short fibers.

PRIOR ART DOCUMENTS

PATENT DOCUMENTS

[0005]

Patent document 1: Japanese Unexamined Patent Publication (Kokai) No. 2014-148111

Patent document 2: Japanese Unexamined Patent Publication (Kokai) No. HEI 9-46082

SUMMARY

PROBLEMS TO BE SOLVED

[0006]

For the invention described in Patent document 1, however, resin sheets and fiber reinforced plastic sheets have to be stacked in a complicated manner, and further improvement is required to increase the mass productivity. The housing for electronic instruments disclosed in Patent document 2, furthermore, is a housing for electric/electronic instruments composed mainly of a first layer of molded FRP and a second layer of resin containing reinforcing short fibers, and the two layers are integrated using an adhesive, but further improvement is required to realize weight reduction and mass productivity enhancement.

[0007]

Thus, an object of the embodiments disclosed herein is to provide an electronic device housing that is able to maintain the antenna performance without deteriorating the radio communication performance, excellent in the degree of warpage and dimensional accuracy, high in heat resistance and/or dimensional accuracy during moisture absorption, and also high in mass productivity.

[0007a]

In an aspect, there is provided an electronic device housing comprising a first fiber reinforcing member (a) and a second fiber reinforcing member (b),

the first fiber reinforcing member (a) containing a first resin (a1) and a first fiber (a2), the first fiber (a2) being in the form of discontinuous fibers,

the second fiber reinforcing member (b) containing a second resin (b1) and a second fiber (b2), the second fiber (b2) being in the form of continuous fibers,

the projected area of the fiber reinforcing member (a) accounting for 60% or more of the total projected area, which accounts for 100%, of the housing projected onto the plane of the top face, and

the first resin (a1) meeting requirements (i) and/or (ii) given below:

(i) the first resin (a1) is a thermoplastic resin having a melting point of more than 265°C, and

(ii) the first resin (a1) is a thermoplastic resin having a water absorption rate of 0.4% or less.

[0007b]
In another aspect, there is provided a production method for an electronic device housing as defined above comprising:
a first step for inserting the second fiber reinforcing member (b) into die with a temperature controlled at 100°C or more and a second step for injecting a resin composition containing a first thermoplastic resin (a1) and a first fiber (a2) into the inserted second fiber reinforcing member (b) existing in the die to form a first fiber reinforcing member (a) so that the first fiber reinforcing member (a) and the second fiber reinforcing member (b) are integrated.

MEANS OF SOLVING THE PROBLEMS
[0008]
The present disclosure, which aims for solving the above problems, is as described below.
(1) An electronic device housing including a fiber reinforcing member (a) and a fiber reinforcing member (b),
the fiber reinforcing member (a) containing a resin (a1) and a fiber (a2), the fiber (a2) being constituted of discontinuous fibers,
the fiber reinforcing member (b) containing a resin (b1) and a fiber (b2),
the fiber (b2) being constituted of continuous fibers,
the projected area of the fiber reinforcing member (a) accounting for 60% or more of the total projected area, which accounts for 100%, of the housing projected onto the plane of the top face, and
meeting at least either requirement (i) or (ii) given below:

CLAIMS

[Claim 1]

An electronic device housing comprising a first fiber reinforcing member (a) and a second fiber reinforcing member (b),

the first fiber reinforcing member (a) containing a first resin (a1) and a first fiber (a2), the first fiber (a2) being in the form of discontinuous fibers,

the second fiber reinforcing member (b) containing a second resin (b1) and a second fiber (b2), the second fiber (b2) being in the form of continuous fibers,

the projected area of the first fiber reinforcing member (a) accounting for 60% or more of the total projected area, which accounts for 100%, of the housing projected onto the plane of the top face, and

the first resin (a1) meeting requirements (i) and/or (ii) given below:

(i) the first resin (a1) is a thermoplastic resin having a melting point of more than 265°C, and

(ii) the first resin (a1) is a thermoplastic resin having a water absorption rate of 0.4% or less.

[Claim 2]

An electronic device housing as set forth in claim 1, wherein the first fiber (a2) has a mass average fiber length Lw of 0.4 mm or more and a ratio Lw/Ln between the mass average fiber length Lw and the number average fiber length Ln of the first fiber (a2) of 1.3 to 2.0.

[Claim 3]

An electronic device housing as set forth in either claim 1 or 2, wherein the first fiber (a2) is carbon fiber.

[Claim 4]

An electronic device housing as set forth in any one of claims 1 to 3, wherein the first resin (a1) is a polyphenylene sulfide resin or a polycarbonate resin.

[Claim 5]

An electronic device housing as set forth in any one of claims 1 to 4, wherein the second resin (b1) is a thermosetting resin.

[Claim 6]

An electronic device housing as set forth in any one of claims 1 to 5, wherein the second fiber (b2) is a non-electrically-conductive fiber.

[Claim 7]

An electronic device housing as set forth in any one of claims 1 to 6, wherein the first fiber reinforcing member (a) and the second fiber reinforcing member (b) are joined directly without the existence of another layer at the joining face between the first fiber reinforcing member (a) and the second fiber reinforcing member (b).

[Claim 8]

An electronic device housing as set forth in any one of claims 1 to 7, wherein the shaped portions of at least one selected from the group of frame, boss, rib, hinge, and runner is

formed of the first fiber reinforcing member (a).

[Claim 9]

A production method for an electronic device housing as set forth in any one of claims 1 to 8 comprising:

a first step for inserting the second fiber reinforcing member (b) into die with a temperature controlled at 100°C or more and a second step for injecting a resin composition containing a first thermoplastic resin (a1) and a first fiber (a2) into the inserted second fiber reinforcing member (b) existing in the die to form a first fiber reinforcing member (a) so that the first fiber reinforcing member (a) and the second fiber reinforcing member (b) are integrated.