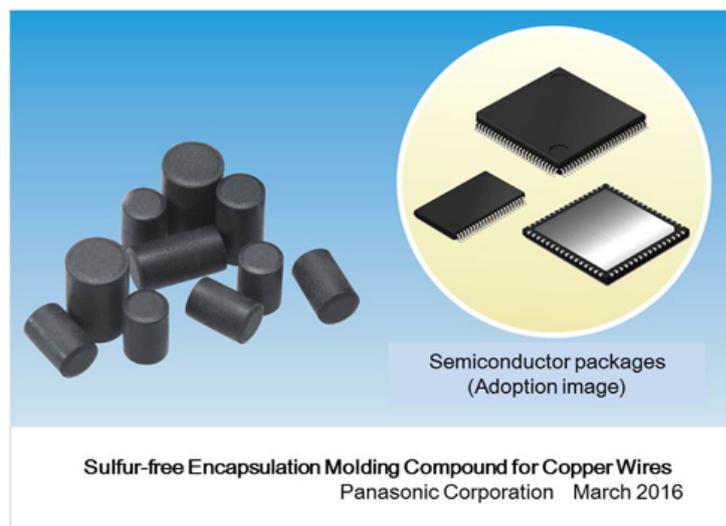


Mar 03, 2016

Panasonic Commercializes the Industry's First*1 Sulfur-free Encapsulation Molding Compound for Copper Wires



Commercialized a sulfur-free EMC for copper wires and the mass production will start in October 2016. It helps to improve the reliability of the semiconductor packages at high temperatures.

Osaka, Japan - Panasonic Corporation announced today that it has commercialized the first sulfur-free*2 encapsulation molding compound (EMC) for copper wire bonding in the industry*1, and will start mass production of the product in October 2016. This material helps improve the reliability and extend the service life of semiconductor packages during operation at high temperatures.

Copper bonding wires have increasingly been used in semiconductor packages because copper is characterized by high joint reliability in high temperature environments, and has a stable market price compared to gold. In conventional EMCs for copper wires, sulfur components are added to ensure adhesion to lead frames in semiconductor packages in the presence of moisture absorption/reflow, etc. Notably, pyrolysis product of sulfur components can cause connection failure of copper wires at high temperatures. We have commercialized the first sulfur-free*2 EMC in the industry*1. Proprietary technologies were developed to solve problems that were previously difficult to cope with, namely, preventing corrosion of copper wires and increasing adhesion to lead frames without the addition of sulfur components. This has resulted in improved reflow resistance properties and a long service life (3,000 hours at 175°C). The material will help increase the use of copper wires in semiconductor packages for in-vehicle and industrial applications.

【Features】

1. The first sulfur-free*2 EMC in the industry*1 helps to employ copper wires in semiconductor packages. With increased thermal resistance, the material is optimal for semiconductor packages for in-vehicle and industrial applications. (It was previously difficult to attain high thermal resistance for copper wires.)
 - No corrosion of copper wires after exposure to a 175°C environment for 3,000 hours
(Our conventional product*3 is subject to corrosion after exposure to a 175°C environment for 1,000 hours.)
2. The material helps to improve the reliability of copper wires semiconductor packages.
 - Reflow resistance properties: JEDEC MSL Level 3 achieved
(No delamination from lead frames and chips after reflow treatment at 260°C)
 - Temperature cycle test: 2000cyc (-65°C⇔150°C)
 - UHAST (Unbiased Highly Accelerated Stress Test): 2000hr (130°C /85%Rh)

*1: As an EMC used for semiconductor packages (thermosetting properties) as of March 3, 2016 (based on our survey)

*2: The EMC design value of 0 ppm (detection limit for sulfur components: less than 50 ppm) is defined as sulfur-free.

*3: Our EMC for semiconductor packages that contains sulfur components

【Applications】

Semiconductor packages for copper wire bonding for consumer products, industrial equipment (e.g. robots), in-vehicle products (e.g. ECUs), etc.

About Panasonic

Panasonic Corporation is a worldwide leader in the development of diverse electronics technologies and solutions for customers in the consumer electronics, housing, automotive, enterprise solutions, and device industries. Since its founding in 1918, the company has expanded globally and now operates 468 subsidiaries and 94 associated companies worldwide, recording consolidated net sales of 7.715 trillion yen for the year ended March 31, 2015.

Committed to pursuing new value through innovation across divisional lines, the company uses its technologies to create a better life and a better world for its customers. To learn more about Panasonic:

<http://www.panasonic.com/global>.

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