

## (19) United States

## (12) Patent Application Publication (10) Pub. No.: US 2022/0354028 A1 Verhoog

Nov. 3, 2022 (43) **Pub. Date:** 

## (54) COOLING MODULE COMPRISING A COOLING STRUCTURE FOR DISSIPATION OF HEAT

- (71) Applicant: Valeo Siemens eAutomotive France SAS, Cergy (FR)
- (72) Inventor: **Roelof Verhoog**, Cergy (FR)
- (73) Assignee: Valeo Siemens eAutomotive France SAS, Cergy (FR)
- (21) Appl. No.: 17/730,983
- (22) Filed: Apr. 27, 2022
- (30)Foreign Application Priority Data

## **Publication Classification**

- (51) Int. Cl. H05K 7/20 (2006.01)
- U.S. Cl. (52)CPC ..... H05K 7/20927 (2013.01); H05K 7/20263 (2013.01); *B33Y 80/00* (2014.12)
- (57)**ABSTRACT**

The invention concerns an alveolar cooling structure (3) which is configured to dissipate the heat generated by at least one electronic component (40) placed on an upper surface (21) of a substrate (2), the alveolar cooling structure (3) being in contact with an inner surface (22) of the said substrate (2). The alveolar cooling structure (3) comprises cells, the cell edges of which increase a total contact surface between the alveolar cooling structure (3) and a cooling fluid; and pores which are defined by the cells and distributed in the volume of the alveolar cooling structure (3), the cooling fluid circulating through the pores and/or through the spaces between the pores.

