



Control Relay

KES D-A801

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Contents

1. Purpose
2. Scope of Application
3. Report of Evaluation Results
4. Definition of Terminology
5. Specifications Indicated in Drawings
6. Evaluation Standard
7. Evaluation Method
8. Alteration of Specification
9. Indication Method on Drawings
10. Quoted Standard

Appendix

Remark



1. Purpose

This standard aims at securing proper quality by standardizing specifications.

Remark : This standard and drawings communicate together our requirements.

2. Scope of Application

This standard specifies the control relay for switching of power supply in the fuel gauge and the ignitor for automobiles(hereinafter referred to as the "relay").

3. Report of Evaluation Result

The quality evaluation results at each stage from development to mass production shall be submitted to Kia according to the Appendix.

4. Definition of Terminology

(1) Working voltage

Voltage when relay contact closes by increasing applied voltage gradually

(2) Drop out voltage

Voltage when contact opens by dropping applied voltage gradually under the state that relay contact is closed

(3) Abbreviation

TOH: Upper limit of normal working temperature

TSH: Upper limit of storage temperature

VAL: Working voltage at -30°C

VAH: Working voltage at TOH

VRL: Drop out voltage at -30°C

VRH: Drop out voltage at TOH

5. Specification Indicated in Drawings

(1) Actual load

(2) Rated voltage

(3) Rated loaded current

(4) Magnetization current

(5) Circuit diagram

(6) Each coil circuit

(7) Each contact designation

(8) Normal working temperature range(-30°C to TOH)

(9) Storage temperature range(-40°C to TSH)

(10) Voltage characteristics

Working voltage: VAL-VAH

Drop out voltage: VRL-VRH

(11) Assembling position

6. Evaluation Standard

The evaluation standard of the relay shall conform to Table 1.

Remark 1. The way of reading evaluation items and methods in Table 1 shall conform to the following example.

Evaluation Item			Evaluation Method	
Durability	Vibration resistance	First evaluation	7.5.1	First evaluation method
	• Operating force of slider	Second evaluation (Evaluation item tested after evaluating the vibration resistance)	• 7.3.1	Second evaluation method
	• Noise	Third evaluation (Evaluation item tested after evaluating the operating force)	• 7.3.7	Third evaluation method

Remark 2. The quality rank shall be represented by A, AR, B or C.

The definitions shall conform to KMS Q 410001(Determination and Procedure of Quality Ranking).

Table 1

Evaluation Item		Evaluation Standard	Evaluation Rank	Evaluation Method
Performance	Voltage characteristics	Conform to the specification in the drawing.	A	7.2.1
	Magnetization current	Conform to the specification in the drawing.	A	7.2.2
	Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	7.2.3
	Insulation resistance	1.0MΩ or more	B	7.2.4
	Insulation proofstrength	—		7.2.5
	• Voltage characteristics	Conform to the specification in the drawing.	A	• 7.2.1
	• Magnetization current	Conform to the specification in the drawing.	A	• 7.2.2
	• Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	• 7.2.3
	• Insulation resistance	1.0MΩ or more	B	• 7.2.4

Table 1 (Continued)

	Evaluation Item	Evaluation Standard	Evaluation	Evaluation
			Rank	Method
Durability	Normal temperature working durability	No crack, deformation, looseness and coming-off etc. of terminals.	B	7.3.1
	· Voltage characteristics	Conform to the specification in the drawing.	A	· 7.2.1
	· Magnetization current	Conform to the specification in the drawing.	A	· 7.2.2
	· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	· Insulation resistance	1.0MΩ or more	B	· 7.2.4
	· Insulation proofstrength	—		· 7.2.5
	·· Voltage characteristics	Conform to the specification in the drawing.	A	·· 7.2.1
	·· Magnetization current	Conform to the specification in the drawing.	A	·· 7.2.2
	·· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	·· 7.2.3
	·· Insulation resistance	1.0MΩ or more	B	·· 7.2.4
	High temperature working durability	No crack, deformation, looseness and coming-off etc. of terminals.	B	7.3.2
	· Voltage characteristics	Conform to the specification in the drawing.	A	· 7.2.1
	· Magnetization current	Conform to the specification in the drawing.	A	· 7.2.2
	· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	· Insulation resistance	1.0MΩ or more	B	· 7.2.4
	· Insulation proofstrength	—		· 7.2.5
	·· Voltage characteristics	Conform to the specification in the drawing.	A	·· 7.2.1
	·· Magnetization current	Conform to the specification in the drawing.	A	·· 7.2.2

Table 1 (Continued)

	Evaluation Item	Evaluation Standard	Evaluation	Evaluation
			Rank	Method
Durability	··Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	··7.2.3
	··Insulation resistance	1.0MΩ or more	B	··7.2.4
	Log sweep vibration durability	No crack, deformation, looseness and coming-off etc. of terminals.	B	7.3.3
	· Voltage characteristics	Conform to the specification in the drawing.	A	· 7.2.1
	· Magnetization current	Conform to the specification in the drawing.	A	· 7.2.2
	· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	· Insulation resistance	1.0MΩ or more	B	· 7.2.4
	· Insulation proofstrength	——		· 7.2.5
	··Voltage characteristics	Conform to the specification in the drawing.	A	··7.2.1
	··Magnetization current	Conform to the specification in the drawing.	A	··7.2.2
	··Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	··Insulation resistance	1.0MΩ or more	B	· 7.2.4
Thermal environment	High temperature working durability	No crack, deformation, looseness and coming-off etc. of terminals.	B	7.4.1
	· Voltage characteristics	Conform to the specification in the drawing.	A	· 7.2.1
	· Magnetization current	Conform to the specification in the drawing.	A	· 7.2.2
	· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	· Insulation resistance	1.0MΩ or more	B	· 7.2.4
	· Insulation proofstrength	——		· 7.2.5
	··Voltage characteristics	Conform to the specification in the drawing.	A	··7.2.1
	··Magnetization current	Conform to the specification in the drawing.	A	··7.2.2
	··Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	··7.2.3
	··Insulation resistance	1.0MΩ or more	B	··7.2.4

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Evaluation Rank	Evaluation Method
Thermal environment	Low temperature exposure resistance	No crack, deformation, looseness and coming-off etc. of terminals.	B	7.4.2
	• Voltage characteristics	Conform to the specification in the drawing.	A	• 7.2.1
	• Magnetization current	Conform to the specification in the drawing.	A	• 7.2.2
	• Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	• 7.2.3
	• Insulation resistance	1.0MΩ or more	B	• 7.2.4
	• Insulation proofstrength	—		• 7.2.5
	•• Voltage characteristics	Conform to the specification in the drawing.	A	•• 7.2.1
	•• Magnetization current	Conform to the specification in the drawing.	A	•• 7.2.2
	•• Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	•• 7.2.3
	•• Insulation resistance	1.0MΩ or more	B	•• 7.2.4
	Repeating thermal shock resistance	No crack, deformation, looseness and coming-off etc. of terminals.	B	7.4.3
	• Voltage characteristics	Conform to the specification in the drawing.	A	• 7.2.1
	• Magnetization current	Conform to the specification in the drawing.	A	• 7.2.2
	• Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	• 7.2.3
	• Insulation resistance	1.0MΩ or more	B	• 7.2.4
	• Insulation proofstrength	—		• 7.2.5
	•• Voltage characteristics	Conform to the specification in the drawing.	A	•• 7.2.1
	•• Magnetization current	Conform to the specification in the drawing.	A	•• 7.2.2
	•• Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	•• 7.2.3
	•• Insulation resistance	1.0MΩ or more	B	•• 7.2.4
	Temperature cycle resistance	No crack, deformation, looseness and coming-off etc. of terminals.	B	7.4.4
	• Voltage characteristics	Conform to the specification in the drawing.	A	• 7.2.1

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Evaluation Rank	Evaluation Method
Thermal environment	· Magnetization current	Conform to the specification in the drawing.	A	· 7.2.2
	· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	· Insulation resistance	1.0MΩ or more	B	· 7.2.4
	· Insulation proofstrength	—		· 7.2.5
	·· Voltage characteristics	Conform to the specification in the drawing.	A	·· 7.2.1
	·· Magnetization current	Conform to the specification in the drawing.	A	·· 7.2.2
	·· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	·· Insulation resistance	1.0MΩ or more	B	· 7.2.4
Electric environment	Abnormal voltage resistance(1)	No crack, deformation, looseness and coming-off etc. of terminals.	B	7.4.1
	· Voltage characteristics	Conform to the specification in the drawing.	A	· 7.2.1
	· Magnetization current	Conform to the specification in the drawing.	A	· 7.2.2
	· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	· Insulation resistance	1.0MΩ or more	B	· 7.2.4
	· Insulation proofstrength	—		· 7.2.5
	·· Voltage characteristics	Conform to the specification in the drawing.	A	·· 7.2.1
	·· Magnetization current	Conform to the specification in the drawing.	A	·· 7.2.2
	·· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	·· 7.2.3
	·· Insulation resistance	1.0MΩ or more	B	·· 7.2.4
	Abnormal voltage resistance(2)	No smoke and ignition	A	7.2.5
	Abnormal voltage resistance(3)	No smoke and ignition	A	7.5.3
	Power source reverse connection resistance	No crack, deformation, looseness and coming-off etc. of terminals.	B	7.5.4
	· Voltage characteristics	Conform to the specification in the drawing.	A	· 7.2.1

Table 1 (Continued)

	Evaluation Item	Evaluation Standard	Evaluation	
			Rank	Method
Elec- tric envir- onment	· Magnetization current	Conform to the specification in the drawing.	A	· 7.2.2
	· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	· Insulation resistance	1.0MΩ or more	B	· 7.2.4
	· Insulation proofstrength	—		· 7.2.5
	·· Voltage characteristics	Conform to the specification in the drawing.	A	·· 7.2.1
	·· Magnetization current	Conform to the specification in the drawing.	A	·· 7.2.2
	·· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	·· Insulation resistance	1.0MΩ or more	B	· 7.2.4
Spec- ial envir- onment	Moisture resistance	No crack, deformation, looseness and coming-off etc. of terminals.	B	7.6.1
	· Voltage characteristics	Conform to the specification in the drawing.	A	· 7.2.1
	· Magnetization current	Conform to the specification in the drawing.	A	· 7.2.2
	· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	· 7.2.3
	· Insulation resistance	1.0MΩ or more	B	· 7.2.4
	· Insulation proofstrength	—		· 7.2.5
	·· Voltage characteristics	Conform to the specification in the drawing.	A	·· 7.2.1
	·· Magnetization current	Conform to the specification in the drawing.	A	·· 7.2.2
	·· Voltage drop	Power contact 0.2V or less Pump contact 0.2V or less	A	·· 7.2.3
	·· Insulation resistance	1.0MΩ or more	B	·· 7.2.4
	Water resistance	No smoke nor ignition	B	7.6.2
	· Voltage characteristics	Conform to the specification in the drawing.	A	· 7.2.1
	· Magnetization current	Conform to the specification in the drawing.	A	· 7.2.2