

Title (en)

PTC HEATING ELEMENT, ELECTRIC HEATER, AND USE OF A PTC HEATING ELEMENT

Title (de)

PTC HEIZELEMENT, ELEKTRISCHE HEIZVORRICHTUNG UND VERWENDUNG EINES PTC HEIZELEMENTS

Title (fr)

ÉLÉMENT CHAUFFANT À COEFFICIENT DE TEMPÉRATURE POSITIF (CTP), DISPOSITIF DE CHAUFFAGE ÉLECTRIQUE ET UTILISATION D'UN ÉLÉMENT CHAUFFANT CTP

Publication

**EP 4292395 A1 20231220 (DE)**

Application

**EP 22709642 A 20220214**

Priority

- DE 102021103480 A 20210215
- EP 2022053499 W 20220214

Abstract (en)

[origin: WO2022171857A1] The invention relates to a PTC heating element (1) for an electric heater, having - at least one PTC element (2), at least one electrode (3) being formed on a surface (2a, 2b, 2c) of the PTC element (2) for electrically contacting the PTC element (2), - at least one additional contact (4) for electrically connecting the electrode (3) of the PTC element (2), - at least one carrier layer (5), the carrier layer (5) being electrically insulating, wherein the thickness (d) of the PTC element (2) is  $\leq 500 \mu\text{m}$ , and the installation height (H) of the PTC heating element (1) is between 500  $\mu\text{m}$  and 2500  $\mu\text{m}$ . The invention also relates to an electric heater and to the use of the PTC heating element (1) in a motor vehicle.

IPC 8 full level

**H05B 3/50** (2006.01); **B60H 1/22** (2006.01); **F24H 3/04** (2022.01); **F24H 9/1863** (2022.01)

CPC (source: EP US)

**F24H 3/0435** (2013.01 - EP); **F24H 3/0447** (2013.01 - US); **F24H 9/1872** (2013.01 - EP US); **H05B 3/265** (2013.01 - US);  
**H05B 3/267** (2013.01 - US); **H05B 3/50** (2013.01 - EP); **F24H 2250/04** (2013.01 - US); **H05B 2203/02** (2013.01 - EP US);  
**H05B 2203/023** (2013.01 - EP)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

**DE 102021103480 A1 20220818**; CN 116868686 A 20231010; EP 4292395 A1 20231220; JP 2024506916 A 20240215;  
US 2024133587 A1 20240425; US 2024230156 A9 20240711; WO 2022171857 A1 20220818

DOCDB simple family (application)

**DE 102021103480 A 20210215**; CN 202280014880 A 20220214; EP 2022053499 W 20220214; EP 22709642 A 20220214;  
JP 2023548815 A 20220214; US 202218546555 A 20220214