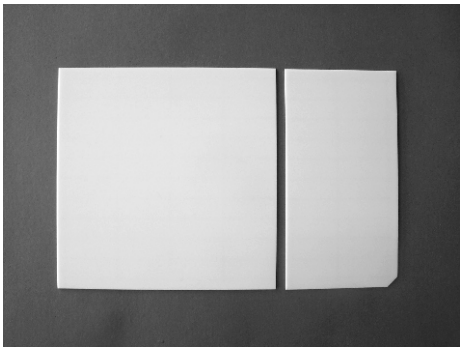
1) 96Al_2O_3 ceramic substrates

96%Al_2O_3 ceramic substrates are widely used in many applications, including Thick Film Hybrid Circuit、Chip Resistor、Resistor Network、Focus Control Block, Thermoelectric Cooling Modules and Power Modules.



Benefits:

- High reliability and safety.
- High density and mechanical property.
- High electrical and thermal loading performance.
- Low dielectric loss.

96 Al_2O_3 CERAMIC SUBSTRATES MATERIAL PROPERTIES

PROPERTY	TESTING CONDITIONS	UNITS	VALUE
COLOR			WHITE
APPEARANCE			COMPACT
DENSITY		g/cm^3	3.7
WATER ABSORPTION		%	0
MEDIUM GRAIN SIZE		m	3 - 5
HARDNESS	LOADED 4.9N	GPa	≥15
BENDING STRENGTH		MPa	≥274
COEFFICIENT OF LINER EXPANSION	20 - 500℃	$1x10^{-6}$ mm/℃	6.5 - 7.5
	20 - 800℃		6.5 - 8.0
THERMAL CONDUCTIVITY	20 ℃	W/(M-K)	≥20.9
SPECIFIC HEAT		kJ/(kg-K)	≥0 .8
DIELECTRIC STRENGTH		KV/mm	≥12
VOLUME RESISTIVITY	20℃	Ohm.cm	$\geq 10^{14}$
	300℃		$\geq 10^{11}$
	500℃		$\geq 10^{9}$
DIELECTRIC CONSTANT	1MHz		9 - 10
DIELECTRIC LOSS (TAN DELTA)	1MHz		$\leq 3x10^{-4}$
SURFACE ROUGHNESS		μm	0.3 - 0.8