

Title (en)
Positive temperature coefficient heater and production method thereof

Title (de)
PTC Heizelement und Verfahren zur Herstellung

Title (fr)
Élément PTC et son procédé de fabrication

Publication
EP 0991300 A3 20020116 (EN)

Application
EP 99305382 A 19990707

Priority
KR 19980041477 A 19981001

Abstract (en)
[origin: EP0991300A2] A positive temperature coefficient heater produced by protecting the form of a definite pattern on an insulator having an aluminum thin film using an etching resist, after etching the portions unprotected with the above-described etching resist using an etching agent, removing the etching resist and the etching agent, and further printing a definite form using a carbon paste to connect electrode terminals to aluminum electrode layer in parallel. In the positive temperature coefficient heater of the present invention, as compared with using a conventional silver paste, there is almost no deviation of temperature, the production cost is greatly reduced, and further the production step is simplified, whereby when the positive temperature coefficient heater is attached to the inside of a side mirror of a motorcar, an excellent effect is shown in the removal of fogging, ice, etc. <IMAGE>

IPC 1-7
H05B 3/26; **H05B 3/28**; **H05B 3/84**; **H05B 3/00**; **C23F 1/20**

IPC 8 full level
H05B 3/20 (2006.01); **H05B 3/10** (2006.01); **H05B 3/14** (2006.01); **H05B 3/26** (2006.01); **H05B 3/84** (2006.01)

CPC (source: EP)
H05B 3/845 (2013.01); **H05B 2203/013** (2013.01); **H05B 2203/017** (2013.01); **H05B 2203/02** (2013.01)

Citation (search report)

- [Y] GB 1136456 A 19681211 - ENGLISH ELECTRIC CO LTD
- [Y] EP 0716559 A2 19960612 - TOKYO COSMOS ELECTRIC [JP]
- [A] EP 0408207 A2 19910116 - ILLINOIS TOOL WORKS [US]
- [A] DE 19702448 A1 19980730 - DEUTSCHE SPEZIALGLAS AG [DE]

Cited by
ES2537400A1; EP1749904A3; US9771158B2; US8712227B2

Designated contracting state (EPC)
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)
EP 0991300 A2 20000405; **EP 0991300 A3 20020116**; **EP 0991300 B1 20050928**; CN 1250347 A 20000412; DE 69927455 D1 20060209; DE 69927455 T2 20060720; ES 2251156 T3 20060416; JP 2000164328 A 20000616

DOCDB simple family (application)
EP 99305382 A 19990707; CN 99120578 A 19990929; DE 69927455 T 19990707; ES 99305382 T 19990707; JP 11732499 A 19990423