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**Supporting high-voltage bus capacitors selective specifications
for electric vehicle motor controller
(English Translation)**

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

Attention is drawn to the possibility that some of the elements of this Standard may be the subject of patent rights. The issuing authority shall not be held responsible for identifying any or all such patent rights.

This Standard shall be under the jurisdiction of Institute of Electronic Industry Standards, Ministry of Industry and Information Technology.

Main drafting organizations of this Standard. BYD Auto Industry Co., Ltd., Chery New Energy Automotive Technology Co., Ltd., Jianghuai Automobile Co., Ltd., Shanghai Electric Drive Co., Ltd., Shenzhen Huichuan Technology Co., Ltd., Shenzhen Lanhai Huateng Technology Co., Ltd., Shanghai Zhongke Shenjiang Electric Vehicle Co., Ltd., Huizhou BYD Battery Co., Ltd., Xiamen Farah Electronics Co., Ltd., Wuxi Zhonghui Automotive Electronic Technology Co., Ltd., Car Information Service Industry Application Alliance.

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Supporting high-voltage bus capacitors selective specifications for electric vehicle motor controller

1 Scope

This Specifications specifies the selective requirements for supporting high-voltage bus capacitors for electric vehicle motor controller (hereinafter referred to as the capacitor), mainly including the selective requirements for DC-Link capacitors. Other types of capacitors can refer to use.

This Specifications is applicable to the capacitors for hybrid vehicle with rated DC voltage over 60V, plug-in hybrid vehicle and pure electric vehicle.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 2423.1-2008, Environmental testing - Part 2. Test methods - Tests A. Cold

GB/T 2423.2-2008, Environmental testing - Part 2. Test methods - Tests B. Dry heat

GB/T 2423.3-2006, Environmental testing for electric and electronic products - Part 2. Testing method test Cab. Damp heat Steady state

GB/T 2423.22-2012, Environmental testing - Part 2. Tests methods - Test N. Change of temperature

GB/T 2693-2001, Fixed capacitors for use in electronic equipment - Part 1. Generic specification

GB/T 17702-2013, Capacitors for power electronics (IEC 61071.2007, IDT)

GB/T 19596, Terminology of electric vehicles

GB/T 28046.3-2011, Road vehicles - Environmental conditions and testing for electrical and electronic equipment - Part 3. Mechanical loads requirements.

4.3.4 Equivalent series resistance (ESR)

The equivalent series resistance of the capacitor shall meet the detailed specification of the product.

4.3.5 Rated ripple current

The rated ripple current of the capacitor shall ensure long-term reliable operation of the capacitor at its rated voltage and frequency range and at 85°C.

4.3.6 Peak ripple current

The capacitor shall meet the requirements of motor controller's peak ripple current.

4.3.7 Equivalent series induction (ESL)

The equivalent series inductance of the capacitor does not affect the normal operation of the system. Motor controller designer shall give the highest inductance requirement.

4.3.8 Voltage between electrode terminal and shell

The voltage between the electrode lead-out terminal of the capacitor and the housing shall ensure the withstand voltage performance of the motor controller.

4.3.9 Thermal insulation resistance

The thermal insulation resistance of the capacitor shall meet the requirements of the motor controller.

4.4.1 Scope of working temperature

Unless otherwise specified, capacitor operating temperature range is -40°C to 85°C.

4.4.2 Temperature resistance

The capacitor shall meet the requirements of high temperature storage, low temperature storage, thermal stability, low temperature operation, high and low temperature cycles, and temperature impact test requirements regulated by

motor controllers for electric vehicles.

4.4.3 Moisture and heat resistance

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