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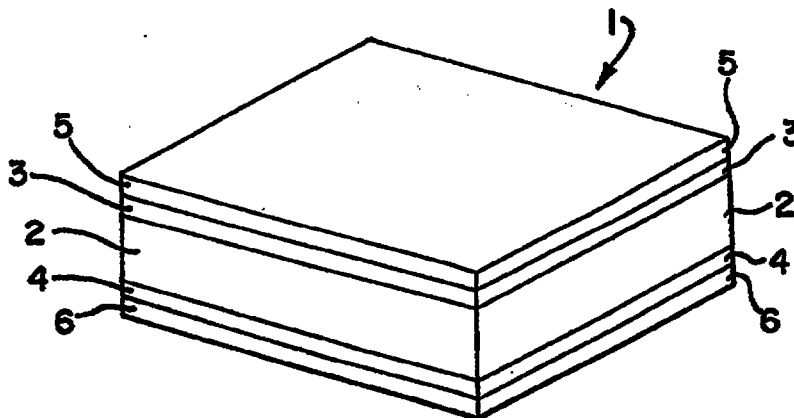
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(21) International Application Number: PCT/US96/06629 (22) International Filing Date: 9 May 1996 (09.05.96) (30) Priority Data: 08/437,966 10 May 1995 (10.05.95) US (71) Applicant: LITTELFUSE, INC. [US/US]; 800 East Northwest Highway, Des Plaines, IL 60016 (US). (72) Inventors: SHAW, Philip, C., Jr.; 307 University Lane, Elk Grove Village, IL 60007 (US). RANDLE, Donna, L.; Apartment #2, 6132 S. Ada Street, Chicago, IL 60636 (US). WEBER, Michael, J.; 306 South Prindle, Arlington Heights, IL 60004 (US)/HOSS, Michael, J.; 437 Lance Drive, Des Plaines, IL 60016 (US). HALL, Tom, J.; 26 Regency Court East, Arlington Heights, IL 60004 (US). (74) Agent: CHRISTUS, Daniel, N.; Wallenstein & Wagner, Ltd., 53rd floor, 311 S. Wacker Drive, Chicago, IL 60606 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: PTC CIRCUIT PROTECTION DEVICE AND MANUFACTURING PROCESS FOR SAME**(57) Abstract**

Electrical devices comprising a PTC element comprised of a polymer having conductive particles dispersed therein. The PTC element is coated with a conductive layer and has electrodes with a plurality of voids affixed to opposing surfaces. The devices are made by dispersing conductive particles into a polymer to form a polymer PTC composition. The polymer PTC composition is melt-shaped to form a laminar shaped PTC element. First and second opposing surfaces of the PTC element are coated with a conductive layer. The electrodes, characterized by a plurality of voids, are brought into contact with the coated surfaces of the PTC element, and heated while applying pressure to form a laminate. The laminate is then further shaped into a plurality of PTC electrical circuit protection devices.



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