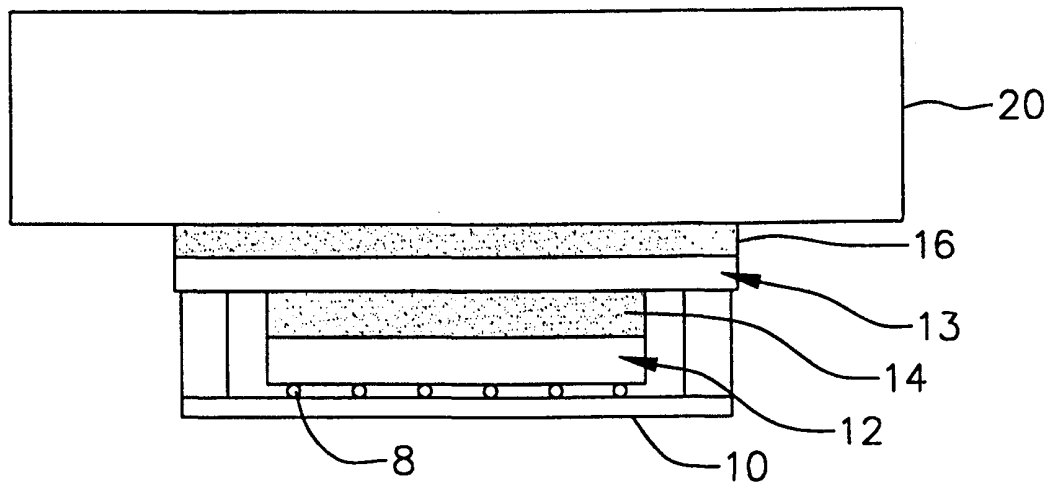




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<p>(21) International Application Number: PCT/US99/12498 (22) International Filing Date: 4 June 1999 (04.06.99) (30) Priority Data: 09/103,415 24 June 1998 (24.06.98) US (71) Applicant: JOHNSON MATTHEY ELECTRONICS, INC. [US/US]; 15128 Euclid Avenue, Spokane, WA 99216 (US). (72) Inventors: SMITH, Charles; 2915 Sunset Hills Road, Escondido, CA 92025 (US). CHAU, Michael, M.; 13718 Butano Way, San Diego, CA 92129 (US). EMIGH, Roger, A.; 6051 Frazier, Post Falls, ID 83854 (US). DEAN, Nancy, F.; 1827 South Liberty Drive, Liberty Lake, WA 99019 (US). (74) Agent: GIOIA, Vincent, G.; Christie, Parker & Hale, LLP, P.O. Box 7068, Pasadena, CA 91109-7068 (US).</p>	<p>(81) Designated States: CN, JP, KR, SG, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 23 March 2000 (23.03.00)</p>	

(54) Title: ELECTRONIC DEVICE HAVING FIBROUS INTERFACE



(57) Abstract

An electronic device having a compliant fibrous interface is described. The interface comprises a free fiber tip structure having flocked thermally conductive fibers (32) embedded in an adhesive in substantially vertical orientation with portions of the fibers (32) extending out of the adhesive and an encapsulant (30) between the portions of the fibers that extend out of the adhesive and the fiber's free tips (34).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/12498

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :HO1L 23/34, 23/58

US CL : 257/712, 713, 796; 438/106, 122

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 257/712, 713, 796; 438/106, 122, 127

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

U.S. PTO - APS

search terms: thermal, fibers, tips, adhesive, encapsulant

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,402,006 A (O'DONLEY) 28 March 1995, col. 3, line 54 - col. 4, line 39	1-2, 4-6, 42-45
Y	US 5;726,495 A (AIHARA et al) 10 March 1998, figures 8A-8C, c ol. 8, lines 40 - 50.	1-2, 4-6, 42-45
A	US 5,455,458 A (QUON et al.) 3 October 1995, col. 3 lines 58-65	1-45

Further documents are listed in the continuation of Box C.

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