



Europäisches Patentamt  
European Patent Office  
Office européen des brevets

11 Publication number:

0 242 902  
A3

12

## EUROPEAN PATENT APPLICATION

21 Application number: 87200556.6

51 Int. Cl.4: H01C 7/10 , H01L 45/00 ,  
H02H 9/04 , H01C 7/12

22 Date of filing: 24.03.87

30 Priority: 27.03.86 GB 8607719  
26.03.86 ES 553479

43 Date of publication of application:  
28.10.87 Bulletin 87/44

84 Designated Contracting States:  
AT BE CH DE ES FR GB IT LI NL SE

88 Date of deferred publication of the search report:  
31.08.88 Bulletin 88/35

71 Applicant: RAYCHEM LIMITED  
Rolls House 7, Rolls Buildings Fetter Lane  
London, EC4 1NL(GB)

72 Inventor: Porter, Christopher John  
16 Caraway Drive  
Swindon Wiltshire(GB)

74 Representative: Drugosz, Anthony Charles et  
al  
Raychem Limited Intellectual Property Law  
Department Faraday Road Dorcan  
Swindon, Wiltshire(GB)

54 Protection device.

57 A threshold switching device for protecting an electrical circuit from an overvoltage comprises a switching element formed from a chalcogenide glass and a pair of electrodes that are in contact with the composition. When the circuit experiences an over-voltage transient, the switching element will switch to its low resistance state to pass the electrical current to ground and then revert to its high resistance state.

The switching element includes an indium layer or an indium containing layer between the switching element and at least one, preferably both electrodes. The presence of the indium layers improves the adhesion of the electrodes and/or reduces the electrical contact resistance between the chalcogenide glass and the electrodes and thereby increases the amount of electrical energy that may be passed through the device during a voltage transient before the device latches in its low resistance state.

3  
A3  
902 902 A3  
EP 0 242 902 A3



DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)		
X	DE-A-1 614 272 (PHILIPS' GLOEILAMPENFABRIEKEN) * Claims 1,2 *	1	H 01 C 7/10 H 01 L 45/00 H 02 H 9/04 H 01 C 7/12		
Y	---	5,8			
Y	US-A-3 983 076 (ROCKSTAD et al.) * Claim 2 *	5			
Y	---				
Y	DE-A-1 437 387 (DANFOSS) * Figure 2; claim 1 *	8			
Y	---				
D,A P	EP-A-0 198 624 (RAYCHEM) * Whole document *	1,8,9			
D,A	---				
D,A	US-A-3 271 591 (OVSHINSKY)				
D,A	---				
D,A	US-A-3 993 394 (BRAND)				
D,A	US-A-3 852 517 (FAVA)				
D,A	-----				
TECHNICAL FIELDS SEARCHED (Int. Cl.4)					
H 01 L H 01 C G 03 C H 02 H					
The present search report has been drawn up for all claims					
Place of search	Date of completion of the search	Examiner			
THE HAGUE	19-05-1988	KOLBE W.H.			
CATEGORY OF CITED DOCUMENTS					
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document					
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document					