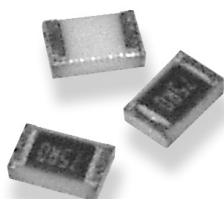


Type CPF Series

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

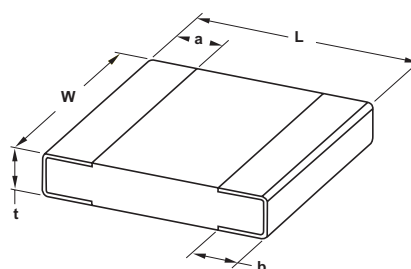
- Thin film precision resistors with TC's of 15ppm, 25ppm and 50ppm and tolerances to 0.1%. Applications in measurement, telemetry and for sensing circuits.
- Case sizes 0402, 0603, 0805, 1206, 2010 and 2512
- CPF chip resistors are suitable for all applications where close accuracy and stability are 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
Code letter	B	D	F	B	D	F	D	F	B	D	F	D
Selection Series	E24 + E96			E24 + E96				E24 + E96				
Temperature Coefficient (ppm/°C)	15ppm	25ppm	50ppm	15ppm	25ppm	50ppm	50ppm	15ppm	25ppm	50ppm	50ppm	50ppm
Code Letter	D	E	C	D	E	C	C	D	E	C	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

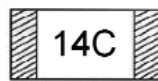
Resistance	100Ω	2.2KΩ	10KΩ	49.9KΩ	100KΩ
Marking Code	1000	2201	1002	4992	1003

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

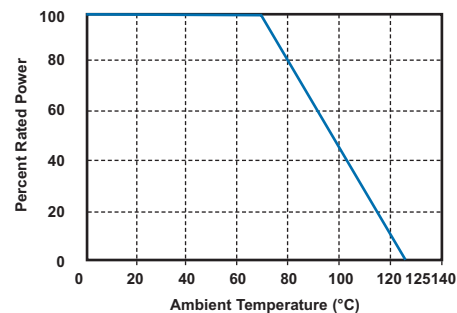


0603 E96 Marking Code Table

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 ⁰	10 ¹	10 ²	10 ³	10 ⁴	10 ⁵	10 ⁶	10 ⁷	10 ⁻¹	10 ⁻²	10 ⁻³

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