

Title of the InventionPROCESS FOR FORMING ELECTROCONDUCTIVE SEGMENT FOR CONTACTOR RUBBERBackground of the Invention

1. Field of the Invention

5 The present invention relates to a process for forming an electroconductive segment of a contactor rubber for, such as, manipulation key of key board etc., serving as an inter-connector between the electrodes of, such as, printed circuit board, LSI-chips etc.

2. Description of the Prior Art

10 In preparing a contactor rubber, in which an electroconductive segment is formed over a portion of a shaped piece of electroinsulating rubber, it has heretofore been practiced either to bond a layer of an electroconductive rubber onto the electroinsulating shaped piece under vulcanization or to print a pattern of electroconductive layer on the
15 insulating shaped piece with an electrically conductive ink.

Brief Summary of the Invention

 Electroconductive rubber prepared by admixing carbon powder to a rubber blend is employed in various electronic apparatuses for its high durability. It is accompanied, however, by a shortcoming of higher price
20 with lower productivity, since extraneous processing steps are required to cut out a sheet of electroconductive rubber in a predetermined form for preparing the conductive segment and to dispose the so prepared segment in a proper position to accord to the position of corresponding recess in the mold upon molding the contactor rubber with it.

25 In addition, it is difficult to obtain conductive segments having high durability with sufficiently low resistance, by a conventional technique, such as screen printing or transfer printing, since only a limited thickness of the printing layer can be attained thereby.

By the present invention, it is contemplated to propose a process for the production of contactor rubber having a conductive segment of low resistance with high durability, by adopting a technique which comprises
5 preparing an electroconductive ink mixture having a suitable consistency by diluting an existing electroconductive printing ink with a solvent, applying the so prepared mixture to a shaped piece of electroinsulating rubber over a predetermined area by dropping, pouring or
10 spraying it and volatilizing off the solvent to leave an electroconductive cured layer.

Detailed Description of Preferred Embodiment

The invention is now described by way of an example in more detail.

15 Example

An existing electroconductive ink was diluted with a solvent to a suitable viscosity. This ink mixture of lower viscosity was applied over the electroinsulating part of the contactor rubber in a predetermined portion by dropping
20 it thereon from a suitable syringe etc., or by pouring from a pouring rod. The ink mixture is retained within a limited area in a swollen lens-like form due to the surface tension of the ink mixture. If the ink mixture flowed away due to a thinner consistency, the mixture was re-formulated so as
25 to reach a suitable consistency. The layer of the ink mixture was then subjected to volatilization of the solvent to leave a flat cured electroconductive layer. The film thickness can be adjusted by choosing a suitable consistency of the ink mixture to be applied on the
30 electroinsulating part of the contactor rubber.

By the process according to the present invention, it becomes now possible to obtain a contactor rubber having a conductive segment of a thickness over 50 μm and thus a sufficiently low resistance, which is

not able to obtain by the conventional techniques such as printing etc., in an easy manner with superior durability. It is also advantageous that a considerable reduction in the production costs can be attained.

CLAIMS:-

1. A process for forming a conductive segment of a contactor rubber, comprising preparing an electroconductive ink mixture having a suitable consistency by diluting an existing electroconductive printing ink with a solvent to reduce its high viscosity, applying the so prepared mixture, by dropping, spraying or pouring, to a shaped piece of an electroinsulating rubber over a predetermined area and volatilizing off the solvent to leave an electroconductive cured layer.
2. A process as claimed in claim 1 and substantially as herein described.
3. A conductive segment when manufactured by the process as claimed in either claim 1 or claim 2.
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