

What's AlN?

Features

1. High thermal conductivity (about 10 times that of alumina)
2. Close thermal expansion coefficient to that of Silicon (Si)
3. High insulation
4. High mechanical strength (higher than alumina)
5. High corrosion resistance (non-wetted by most molten metals)
6. High purity (does not contaminate molten metal even at a high temperature)
7. Transparency (allows visible to infrared light to pass through easily)
8. High halogen-plasma resistance

Applications

Semiconductor manufacturing equipment

Plasma device parts
(Electrostatic) wafer chuck parts
Stepper wafer holding jig, etc.

Transportation

IGBT and GTO heat sink for
Automotive power supply substrate (for hybrid cars, etc.)
Electric train and locomotive power supply substrate

Communication

Laser diode heat sink for
Transmitters and amplifiers for optical fiber communication

Lighting and display

LED heat sink

Information processing

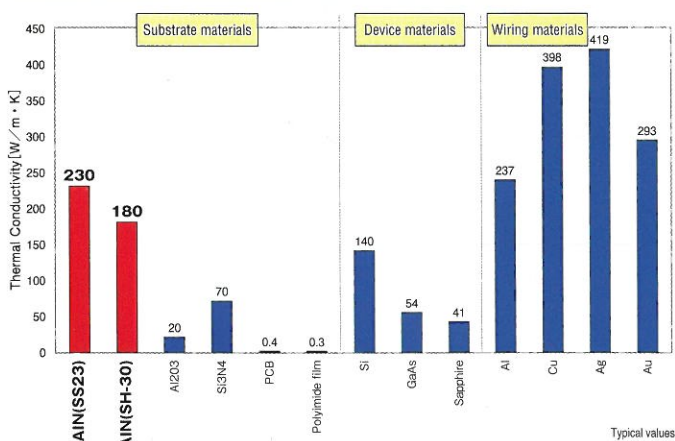
Heat dissipation sheet
Computer heat sink
Laser diode heat sink for
Optical disk pickup (CD-R, DVD, etc.)

Industrial machinery

IGBT heat sink for
Various types of inverter control power supply
High-performance elevator
High-performance mill

Differences among ceramic materials

Comparison of thermal conductivity

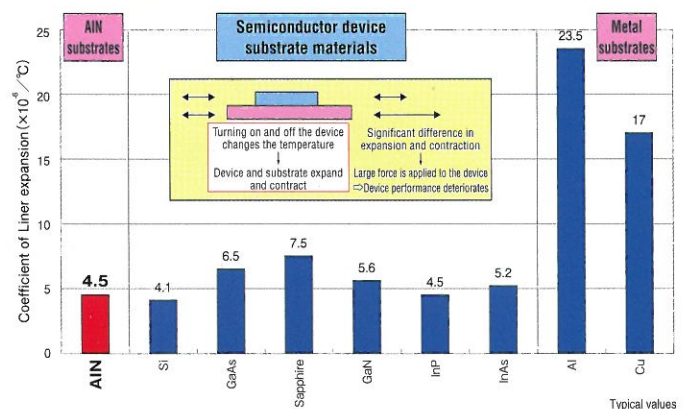


- AlN has high thermal conductivity outstandingly among various substrate materials.

Comparison of halogen-plasma resistance

SiC < Si3N4 < Al2O3 < AlN
Silicon carbide Silicon nitride Alumina Aluminum nitride

Comparison of thermal expansion coefficient



- AlN has a thermal expansion coefficient close to that of various semiconductor substrate materials. Metals with large thermal expansion coefficients are not suitable for the mounting of large semiconductor devices. AlN has an advantage on thermal expansion coefficient.

Feel free to ask us anything about AlN!

