Summary of Invention

In accordance with a first embodiment of the disclosure, a method of coupling a feedthrough assembly to a surrounding case of an implantable medical device is disclosed. The method includes providing an insulator having a plurality of conducting elements extending therethrough; placing the insulator with conducting elements within an opening of a case, thereby defining a narrow space between the insulator and the case; placing a braze preform adjacent the insulator and case in the narrow space; heating the insulator with a laser until raising the temperature of the adjacent preform above its melting point such that it flows and fills the space between the insulator and the case.

In accordance with a second embodiment of the disclosure, an implantable medical device is disclosed. The implantable medical device includes a feedthrough assembly comprising an insulator and a plurality of conducting elements extending therethrough; a case with an opening into which the feedthrough assembly is placed defining a narrow space therebetween; a braze material filling the narrow space, thereby hermetically sealing the feedthrough assembly to the case; characterized in that one of the feedthrough assembly and the case comprise a feature configured to securely hold the braze and in that the implantable medical device does not include a ferrule.

Brief Description of the Drawings

The accompanying drawings are included to provide a further understanding of embodiments and are incorporated in and constitute a part of this specification. The drawings illustrate embodiments and together with the description serve to explain principles of embodiments. Other embodiments and many of the intended advantages of embodiments will be readily appreciated as they become better understood by reference to the following detailed description. The elements of the drawings are not necessarily to scale relative to each other. Like reference numerals designate corresponding similar parts.

Figures 1A and 1B illustrate a feedthrough device in accordance with the prior art.

Figure 2 illustrates a cross-sectional view of a feedthrough assembly in an implantable medical device in accordance with one embodiment.

Figures 3A-3C illustrate cross-sectional views of a feedthrough assembly partially assembled into an implantable medical device in accordance with one embodiment.

Figures 3D illustrates a cross-sectional view of a feedthrough assembly assembled into an implantable medical device in accordance with one embodiment.

Figure 4 illustrates a partial cross-sectional view of a feedthrough assembly in an implantable medical device in accordance with one embodiment.

Figure 5 illustrates a flow diagram of a method of forming a feedthrough assembly in accordance with one embodiment.

Figure 6A illustrates a feedthrough assembly and an implantable medical device in accordance with one embodiment.

Figure 6B illustrates a cross-sectional view of a feedthrough assembly partially assembled into an implantable medical device in accordance with one embodiment.

Figure 6C illustrates a cross-sectional view of a feedthrough assembly in an implantable medical device in accordance with one embodiment.