

ABSTRACT OF THE DISCLOSURE

Disclosed herein are an aluminum nitride sintered body having a high breakdown voltage for serving as a substrate material which is responsive to high integration of a circuit, and a method of preparing the same. The aluminum nitride sintered body contains titanium, which is included as solid solute in aluminum nitride crystal lattice in a weight ratio of at least 50 ppm and not more than 1000 ppm. Unpaired electron concentration in the sintered body obtained from an absorption spectrum of electron spin resonance is at least $1 \times 10^{13}/g$. At least 0.1 percent by weight and not more than 5.0 percent by weight of an oxy-nitride of titanium and aluminum exists in the aluminum nitride sintered body in terms of TiO_2 . The aluminum nitride sintered body has a breakdown voltage of 20 kV/mm. This aluminum nitride sintered body is obtained by nitriding aluminum nitride raw material powder in a nitrogen atmosphere at a temperature of 800 to 1400°C, adding an oxy-nitride of titanium thereto with a sintering assistant, and sintering the mixture.

This Sheet Has Been Replaced

