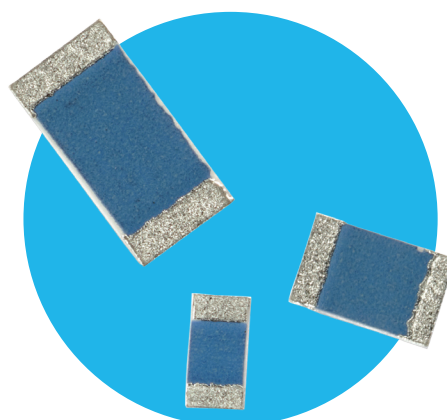


Water Insoluble Nitride Thin Film Precision Chip Resistors

WIN Series

- TaN thin film technology
- Inherent moisture protection superior to that of passivated nichrome chip resistors
- High stability in humid and polluted environments
- Typical 85°C, 85%RH biased humidity 2000 hour stability <0.1%
- Typical moisture resistance stability ± 100 ppm
- Precision $\pm 0.05\%$ tolerance and ± 10 ppm/°C
- Anti-sulfur terminations
- 100% screened by automated optical inspection



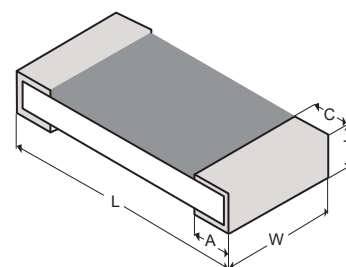
 All Pb-free parts comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

		T0603	T0805	T1206
Power rating @ 70°C	watts	0.1	0.25	0.33
Resistance range	ohms	5R to 100K	5R to 267K	5R to 1M0
Limiting element voltage (maximum voltage)	Vdc or rms	75	100	200
Resistance tolerance	%	± 0.05 ± 0.1 ± 0.5 ± 1		
TCR	ppm/°C	± 10 ± 15 ± 25 ± 50		
Standard values		E24, E96, E192		
Ambient temperature range	°C	-65 to +150		

Physical Data

Dimensions in mm & (inch) and weight in mg						
	L	W	T	C	A	Wt. nom
T0603	1.58 $\pm$ 0.15 (0.062 $\pm$ 0.006)	0.80 $\pm$ 0.10 (0.031 $\pm$ 0.004)	0.45 $\pm$ 0.10 (0.018 $\pm$ 0.004)	0.27 $\pm$ 0.20 (0.011 $\pm$ 0.008)	0.34 $\pm$ 0.20 (0.013 $\pm$ 0.008)	2.0
T0805	2.02 $\pm$ 0.15 (0.080 $\pm$ 0.006)	1.28 $\pm$ 0.15 (0.050 $\pm$ 0.006)	0.45 $\pm$ 0.10 (0.018 $\pm$ 0.004)	0.31 $\pm$ 0.20 (0.012 $\pm$ 0.008)	0.40 $\pm$ 0.20 (0.016 $\pm$ 0.008)	4.3
T1206	3.15 $\pm$ 0.15 (0.124 $\pm$ 0.006)	1.57 $\pm$ 0.15 (0.062 $\pm$ 0.006)	0.50 $\pm$ 0.15 (0.020 $\pm$ 0.006)	0.45 $\pm$ 0.25 (0.018 $\pm$ 0.010)	0.52 $\pm$ 0.25 (0.020 $\pm$ 0.010)	9.6



Construction

Conductors, thin film resistive element and epoxy outer protection are applied to an alumina substrate. The chips are supplied with wrap-around terminations suitable for soldering. The terminations have an electroplated nickel barrier and either 100% matt tin or 60/40 SnPb finish.

Marking & Solvent Resistance

WIN resistors have no marking on the component body. The body protection is resistant to all normal cleaning solvents suitable for printed circuits

Screening

WIN resistors can be screened to any tests identified in MIL-PRF-55342 and AEC-Q200 to provide components suitable as a COTS equivalent to MIL products or screened product subject to harsh operating environments.

General Note

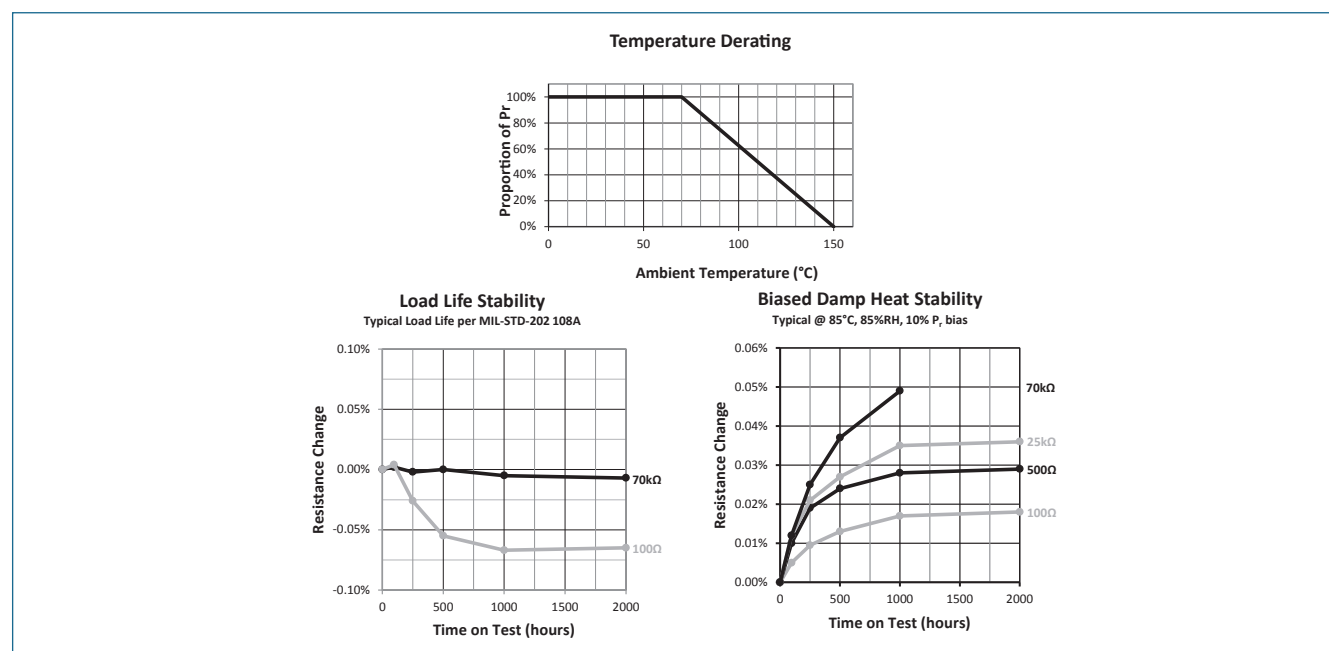
TT Electronics reserves the right to make changes in product specification without notice or liability.
All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

Manufacturing Capabilities Data

TCR ppm/°C	Tolerance %					
	T0603		T0805		T1206	
	0.05	0.1-1	0.05	0.1-1	0.05	0.1-1
10	5kΩ-10kΩ		5kΩ-40kΩ		5kΩ-80kΩ	
15	100Ω-50kΩ		100Ω-100kΩ		100Ω-400kΩ	
25	50Ω-50kΩ	10Ω-100kΩ	50Ω-100kΩ	10Ω-267kΩ	50Ω-400kΩ	10Ω-1MΩ
50		5Ω-100kΩ		5Ω-267kΩ		5Ω-1MΩ

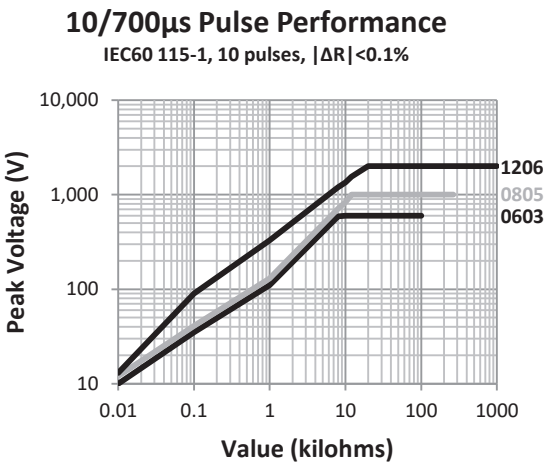
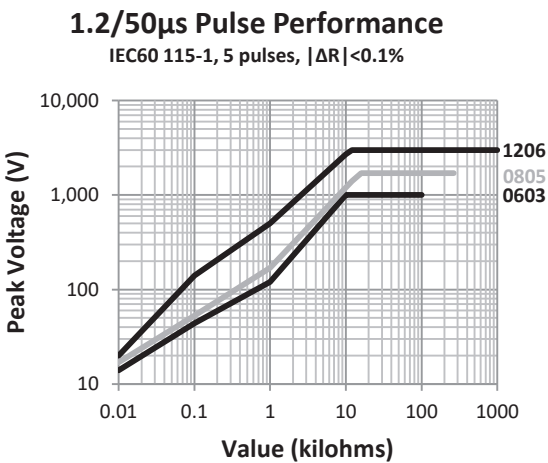
Performance Data

Test	Method	ΔR	
		MIL-PRF-55342 Limits (max)	WIN actual performance (typ)
Thermal Shock	MIL-PRF-55342 4.8.3 (MIL-STD-202 107G cond. F: 5 cycles in air, +150 / -65°C)	± 0.1%	± 0.01%
Thermal Shock - Extended	MIL-STD-202 107G cond. F-3: 100 cycles in air, +150 / -65°C	± 0.1%	± 0.02%
Low Temp. Operation	MIL-PRF-55342 4.8.5 (-65°C)	± 0.1%	± 0.02%
Short Time Overload	MIL-PRF-55342 4.8.6 (lesser of 6.25 x Pr or 2 x LEV for 5 seconds)	± 0.1%	± 0.02%
High Temp. Exposure	MIL-PRF-55342 4.8.7 (+150°C for 100 hours)	± 0.1%	± 0.02%
High Temp. Exposure Extended	+150°C for 1000 hours	N/A	±0.1%
Resistance to Solder Heat	MIL-PRF-55342 4.8.8	± 0.2%	± 0.02%
Moisture Resistance	MIL-PRF-55342 4.8.9 (MIL-STD-202 106G: 10 cycles, 65±2°C, 95±5% RH)	± 0.2%	± 0.01%
Load Life	MIL-PRF-55342 4.8.11 (MIL-STD-202 108A: Pr at 70°C for 2000 hours)	± 0.5%	± 0.08%
Biased Damp Heat	85°C, 85%RH, 10% Pr bias, for 2000 hours	N/A	± 0.08%
Flower of Sulfur	ASTM B-809 (modified) 105°C Dry, 1000 Hours	Pass	



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Ordering Procedure

This product has two valid part numbers:
European (Welwyn) Part Number: WINT1206LF031001B3 (1206, $\pm 25\text{ppm}/^\circ\text{C}$, 1 kilohm $\pm 0.1\%$, Pb-free)

W	I	N	T	1	2	0	6	L	F	0	3	1	0	0	1	B	3
1	2	3	4	5	6	7											

1	2	3	4	5	6	7
Series	Type	Termination	TCR	Value	Tolerance	Packing
WIN	T0603	PB = SnPb	12 = $\pm 10\text{ppm}/^\circ\text{C}$	3 digits + multiplier R = ohms for values <100 ohms	A = $\pm 0.05\%$	Tape & reel
	T0805	LF = Pb free	11 = $\pm 15\text{ppm}/^\circ\text{C}$		B = $\pm 0.1\%$	3 3000/reel Standard
	T1206		03 = $\pm 25\text{ppm}/^\circ\text{C}$		D = $\pm 0.5\%$	Blank 1000/reel
			02 = $\pm 50\text{ppm}/^\circ\text{C}$		F = 1%	

USA (IRC) Part Number: WIN -T1206LF-03-1001-B3 (1206, $\pm 25\text{ppm}/^\circ\text{C}$, 1 kilohm $\pm 0.1\%$, Pb-free)

W	I	N	-	T	1	2	0	6	L	F	-	0	3	-	1	0	0	1	-	B	3
1	2	3	4	5	6	7															

1	2	3	4	5	6	7
Series	Type	Termination	TCR	Value	Tolerance	Packing
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	T0805	LF = Pb free	11 = $\pm 15\text{ppm}/^\circ\text{C}$		B = $\pm 0.1\%$	3 3000/reel Standard
	T1206		03 = $\pm 25\text{ppm}/^\circ\text{C}$		D = $\pm 0.5\%$	Blank 1000/reel
			02 = $\pm 50\text{ppm}/^\circ\text{C}$		F = 1%	

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