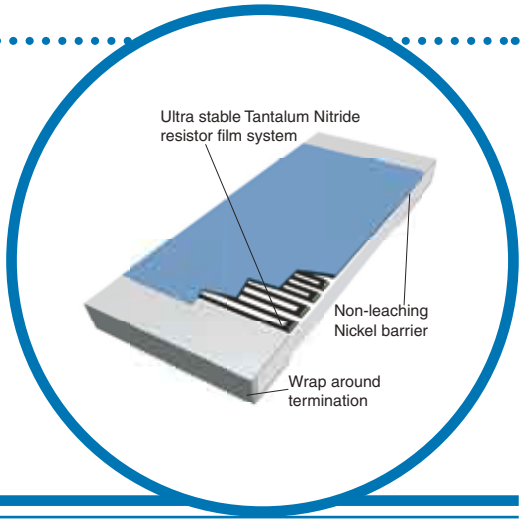
Precision Thin Film Chip Resistors

PFC Series

- **Standard 60/40 Sn/Pb and Pb-free (RoHS compliant) terminations available**
- **Available in 0402, 0603, 0805 and 1206**
- **Tested for COTS applications**
- **Absolute TCR to ±10ppm/°C**
- **MIL screening available**
- **Superior anti-sulfuration characteristics**



The IRC TaNFilm® PFC chip resistor series provides the high precision and ultra stable performance of our Tantalum Nitride resistive film system in 0402, 0603, 0805 and 1206 sizes. The unique characteristics of the passivated Tantalum Nitride film ensure long term life stability and reliability in most environments. Qualified for resistance to sulfur bearing gases, the PFC series is an excellent solution for automotive and heavy equipment applications where precision, exceptional reliability with anti-sulfuration characteristics is imperative.

Using the same manufacturing line as the PFC Military Series, IRC's precision chips maintain the same supe rior environmental performance. Specially selected materials and processes insure initial precision is main tained in the harshest surface mount soldering environment. Wrap-around terminations with leach-resistant nickel barriers insure high integrity solder connections.

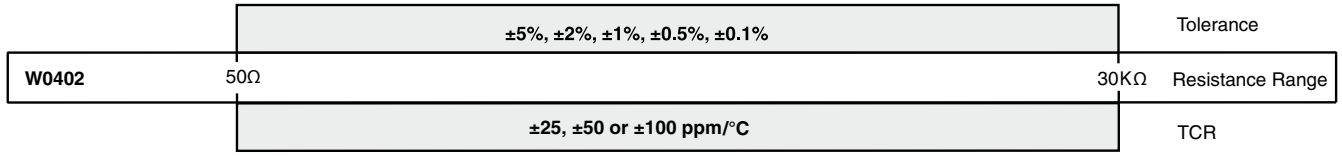
Electrical Data

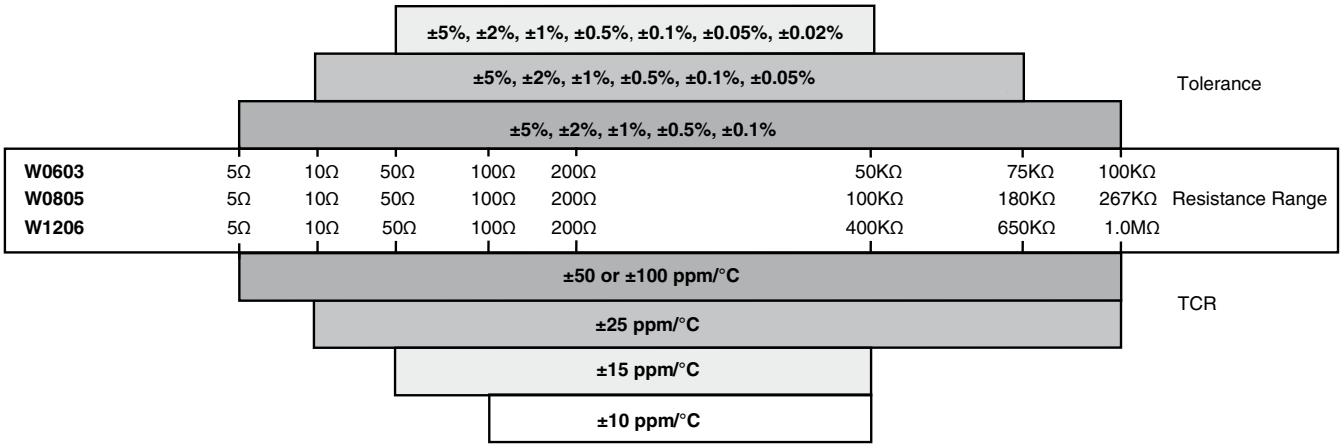
Model	Power Rating (70°C)	Max Voltage Rating ($\leq \sqrt{P \times R}$)	Temperature Range	ESD Sensitivity	Noise	Termination	Substrate
W0402	50mW	75V	-65°C to +150°C	2KV to 4KV (HBM)	<-25dB	100% matte tin (RoHS compliant) plated over nickel barrier	99.5% Alumina
W0603	100mW	75V					
W0805	250mW	100V					
W1206	333mW	200V					

Environmental Data

Environmental Test	Test Method	Performance	
		Typical	Maximum
Sulfuration Test	ASTM B-809 (Modified) 105°C Dry, 1000 Hours	±0.02%	±0.05%
Thermal Shock	MIL-PRF-55342	±0.02%	±0.10%
Low Temperature Operation	MIL-PRF-55342	±0.01%	±0.05%
Short Time Overload	MIL-PRF-55342	±0.01%	±0.05%
High Temperature Exposure	MIL-PRF-55342	±0.03%	±0.10%
Effects of Solder	MIL-PRF-55342	±0.01%	±0.10%
Moisture Resistance	MIL-PRF-55342	±0.03%	±0.10%
Life	MIL-PRF-55342	±0.03%	±0.10%

Manufacturing Capabilities Data

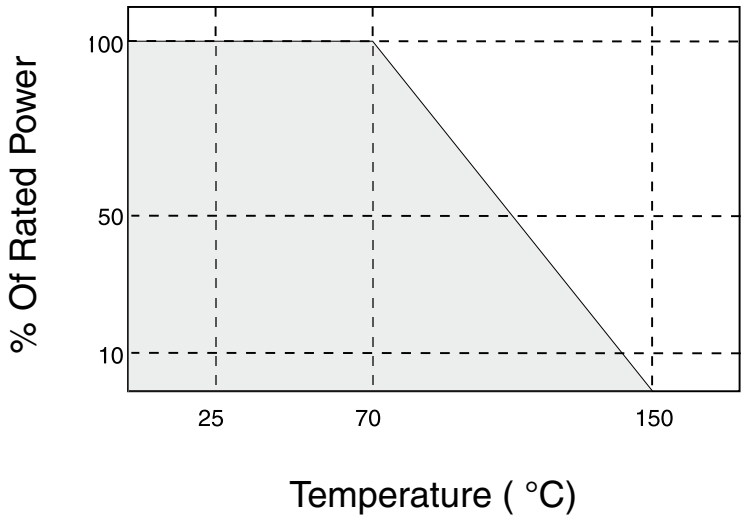




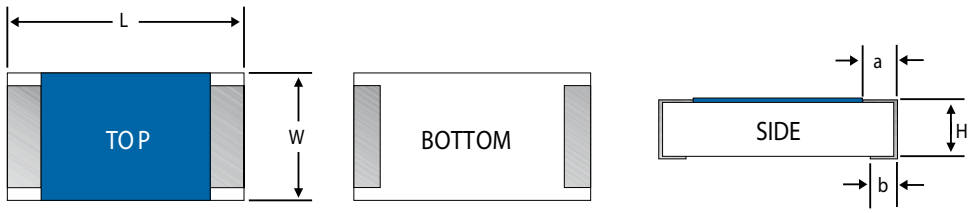
Environmental Data

Environmental Test MIL-PRF-55342	Maximum ΔR per Characteristic E	Performance	
		Typical	Maximum
Thermal Shock	±0.10%	±0.02%	±0.10%
Low Temperature Operation	±0.10%	±0.01%	±0.05%
Short Time Overload	±0.10%	±0.01%	±0.05%
High Temperature Exposure	±0.10%	±0.03%	±0.10%
Effects of Solder	±0.20%	±0.01%	±0.10%
Moisture Resistance	±0.20%	±0.03%	±0.10%
Life	±0.50%	±0.03%	±0.10%

Power Derating Curve



Physical Data



Model	L	W	H	a	b
W0402	0.040" ±0.002	0.021" ±0.002	0.012" ±0.003	0.008" ±0.002	0.010" ±0.002
W0603	0.063" ±0.004	0.031" ±0.004	0.020" ±0.004	0.012" ±0.005	0.015" ±0.005
W0805	0.081" ±0.005	0.050" ±0.005	0.020" ±0.006	0.015" ±0.008	0.016" ±0.008
W1206	0.126" ±0.006	0.063" ±0.005	0.024" ±0.004	0.025" ±0.010	0.025" ±0.010

MIL Screened Precision Chip Resistors

IRC's PFC chip resistors are available with MIL screening. These chips are manufactured on the same production line as our Mil-qualified chip resistors and screened in accordance with MIL-PRF-55342.

These chips are identified with IRC's ordering information and not with MIL marking.

Commercial Ordering Data

Prefix PFC - W1206 R - 01 - 1001 - B

Model
W0402; 0603; W0805; W1206

Termination
R = 60/40 Sn/Pb plated solder
LF = 100% tin plated (Pb-free)

TCR Code
01 = ±100ppm/°C; 02 = ±50ppm/°C; 03 = ±25ppm/°C
11 = ±15ppm/°C; 12 = ±10ppm/°C

Resistance Code
4-Digit resistance code.
Ex: 10R0 = 10Ω; 1000 = 100Ω
1001 = 1000Ω; 1002 = 10KΩ

Tolerance Code
J = ±5%; G = ±2%; F = ±1%; D = ±0.5%
B = ±0.1%; A = ±0.05%; Q = ±0.02%

For additional information or to discuss your specific requirements, please contact our Applications Team using the contact details below.

Mil Screened Ordering Data*

Prefix PFC - W1206 R - 04 - 1001 - B

Model
W0402; W0603; W0805; W1206

Termination
R = 60/40 Sn/Pb plated solder

MIL-Screened TCR Code
04 = ±300ppm/°C; 05 = ±100ppm/°C;
06 = ±50ppm/°C; 07 = ±25ppm/°C
14 = ±20ppm/°C; 15 = ±15ppm/°C
16 = ±10ppm/°C

Resistance Code
4-Digit resistance code.
Ex: 10R0 = 10Ω; 1000 = 100Ω
1001 = 1000Ω; 1002 = 10KΩ

Tolerance Code
J = ±5%; G = ±2%; F = ±1%; D = ±0.5%
B = ±0.1%; A = ±0.05%; Q = ±0.02%

*Please refer to our MIL-Chip Series datasheet to order parts qualified to MIL-PRF-55342.

Anti-Sulfuriation Ordering Data

Prefix PFC - W1206 ASLF - 01 - 1001 - B

Model
W0402; 0603; W0805; W1206

Termination
ASLF = Anti-sulfuriation chip resistor with 100% matte tin finish (Pb-free) terminations

TCR Code
01 = ±100ppm/°C; 02 = ±50ppm/°C; 03 = ±25ppm/°C
11 = ±15ppm/°C; 12 = ±10ppm/°C

Resistance Code
4-Digit resistance code.
Ex: 10R0 = 10Ω; 1000 = 100Ω
1001 = 1000Ω; 1002 = 10KΩ

Tolerance Code
J = ±5%; G = ±2%; F = ±1%; D = ±0.5%
B = ±0.1%; A = ±0.05%

For additional information or to discuss your specific requirements, please contact our Applications Team using the contact details below.

General Note
TT electronics reserves the right to make changes in product specification without notice or liability.
All information is subject to TT electronics' own data and is considered accurate at time of going to print.