	C
Limiting Element Voltage (V)	150				150				150			
Maximum Overload Voltage (V)	300				300				300			
Operating Temp. Range (°C)	-55 to +125				-55 to +125				-55 to +125			
Climatic Category (°C)	55/125/55				55/125/55				55/125/55			
Insulation Resistance Dry Min (Mohms)	10000				10000				10000			
Stability (%)	0.5				0.5				0.5			

### Dimensions



Style	L	W	t	a	b
0603	1.6 ± 0.1	0.8 ± 0.1	0.45 ± 0.1	0.25 ± 0.1	0.2 ± 0.1
0805	2.0 ± 0.2	1.25 ± 0.2	0.5 ± 0.1	0.4 ± 0.2	0.3 ± 0.2
1206	3.1 ± 0.2	1.55 ± 0.2	0.55 ± 0.1	0.45 ± 0.2	0.3 ± 0.2

## Type CPF Series

### Marking Codes - Case Sizes 0805 to 2512

#### IEC 4 Digit Marking

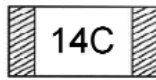
Resistance	100Ω	2.2KΩ	10KΩ	49.9KΩ	100KΩ
Marking Code	1000	2201	1002	4992	1003

### 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

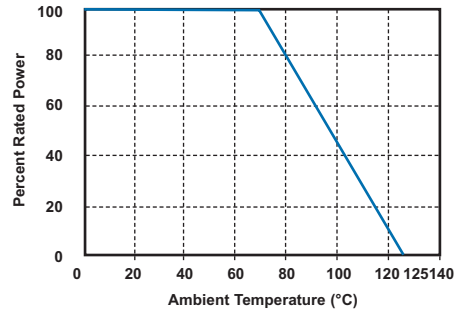


#### 0603 E96 Marking Code Table

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

### Derating Curve



### Marking

E24 series resistors are marked with a three digit code.  
 E96 series resistors are marked with a four digit code.  
 0603 E96 series are unmarked.

### Mounting

The resistors are suitable for processing on automatic insertion equipment.

### Performance Characteristics

The evaluation of the performance characteristics is carried out with reference to IECQ specifications QC 400 000 and QC 400 100.

TEST REF	Long Term Tests $\pm(0.5\% + 0.05 \text{ ohm})$
4.23	Climatic sequence
4.24	Damp heat, steady state
4.25.1	Endurance at 70 °C
4.25.3	Endurance at 125 °C
TEST REF	Short Term Tests $\pm(0.5\% + 0.05 \text{ ohm})$
4.13	Overload
4.32	Adhesion
4.33	Bond strength of end face plating
4.19	Rapid change of temperature
4.18	Resistance to soldering heat

### Storage

Unopened reels should be stored within a temperature range of +5 °C to +25 °C, separated from any dust, chemicals and solvent based materials. Non-adherence to this procedure could affect the solderability of this product.

### How to Order

CPF	0603	B	100R	E
Common Part	Package Size	Tolerance	Value	TCR
CPF - Chip Precision Film Resistor	0603 0805 1206	B - 0.1% D - 0.5%	100 ohms (100 ohms) 100R 1 K ohm (1000 ohms) 1K0 100 K ohm (100000 ohms) 100K	D - 15ppm E - 25ppm C - 50ppm