



E L E C T R O N I C S

Advanced Ceramics for Power
Electronics Applications

**Material properties
of Rubalit® ZTA**

Zirconia Toughened Alumina – Rubalit® ZTA

CeramTec's newly created Zirconium Toughened Aluminium Oxide (ZTA) constitutes a new substrate material which enhances the proven quality of our Aluminium Oxide (Rubalit® 708) with even higher strength and fracture toughness for a better durability of your circuit boards or passive electronic components.



Key advantages

High bending strength (625 MPa)

Breakdown strength
AC: ≥ 25 kV/mm

Better durability (thermocycling)

Standard Specification for Rubalit® ZTA

Physical Parameters		Unit	Values	Measurement Method
Composition	Al ₂ O ₃	Wt%	90 +/- 1,2	Measured by XRF at the sintered product
	ZrO ₂	Wt%	9 +/- 1,0	
Surface roughness	-	µm	≤ 0,4	Based on DIN EN ISO 4288
Bulk density	-	g/cm ³	≥ 3,95	Based on DIN EN 993-1
Bending Strength	Sigma0	MPa	≥ 625	Based on ASTM C 1499-08
Young's Modulus	-	GPa	≥ 310	Based on ASTM C1250-15
Thermal conductivity	RT	W/(m x K)	≥ 26	According to DIN EN 821-2, Standard cp for calculation 0,72 J/gK; Measured thermal conductivity value may vary +/- 10% due to measurement inaccuracy.
Coefficient of thermal expansion	20 - 300 °C	ppm/K	7,1	According to DIN 51045-1, typical value
	20 - 600 °C	ppm/K	8	
	20 - 900 °C	ppm/K	8,6	
Specific heat	20 °C	J/(kg x K)	720	Based on DIN EN 821-3, method B, typical value
Dielectric constant (permittivity)	RT, 1 MHz	-	10,5	Based on ASTM D150, typical value
Dielectric loss factor	RT, 1 MHz	[10 ⁻³]	≤ 5	Based on ASTM D150
Volume resistivity	RT	Ωcm	≥ 10 ¹⁴	Based on IEC 62631-3
Breakdown Strength 20 °C	-	kV/mm	≥ 25	Based on DIN EN 60243-1

The measured values mentioned before were determined for test samples and are applicable as standard values. The values were determined on the basis of DIN-/DIN-VDE standards and if these were not available, on the basis of CeramTec standards. The values indicated must not be transferred to arbitrary formats, components or parts featuring different surface qualities. They do not constitute a guarantee for certain properties. We expressly reserve the right to make technical changes.

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