Precision Thin Film Chip Resistors

PFC Series



Features:

- High stability tantalum nitride film
- Available in 0402, 0603, 0805 and 1206
- TCR to ±10ppm/°C
- Sulfur resistant to ASTM B809-95
- Both Pb-free and SnPb finish available
- AEC-Q200 qualified

All Pb-free parts comply with EU Directive 2011/65/EU amended by (EU) 2015/863

Electrical Data

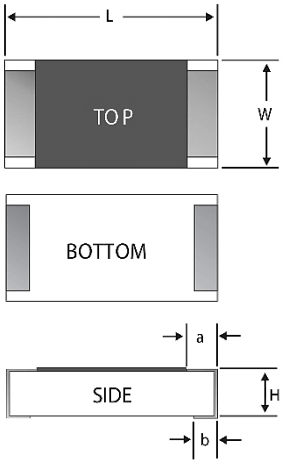
		PFC0402	PFC0603	PFC0805	PFC1206
Power rating (@70°C)	mW	50	100	250	333
Rated operating voltage (not to exceed √(PxR))	V	75		100	200
Resistance range	ohms	40R to 35K	40R to 100K	10R to 267K	10R to 1M0
Tolerance	%	0.05, 0.1, 0.25, 0.5, 1, 2, 5			
TCR	ppm/°C	10, 15, 25, 50, 100			
ESD withstand [1] (HBM)	kV	0.5	1	1.5	2
Noise	dB	<-25			
Operating temperature	°C	-65 to 150			
Values		E24 or E192			

Note 1: This product is not considered ESD-sensitive for packaging and handling purposes.

Physical Data

Dimensions in inches / (mm) and weight in mg

Size	L	W	H	a	b	Wt. nom.
0402	0.04 ±0.003 (1.02 ±0.08)	0.021 ±0.005 (0.53 ±0.13)	0.012 ±0.003 (0.3 ±0.08)	0.01 ±0.006 (0.25 ±0.15)		0.55
0603	0.063 ±0.004 (1.6 ±0.1)	0.031 ±0.004 (0.79 ±0.1)	0.02 ±0.006 (0.51 ±0.15)	0.012 ±0.008 (0.3 ±0.2)	0.015 ±0.009 (0.38 ±0.23)	1.97
0805	0.081 ±0.006 (2.06 ±0.15)	0.05 ±0.007 (1.27 ±0.18)		0.015 ±0.009 (0.38 ±0.23)	0.016 ±0.008 (0.41 ±0.2)	4.48
1206	0.126 ±0.008 (3.2 ±0.2)	0.063 ±0.005 (1.6 ±0.13)	0.024 ±0.006 (0.61 ±0.15)	0.025 ±0.017 (0.64 ±0.43)		8.93



Note: For PCB mounting pad recommendations see:
https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Application-Note/TN006-Recommended-Layouts-for-SMD-Resistors.pdf

Construction

Conductors and tantalum nitride resistive element are applied to an alumina substrate. The product is laser trimmed to value, and a protective epoxy coat is applied. The product is then metallized and plated to provide a wrap-around solderable termination with a 100% matte tin or an SnPb finish on a nickel barrier layer. It is 100% tested then packed in carrier tape. Pb-free parts use paper carrier tape, whilst SnPb parts use plastic carrier tape.

Marking

0402 size and values which are neither E24 nor E96 are not marked. 0603 is marked with three characters and 0805 and 1206 with four characters. See https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Application-Note/TN004-Methods-for-Marking-Values-on-Resistors.pdf.

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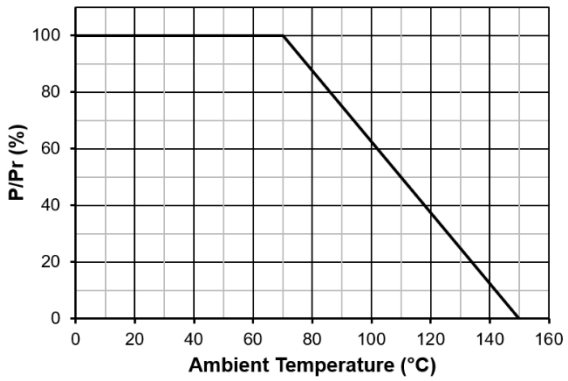
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Performance Data

Test per MIL-PRF-55342	±ΔR/R%	
	Typical	Maximum
Thermal shock	0.02	0.1
Low temperature operation	0.01	0.05
Short-time overload	0.01	0.05
High temperature exposure	0.03	0.1
Effects of solder	0.01	0.1
Moisture resistance	0.03	0.1
Life	0.03	0.1
Sulfuration test: ASTM B809 (modified) 105°C, dry, 1000 hours	0.02	0.05

Temperature Derating



Ordering Procedure

Global Part Number Example: PFC0402LFD1002BT10 (0402, 25ppm/°C at 10 kilohms ±0.1%, Pb-free)

P	F	C	0	4	0	2	L	F	D	1	0	0	2	B	T	1	0
1			2				3		4	5				6	7		

1 Series	2 Size	3 Termination [1]	4 TCR (ppm/°C)	5 Value	6 Tolerance	7 Packing		
PFC	0402	LF = Pb-free (100%Sn)	T = ±10	3 digits + multiplier	A = ±0.05%	Pb-free (LF) product		
	0603	PB = SnPb (60/40)	Y = ±15	R = ohms for values	B = ±0.1%	T10	0402	10,000/reel
	0805	(0603, 0805, 1206 only)	D = ±25	<100 ohms	C = ±0.25%	T5	0603, 0805, 1206	5000/reel
	1206		C = ±50		D = ±0.5%	T1	All sizes [2]	1000/reel
			Z = ±100		F = ±1%	SnPb (PB) product		
					G = ±2%	T1	0603, 0805, 1206	1000/reel
					J = ±5%			

Note 1: Terminations are anti-sulfur as standard.
Note 2: Non-standard packing option – consult factory for availability.

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Legacy Part Numbers

This product has two legacy part number formats. These are still available for ordering, but for new designs use of the Global Part Number is recommended.

European Legacy Part Number: W1206R-01-1K0BI (1206, 100ppm/°C, 1 kilohm ±0.1%, Pb-free)

W	1	2	0	6	R		-	0	1	-	1	K	0		B	I	
1		2			3		4				5				6	7	

1 Series	2 Size	3 Option [1]		4 TCR (ppm/°C)	5 Value	6 Tolerance	7 Termination & Packing		
W = PFC	0402	R	Anti-sulfur	-12 = ±10	E24/E96 = 3/4 characters R = ohms K = kilohms M = megohms	A = ±0.05%	I	All sizes	Pb-free, Standard pack
	0603	AS		-11 = ±15		B = ±0.1%	PB	0603, 0805, 1206	SnPb finish, 1000/reel
	0805			Blank = ±25		C = ±0.25%	Standard Pack		
	1206			-02 = ±50		D = ±0.5%	0402		10,000/reel
				-01 = ±100		F = ±1%	0603, 0805, 1206		5000/reel
						G = ±2%			
						J = ±5%			

Note 1: Terminations are anti-sulfur as standard.

USA Legacy Part Number: PFC-W1206LF-01-1001-B (1206, 100ppm/°C, 1 kilohm ±0.1%, Pb-free)

P	F	C	-	W	1	2	0	6	L	F			-	0	1	-	1	0	0	1	-	B
1				2					3					4			5					6

1 Series	2 Model	3 Termination [1]			4 TCR (ppm/°C)	5 Value	6 Tolerance	Standard Packing		
PFC	W0402	LF	All sizes	Anti-sulfur & Pb-free (100%Sn)	12 = ±10	3 digits + multiplier R = ohms for values <100 ohms	A = ±0.05%	0402	10,000/reel	
	W0603	ASLF			11 = ±15		B = ±0.1%	0603, 0805, 1206	Pb-free	5000/reel
	W0805	R	0603, 0805, 1206	Anti-sulfur & SnPb (60/40)	03 = ±25		C = ±0.25%		SnPb	1000/reel
	W1206	AS			02 = ±50		D = ±0.5%			
					01 = ±100		F = ±1%			
							G = ±2%			
							J = ±5%			

Note 1: Terminations are anti-sulfur as standard.

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