

Eco-friendly New Products

During product development at the Murata Group, we give due consideration to resource conservation, energy conservation, and reduced use of controlled substances in products. This approach is intended to reduce the environmental impact of the product itself.

■ Murata's Environmentally Conscious Products

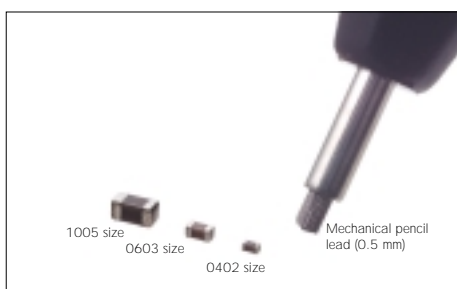
Elimination of Hazardous Substances



Translucent Ceramic (LUMICERA™)

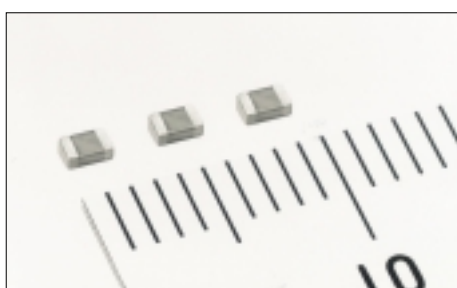
Glass with outstanding optical properties normally contains lead. By employing proprietary technologies—specifically those related to firing, processing, materials design, and the like, all of which have been developed through our expertise in ceramics—Murata has succeeded in developing a translucent ceramic that is completely lead-free. This translucent ceramic has the same transmissivity as optical glass, offers a refractive index (2.08) that exceeds that of optical glass, and offers good optical properties with no double refraction. It is expected to be employed as a new material for elemental optical devices that require compact designs and thin layers.

Compact Designs That Conserve Resources



0402 size Chip Monolithic Ceramic Capacitors

As mobile devices and other electronic devices become more compact and multifunctional, demand is increasing for higher-density packaging. Having already introduced 0603 size (0.6 x 0.3 mm) capacitors, Murata has continued to work on improving high-accuracy processing technologies and thin-layer dielectrics in order to meet this demand. As a result, we have succeeded in developing a 0402 size (0.4 x 0.2 mm) chip monolithic ceramic capacitor.



The world's first Chip Monolithic Ceramic PTC Thermistor

Murata has developed POSISTOR®, the world's first chip monolithic ceramic PTC thermistor. We have incorporated this technology in a PTC thermistor for overcurrent protection at 0.2 ohms and 0.5 A non-operating current at an ambient temperature of 60°C. This device is a 2012 size (2.0 x 1.25 x 0.9 mm), the smallest in the industry. Mass production of this item began in September 2003.

(*POSISTOR® is a registered trademark of Murata.)

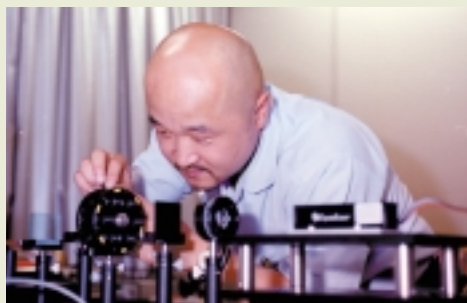


The ways in which electronic components contribute to eco-friendly product design are not always readily apparent to the user. In particular, materials development, which is a critical aspect, is a relatively hidden element of product development. Below we introduce some enthusiastic Murata engineers who are currently engaged in this field.

Dramatic energy savings achieved with the industry's first practical TAG single crystal transparent to visible light

Takenori Sekijima, Materials Research & Development Center

"We succeeded in developing the industry's first single crystal material that is transparent in the visible light zone yet which exhibits excellent magnetic and optical properties. We used an innovative manufacturing method employing an FZ hybrid laser that sharply lowers the energy required for manufacturing. This required some ingenuity, such as selecting materials that incorporate absolutely no environmentally hazardous substances and minimizing the use of rare elements."



Leading the industry by eliminating the minuscule amounts of lead present in nickel plating

Tomohiko Mori, Materials Research & Development Center

"We took on the challenge of reducing the lead in electroless nickel plating to the extremely low level of 0.1%. Of course, this achievement has no meaning if we consume additional energy elsewhere or create even more emissions. We succeeded in developing a lead-free electroless nickel plating method that surpasses conventional methods used by other companies in terms of cost, quality, and environmental impact. We are proud of our ability to revolutionize the industry by achieving both a cyan-free and lead-free result at the same time."



By improving on conventional work methods, we've eliminated highly environmentally toxic organic solvents while reducing the energy consumed in manufacturing by two-thirds.

Tsutomu Sasaki, Materials Group

"We thoroughly reviewed the conventional materials and processing methods used for plating, which is an indispensable step in the manufacture of electronic components. As a result, we have reduced the energy consumed during manufacturing by two-thirds while maintaining quality. At the same time, our innovative approach eliminated the use of environmentally hazardous organic solvents. We are continuing to discover techniques for minimizing environmental impacts, such as the waste that is generated during production processes, even though our efforts may remain unrecognized in the final product."

