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October 2019

EFFECTIVE HEAT DISSIPATED PANEL STRESS ABSORBER ON Mg/Al ALLOY ENCLOSURE

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Recommended Citation

INC, HP, "EFFECTIVE HEAT DISSIPATED PANEL STRESS ABSORBER ON Mg/Al ALLOY ENCLOSURE",
Technical Disclosure Commons, (October 28, 2019)
https://www.tdcommons.org/dpubs_series/2607



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Effective Heat Dissipated Panel Stress Absorber on Mg/Al Alloy Enclosure

Abstract

The heat dissipated panel stress absorber is a ring structure with bumper on the back. The ring provides cushion and heat spreading function, which can absorb the stress from external impact and spread the heat rapidly generated from CPU, PCB, and other electronic components. It is different from an ordinary process like using a tape or glue. Instead, the heat dissipated stress absorber is injected in the mold of Mg alloy frame.

Background

Traditional method is to reinforce the anti-stress resistance on the panel, such as a panel glass got stronger, tied-up panel by the notebook pc mechanical structure, which is also unable to provide a heat dissipated mechanism in the enclosure.

This disclosure aims to solve the panel got broken by a strike outside, resolve overheat issue generated from CPU, GPU, PCB and other electronic components, and eliminate the hot spot issue. The solution is to add one more ring between Aluminum and Magnesium parts. The heat dissipated absorber is in-molding which the tooling injects a material on a work in process part.

Injection mold heat dissipated panel stress absorber can provide much better bonding with Mg alloy frame compared to adhesive bonded stress absorber.

Invention Description

The installation is bonding before Mg frame and aluminum part. The materials of heat dissipated panel stress absorber ring include thermoplastic urethane, styrenic block copolymers, copolyether ester, polyester amide, epichlorohydrin rubber, polyacrylic rubber, silicone rubber, fluorosilicone rubber, fluoroelastomers, perfluoroelastomers, polyether block amides, chlorosulfonated polyethylene, ethylene-vinyl acetate, polysulfide rubber, and thermoplastic elastomers in combination with high thermal conductivity materials including aluminum nitride, beryllium oxide, silicon nitride, silicon carbide, graphene, and/or carbon nanotube.

The panel is inside the A cover structure. When strike comes, the ring can absorb the stress from outside and spread the heat rapidly to avoid high skin temperature on the cover and enhance the lifetime of electronic components. The panel glass damaged is because it is hit by a solid structure or bending. The ring can manage the stress on the panel and reduce the A cover bended on the panel.

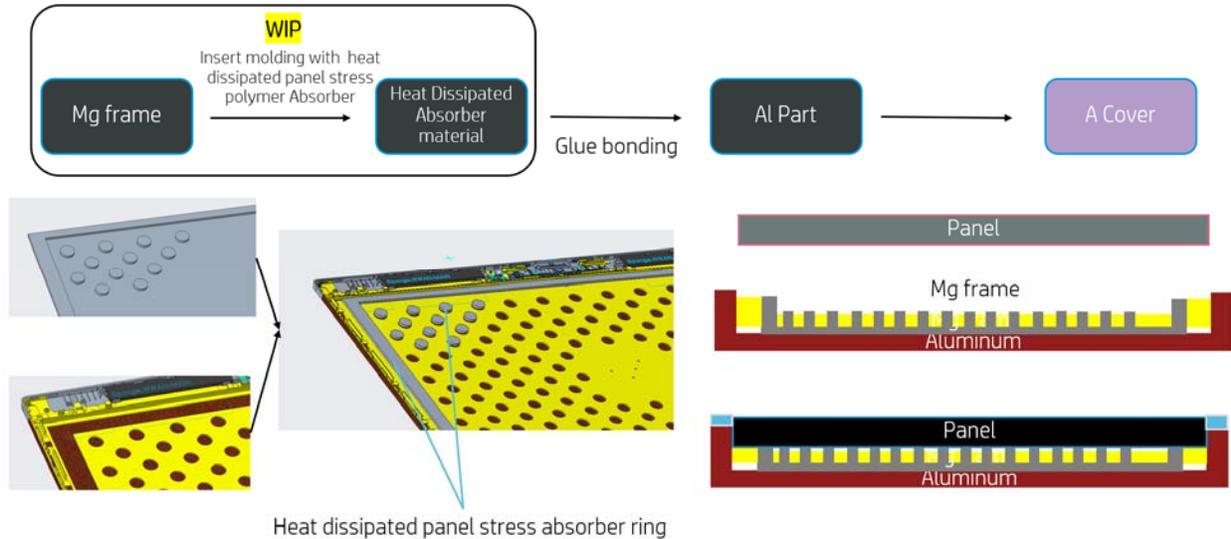


Figure 1. Heat dissipated panel stress absorber ring installed between Mg fram and Aluminum part

Advantages

- Reduce the high panel failure rate from mechanical stress.
- The ring can absorb the strike during assembling, which can increase production yield rate.
- The heat generated from CPU, GPU, PCB, battery, and other electronic components can effectively spread through heat dissipated ring.
- Prevent from overheat to the user for skin burning.
- Extend product lifetime such as LCD panel, LED, CPU and battery lifetime.
- Improve information loading speed and power efficiency.
- Reduce the risk of battery explosion.
- Manage failure rate issue from production line. Production line crews feedback they find the failure symptom on panel when they assemble hinge up. The absorber can manage the stress from outside.
- Injection mold panel stress absorber provide stronger bonding with Mg alloy frame.
- There is no falling-off issue with injection mold panel stress absorber on Mg alloy frame.

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