A hermetic interconnect for implantable medical devices is presented. In one embodiment, the hermetic interconnect includes a conductive material introduced to a via in a single layer. The conductive material includes a first end and a second end. A first bonding pad is coupled to the first end of the conductive material. A second bonding pad is coupled to the second end of the conductive material. The single layer and the conductive material undergo a co-firing process.
Published:  
— with international search report  
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
31 January 2008

For two-letter codes and other abbreviations, refer to the “Guidance Notes on Codes and Abbreviations” appearing at the beginning of each regular issue of the PCT Gazette.
INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/066034

A CLASSIFICATION OF SUBJECT MATTER
INV. A61N1/375

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

B FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A61N

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

Electronic data base consulted during the international search (name of data base and where practical search terms used)
EPO-Internal

C DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document with indication of the relevant passages</th>
<th>Relevant to claim</th>
</tr>
</thead>
</table>

See family annex

Date of the actual completion of the international search
25 September 2007

Date of mailing of the international search report
10/12/2007

Name and mailing address of the ISA/
European Patent Office, P B 5818 Patentlaan 2 NL - 2280 HV Rijswijk
Tel (+31-70) 340-2040 Tx 31651 epo nl
Fax (+31-70) 340-3016

Authorized officer
Schoeffmann, Herbert
**INTERNATIONAL SEARCH REPORT**

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. **☐** Claims Nos. because they relate to subject matter not required to be searched by this Authority, namely:

2. **☐** Claims Nos. because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. **☐** Claims Nos. because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application as follows.

`see additional sheet`

1. **[ ]** As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. **[ ]** As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. **[ ]** As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.

4. **[ ]** No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos:

   **1- 32**

**Remark on Protest**

- **[ ]** The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- **[ ]** The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- **[ ]** No protest accompanied the payment of additional search fees.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-32

   an electrical interconnect for an IMD wherein the coupling between the monolithic ceramic structure and a support member comprises a diffusion bond

2. claims: 33,34

   an interconnect for an IMD wherein the ceramic layer structure with vias and the conductive material filling the vias are hermetically fused together

3. claims: 35-51

   an interconnect comprising three layers, three vias, three conductive materials disposed in the vias, first and second conductive elements coupled to first, second and third conductive materials and a ferrule surrounding the first, second and third layers

4. claims: 52,53

   an interconnect for an IMD comprising a single layer, conductive material including first and second ends coupled thereto, first and second bonding pads coupled to first and second conductive materials with the interconnect being co-fired

5. claims: 54-57

   an interconnect comprising first and second layer with vias and filled with conductive material, the first and second layers being co-fired
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 5573173</td>
<td>12-11-1996</td>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>