

High-Precision Thin Film Chip Resistor



KEY BENEFITS

- Low temperature coefficient: ± 5 ppm/K (± 2 ppm/K available on request)
- Tight tolerance: ± 0.02 %
- Superior moisture resistivity: $\leq \pm 0.25$ % (85 °C; 85 % RH; 56 days)
- AEC-Q200 qualified
- Compliant to RoHS directive 2011/65/EU

APPLICATIONS

- Instrumentation
- Industrial equipment
- Automotive
- Aerospace
- Telecommunications infrastructure
- Medical equipment

RESOURCES

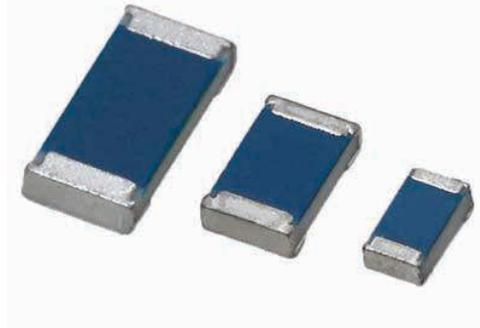
- Datasheet: TNPU e3 - <http://www.vishay.com/doc?28779>
- For technical questions contact thinfilmchip@vishay.com



RoHS
COMPLIANT



High-Precision Thin Film Chip Resistor



TNPU e3 ultra precision thin film flat chip resistors combine the proven reliability of TNPW e3 products with a most advanced level of precision and stability. This unique combination makes the products perfectly suited for all applications with outstanding requirements towards size, reliable precision, and stability.

FEATURES

- Low temperature coefficient and tight tolerances (± 2 ppm/K; ± 0.02 %)
- Sulfur resistance verified according to ASTM B 809
- Superior moisture resistivity (85 °C; 85 % RH)
- Excellent overall stability at different environmental conditions ≤ 0.05 % (1000 h rated power at 70 °C)
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS

- Industrial equipment
- Telecommunication
- Medical equipment
- Instrumentation
- Test and measuring equipment
- Automotive

TECHNICAL SPECIFICATIONS

DESCRIPTION	TNPU0603 e3	TNPU0805 e3	TNPU1206 e3
Imperial size	0603	0805	1206
Metric size code	RR1608M	RR2012M	RR3216M
Resistance range	100 Ω to 100 k Ω	100 Ω to 332 k Ω	100 Ω to 511 k Ω
Resistance tolerance	± 0.1 %; ± 0.05 %; ± 0.02 %		
Temperature coefficient	± 10 ppm/K; ± 5 ppm/K; ± 2 ppm/K ⁽¹⁾		
Rated dissipation, P_{70} ⁽²⁾	0.1 W	0.125 W	0.25 W
Operating voltage, U_{max} . AC _{RMS} /DC	75 V	150 V	200 V
Permissible film temperature, $\vartheta_{F max}$. ⁽²⁾	125 °C	125 °C	125 °C
Operating temperature range	-55 °C to 125 °C	-55 °C to 125 °C	-55 °C to 125 °C
Max. resistance change at P_{70} ; $ \Delta R/R $			
1000 h	≤ 0.05 %	≤ 0.05 %	≤ 0.05 %
8000 h	≤ 0.10 %	≤ 0.10 %	≤ 0.10 %
225 000 h	≤ 0.30 %	≤ 0.30 %	≤ 0.30 %
Insulation voltage:			
1 min; U_{ins}	100 V	200 V	300 V
Continuous	75 V	75 V	75 V
FIT _{observed}	$\leq 0.1 \times 10^{-9}$ /h	$\leq 0.1 \times 10^{-9}$ /h	$\leq 0.1 \times 10^{-9}$ /h

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Notes

- ⁽¹⁾ Temperature coefficient ± 2 ppm/K (-10 °C / 85 °C) is available on request between 500 Ω and 20 k Ω .
⁽²⁾ Please refer to APPLICATION INFORMATION, see next page.