

Title (en)

Wave propagation structures for the suppression of over-voltages and the absorption of transitory waves.

Title (de)

Wellenfortpflanzungsstrukturen für die Überspannungsunterdrückung und die Absorbierung von vorübergehenden Wellen.

Title (fr)

Structures à propagation d'onde pour la suppression de surtensions et l'absorption de transitoires.

Publication

EP 0264315 A1 19880420 (FR)

Application

EP 87402086 A 19870918

Priority

FR 8613093 A 19860918

Abstract (en)

[origin: US4841259A] A four-pole or three-pole structure adapted to propagate an electromagnetic wave, such as an electrical line or cable or electronic component, comprises a lossy non-linear dielectric material distributed in a wave propagation direction. This material has a non-linear conduction characteristic whereby it is substantially non-conductive at any rated applied voltage of the structure and substantially conductive at any abnormally high applied voltage. It consists of a polycrystalline material comprising thin interstitial layers procuring a tunneling or Schottky type effect in response to a high electric field resulting from such abnormally high applied voltages. It absorbs both voltage surges (varistor effect in the time domain) and high-speed transients (lowpass filter effect in the frequency domain). The structure can be used to provide protection against lightning strikes, nuclear electromagnetic pulses, electrostatic discharges and radio-frequency interference in general.

Abstract (fr)

Structures à propagation d'onde quadripôles/tripôles, telles que des lignes, câbles et composants électroniques, comportant un diélectrique non-linéaire à pertes, absorbant à la fois des surtensions (effet varistor dans le domaine temps) et des transitoires rapides (effet filtre passe-bas, dans le domaine fréquence). Application aux protections contre coup de foudre, impulsion électromagnétique nucléaire, décharges électrostatiques et RFI en général.

IPC 1-7

H01B 11/18; **H01C 7/10**; **H01B 11/12**

IPC 8 full level

H01B 11/12 (2006.01); **H01B 11/18** (2006.01); **H01C 7/10** (2006.01)

CPC (source: EP US)

H01B 11/12 (2013.01 - EP US); **H01B 11/1834** (2013.01 - EP US); **H01C 7/10** (2013.01 - EP US)

Citation (search report)

- [A] FR 1330480 A 19630621 - INT STANDARD ELECTRIC CORP
- [A] DE 1143259 B 19630207 - SIEMENS AG
- [A] JOURNAL OF APPLIED PHYSICS, vol. 48, no. 10, octobre 1977, pages 4372-4384, American Institute of Physics, New York, US; P.R. EMTAGE: "The physics of zinc oxide varistors"

Cited by

EP0429908A3; EP0828345A1; FR2753300A1; US6180877B1

Designated contracting state (EPC)

BE CH DE ES FR GB IT LI NL SE

DOCDB simple family (publication)

EP 0264315 A1 19880420; **EP 0264315 B1 19931201**; DE 3788335 D1 19940113; FR 2604286 A1 19880325; FR 2604286 B1 19881110; US 4841259 A 19890620

DOCDB simple family (application)

EP 87402086 A 19870918; DE 3788335 T 19870918; FR 8613093 A 19860918; US 9701487 A 19870916