CLAIMS

1. A ferrite busbar assembly, comprising:

a one-piece ferrite core having an inner space;

a terminal extending through the inner space; and

a housing enclosing the ferrite core;

a bracket coupled to and protruding from the housing,

wherein the housing is unitary and integrally formed from an overmold material that when cured is configured to:

secure a portion of the bracket embedded within the housing; and

secure and seal the ferrite core within the inner space;

wherein at least a portion of the housing and a portion of the terminal together fill the inner space of the ferrite core;

wherein the housing surrounds and contacts an outer surface of the ferrite core, the outer surface being opposite to an inner surface that defines the inner space;

wherein a first end of the terminal protrudes from a first side of the housing and a second end of the terminal protrudes from a second side of the housing;

wherein the ferrite busbar assembly does not include any seals or gaskets separate from the housing;

wherein the ferrite busbar assembly does not include any clips or fasteners coupling the ferrite core to the housing; and

wherein the ferrite core is 75% to 100% of a length of the ferrite busbar assembly in a z-axis direction, the z-axis direction extending from the second side of the housing to a third side of the housing opposite of the second side of the housing.

2. The ferrite busbar assembly of claim 1, wherein the overmold material is a thermoplastic elastomer (TPE) or silicone.

3. The ferrite busbar assembly of claim 1, wherein at least a portion of the ferrite core is exposed at the second side of the housing.

4. The ferrite busbar assembly of claim 1, wherein the ferrite core has a first side and a second side opposite the first side, and the second side of the ferrite core is flush with at least a portion of the housing at the second side.

5. The ferrite busbar assembly of claim 1, wherein the second side of the housing covers at least a portion of a bottom surface of the ferrite core.

6. The ferrite busbar assembly of claim 1, wherein the bracket includes a first extension that protrudes from a third side of the housing which is opposite the first side of the housing such that the first extension of the bracket and the first end of the terminal extend in opposite directions.

7. The ferrite busbar assembly of claim 1, wherein the bracket includes a second extension and a third extension which protrude from opposite sides of the housing.

8. The ferrite busbar assembly of claim 1, wherein the housing is integrally formed of by injecting the overmold material at a predetermined pressure that is less than 5 megapascals (MPa).

9. The ferrite busbar assembly of claim 1, wherein the predetermined pressure is 2 MPa.

10. The ferrite busbar assembly of claim 1, wherein the second side of the housing includes a protrusion that surrounds or covers a portion of the ferrite core.