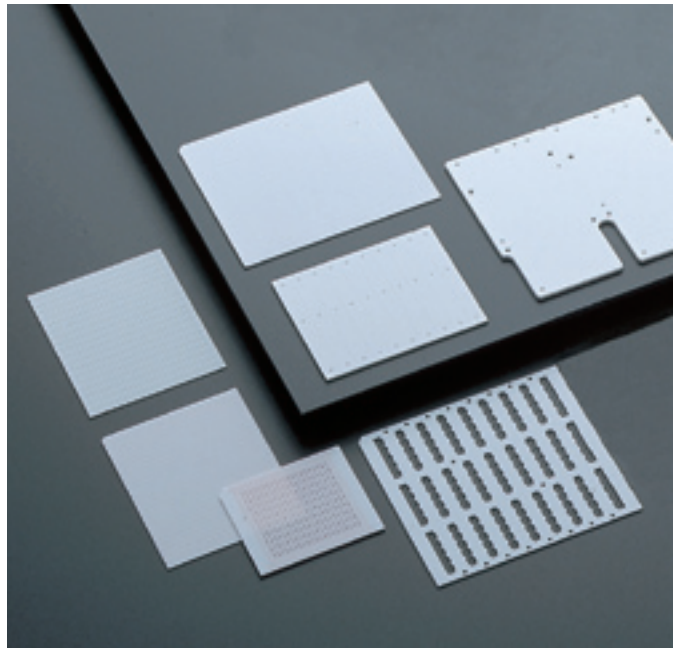
Tape Substrates for Thick Film

We are producing 96% alumina substrates (A-476) and 93% alumina substrates (A-473T) which have excellent thick film reliability and consistency.



Features

Our substrates have excellent thick film reliability and precise dimensional tolerance control (Super premium: ±0.25%). They are cost effective for through-hole processes with small diameter holes (Min. 0.2mm) allowing densification of precision circuitry.

Application

Hybrid Integrated Circuit
Resistor Network
Chip Resistor
Potentiometer
Focus Substrate, etc

Characteristics of Material

tem	Material	Alumina (Al_2O_3)	
Material Code		A-476 (Tape)	A-473T (Tape)
Appearance		Dense	
Color		White	
Alumina Content	%	96	93
Bulk Density	g/cm^3	3.7	3.6
Water Absorption	%	0	0
Vickers Hardness (Hv 1.0)	GPa	13.7	12.2
Flexural Strength	MPa	310	330
Young's Modulus	GPa	330	290
Coefficient of Linear Thermal Expansion	40 - 400℃	7.2×10^{-6}	7.1×10^{-6}
	40 - 800℃	7.9×10^{-6}	7.8×10^{-6}
Thermal Conductivity (20℃)	w/m･k	27	22
Dielectric Strenght	Kv/mm	12	12
Volume Resistivity	Ω･cm (20℃)	$>10^{14}$	$>10^{14}$
	(300℃)	10^{10}	10^{11}
	(500℃)	10^{8}	10^{9}
Dielectric Constant (1MHz)	—	9.4	8.8
Dielectric Loss Angle (1MHz)	$\times10^{-4}$	4	6
Surface Roughness	Ra μm	0.2 - 0.80	0.2 - 0.80

※The values are typical material properies and may vary according to products configuration and manufacturing process. For more details, please feel to contact us.