

Title (en)  
NON-LINEAR VOLTAGE-DEPENDENT RESISTOR

Publication  
**EP 0351004 A3 19900321 (DE)**

Application  
**EP 89201797 A 19890707**

Priority  
DE 3823698 A 19880713

Abstract (en)  
[origin: JPH0266901A] PURPOSE: To obtain a working voltage not more than 30V and a nonlinear coefficient not less than 30 with high reproducibility, by forming a laminated structure having one resistance material layer containing a ceramic sintered body as a resistance material on a zinc oxide-based barrier layer having higher electrical conductivity than the resistance material has. CONSTITUTION: A multilayered varistor has a resistance material layer 3, a carrier layer 5, and metallic-layer electrodes 9 and 11 composed of a silver-based contact metal. The varistor preferably has a coating layer 7 between the layer 3 and 9. When a relatively thin resistance material layer 3 exists, the number of grain boundaries can be maintained within a relatively narrow range. Although the specially uniform particle growth in the relatively thin resistance material layer indicates the same particle growth as that of the resistance material in a sintering process, it is recognized that the uniform particle growth can be accomplished when the resistance material layer is covered as wide as possible with the layer of a material which does not give any influence on the resistance characteristic of a produced varistor. When the resistance material layer is coated with the coating layer 7 of a material having higher electrical conductivity by a larger surface area, the working voltage UA becomes a reproducible value not more than 10V (UA<=10V).

IPC 1-7  
**H01C 7/10**; **H01C 17/30**

IPC 8 full level  
**H01C 7/10** (2006.01); **H01C 7/112** (2006.01); **H01C 17/30** (2006.01)

CPC (source: EP KR US)  
**H01C 7/10** (2013.01 - KR); **H01C 7/112** (2013.01 - EP US); **H01C 17/30** (2013.01 - EP US)

Citation (search report)  
• [A] EP 0062314 A2 19821013 - HITACHI LTD [JP]  
• [AD] DE 3323579 A1 19840105 - FUJI ELECTRIC CO LTD [JP], et al  
• [A] US 3928242 A 19751223 - MAY JOHN E

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Designated contracting state (EPC)  
BE DE FR GB NL

DOCDB simple family (publication)  
**EP 0351004 A2 19900117**; **EP 0351004 A3 19900321**; **EP 0351004 B1 19931006**; DE 3823698 A1 19900118; DE 58905814 D1 19931111; JP H0266901 A 19900307; KR 0142574 B1 19980817; KR 900002353 A 19900228; US 5008646 A 19910416

DOCDB simple family (application)  
**EP 89201797 A 19890707**; DE 3823698 A 19880713; DE 58905814 T 19890707; JP 17575489 A 19890710; KR 890009832 A 19890711; US 37186689 A 19890626