During recent developments in the electronic industry, the chips for LED applications have became smaller and thinner, which requires that the bond line thickness of die attach paste need to be evermore thinner. This creates limits for the filler's particle size as the fillers with large particle size hinder the formation of thin bond line thickness of die attach paste. Obviously, the fillers with small particle size decrease the bond line thickness of die attach paste. However, small particle size does not necessary provide adequate heat dissipation. In general high thermal conductive fillers, such as spherical alumina particles with lower particle size cannot meet high thermal conductive requirement while larger particle size cannot meet the requirement of lower bond line thickness for die attach paste. More specifically, for example small spherical Al_2O_3 filler particles do not meet the thermal conductivity requirement for LED applications.

In addition, anti-yellowing properties have become very important feature for die attach pastes used in the LED application as die attach paste is exposed for high temperatures for a long time. Above mentioned small spherical Al_2O_3 filler particles do not have very good anti-yellowing properties either.

Therefore, it is objective of the present invention to provide a die attach paste with good heat dissipation and anti-yellowing properties in combination with capability to form thin bond line thickness.

Summary of the invention

In one aspect, tThe present ~~invention~~ disclosure provides a die attach paste composition comprising (a) a organosilicone resin; (b) a single crystal alumina filler; (c) a hardener; and (d) an inhibitor.

~~Furthermore~~In another aspect, the present ~~invention~~ disclosure provides ~~a~~encompasses use of die attach paste composition ~~according to the present invention~~ as disclosed herein to attach a die on to a surface.

Short description of the figures

Figure 1 is a scanning electron microscope (SEM) image of spherical alumina.

Figure 2 is a SEM image of single crystal alumina used in the present invention.