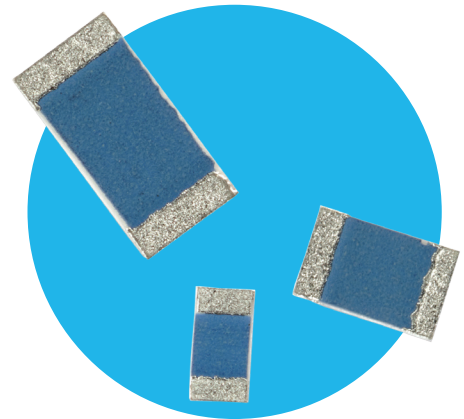


## Water Insoluble Nitride Thin Film Precision Chip Resistors

### 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 ±100ppm
- Precision ±0.05% tolerance and ±10ppm/°C
- Anti-sulfur terminations
- 100% screened by automated optical inspection



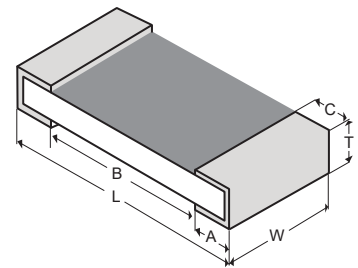
All Pb-free parts comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

## Electrical Data

|  |            | T0402          | T0603              | T0805      | T1206     |
|--|------------|----------------|--------------------|------------|-----------|
| Power rating @ 70°C                        | watts      | 0.05           | 0.1                | 0.25       | 0.33      |
| Resistance range                           | ohms       | 7R5 to 30K     | 5R to 100K         | 5R to 267K | 5R to 1M0 |
| Limiting element voltage (maximum voltage) | Vdc or rms | 75             | 75                 | 100        | 200       |
| Resistance tolerance                       | %          | ±0.1 ±0.5 ±1   | ±0.05 ±0.1 ±0.5 ±1 |            |           |
| TCR  | ppm/°C     | ±50 ±25        | ±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                              | B min           | A                              | Wt. nom |
| T0402                                      | 1.02±0.05<br>(0.04±0.002)      | 0.53±0.05<br>(0.021±0.002)     | 0.3±0.08<br>(0.012±0.003)      | 0.2±0.05<br>(0.008±0.002)      | 0.44<br>(0.017) | 0.25±0.05<br>(0.01±0.002)      | 0.9     |
| T0603                                      | 1.58 ± 0.15<br>(0.062 ± 0.006) | 0.80 ± 0.10<br>(0.031 ± 0.004) | 0.45 ± 0.10<br>(0.018 ± 0.004) | 0.27 ± 0.20<br>(0.011 ± 0.008) | 0.82<br>(0.032) | 0.34 ± 0.20<br>(0.013 ± 0.008) | 2.0     |
| T0805                                      | 2.02 ± 0.15<br>(0.080 ± 0.006) | 1.28 ± 0.15<br>(0.050 ± 0.006) | 0.45 ± 0.10<br>(0.018 ± 0.004) | 0.31 ± 0.20<br>(0.012 ± 0.008) | 1.1<br>(0.043)  | 0.40 ± 0.20<br>(0.016 ± 0.008) | 4.3     |
| T1206                                      | 3.15 ± 0.15<br>(0.124 ± 0.006) | 1.57 ± 0.15<br>(0.062 ± 0.006) | 0.50 ± 0.15<br>(0.020 ± 0.006) | 0.45 ± 0.25<br>(0.018 ± 0.010) | 2.03<br>(0.08)  | 0.52 ± 0.25<br>(0.020 ± 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

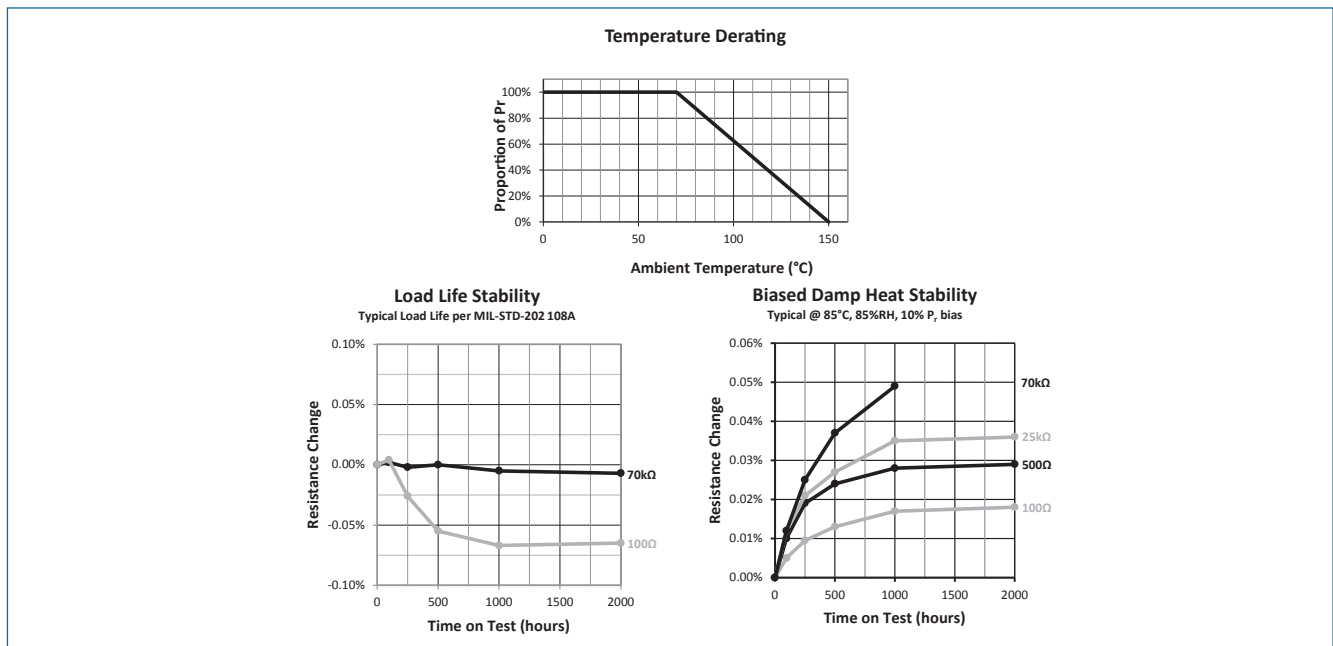
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## Manufacturing Capabilities Data

| TCR<br>ppm/°C | Tolerance % |           |           |            |           |            |         |  |
|---------------|-------------|-----------|-----------|------------|-----------|------------|---------|--|
|               | T0402       |           | T0603     |            | T0805     |            | T1206   |  |
|               | 0.1-1       | 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            | 10Ω-30kΩ    | 50Ω-50kΩ  | 10Ω-100kΩ | 50Ω-100kΩ  | 10Ω-267kΩ | 50Ω-400kΩ  | 10Ω-1MΩ |  |
| 50            | 7.5Ω-30kΩ   |           | 5Ω-100kΩ  |            | 5Ω-267kΩ  |            | 5Ω-1MΩ  |  |

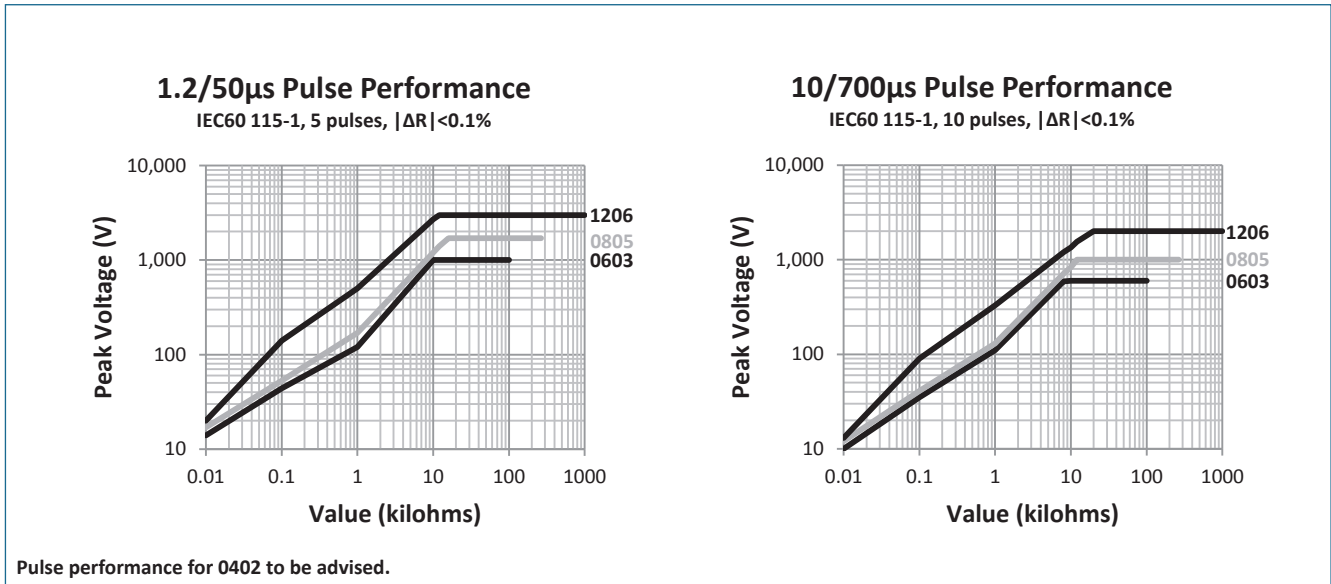
## Performance Data

| Test                         | Method  | ΔR                            |                                 |
|------------------------------|---|-------------------------------|---------------------------------|
|                              |   | MIL-PRF-55342<br>Limits (max) | WIN actual<br>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, ±25ppm/°C, 1 kilohm ±0.1%, Pb-free)



| 1      | 2     | 3            | 4              | 5   | 6          | 7                    |
|--------|-------|--------------|----------------|---|------------|----------------------|
| Series | Type  | Termination  | TCR            | Value   | Tolerance  | Packing              |
| WIN    | T0402 | PB = SnPb    | 12 = ±10ppm/°C | 3 digits + multiplier<br>R = ohms for<br>values <100 ohms | A = ±0.05% | Tape & reel          |
|        | T0603 | LF = Pb free | 11 = ±15ppm/°C |   | B = ±0.1%  | 3 3000/reel Standard |
|        | T0805 |              | 03 = ±25ppm/°C |   | D = ±0.5%  | Blank 1000/reel      |
|        | T1206 |              | 02 = ±50ppm/°C |   | F = 1%     |                      |

USA (IRC) Part Number: WIN -T1206LF-03-1001-B3 (1206, ±25ppm/°C, 1 kilohm ±0.1%, Pb-free)



| 1      | 2     | 3            | 4              | 5   | 6          | 7                    |
|--------|-------|--------------|----------------|---|------------|----------------------|
| Series | Type  | Termination  | TCR            | Value   | Tolerance  | Packing              |
| WIN    | T0402 | PB = SnPb    | 12 = ±10ppm/°C | 3 digits + multiplier<br>R = ohms for<br>values <100 ohms | A = ±0.05% | Tape & reel          |
|        | T0603 | LF = Pb free | 11 = ±15ppm/°C |   | B = ±0.1%  | 3 3000/reel Standard |
|        | T0805 |              | 03 = ±25ppm/°C |   | D = ±0.5%  | Blank 1000/reel      |
|        | T1206 |              | 02 = ±50ppm/°C |   | F = 1%     |                      |

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Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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