Test report

Test Request By:	Bel Fuse Limited		
Tested Product Name:	0AKH Fuse	**Date of Received:**	2018/07/28
Type Designation:	0AKH-500	**Serial No:**	Engineering Sample
Test Specification:	Qualification Test, refer to JSAE JASO D622		
Test Place:			
Test Result:	The tested sample mentioned above **Pass** the testing according to test specification		
Test By:		**Review By:** **:**	
Date:	2018/08/31	**Date:**	2018/09/01
Others: Qualification Test for 0AKH-500			

TEST PLAN

No.	Group	Test item	Testing according to	Type name	Quantity	Test condition	Acceptable Value/Range
1	0	DCR	UL248-1	0AKH-500	12pcs	Surrounding environment: 23+/ -5℃, measuring current <=10% rated current, test point: fuse cap	Test data
2	A	Temperature rise	ISO8820-8 JSAE JASO D622	0AKH-500	2pcs from Item 1	Surrounding environment: 23+/ -5℃, measuring current 0.5In	<80K
3	B	Temperature /humidity cycling	JASO D622 6.3.4.1	0AKH-500	2pcs from Item 1	10 temperature/humidity cycles per standard in a constant temperature and humidity chamber	No appearance damage，Rc < 10%
4	B	Hot / cold shock test	JASO D622 6.3.6	0AKH-500	2pcs from Item 1	48 cycles，-30°C-100°C；	No appearance damage，Rc < 10%
5	B	High temperature storage	Bel Spec.	0AKH-500	2pcs from Item 1	125℃ for 100 hours	No appearance damage，Rc < 10%
6	B	Mechanical shock	JASO D622 6.3.3	0AKH-500	2pcs from Item 1	Ambient temperature: 23+ -5℃, fixed fuse in vibration tester, 10-55hz, sinusoidal, peak value 1.5mm; One way 2 hours, three ways	No appearance damage，Rc < 10%
7	B	Impulse current cycle test	Refer to JASO D622 6.3.2	0AKH-500	2pcs from Item 1	Ambient temperature: 23+ -5℃, impulse current 2In/0.25s and 0.5In/ 9.75s for one cycle, total 50,000 cycles.	No appearance damage，Rc < 10%
8	B	Wipe with Gasoline oil	Refer to GB/T31465.1-5.4	0AKH-500	All the above tested samples	Wipe the tubes with gasoline / lube for 30s each,	Marking will be indelible and easily legible

Content

1. Purpose

Verify the electrical and reliability of the product.

2. Test equipment

Equipment	Type	Manufacturer
Multimeter	34401A	Agilent
Programmable DC Power supply	PST-3201	GW
Programmable DC Power Supply	PSM-3004	GW
mOHM meter	1154D	DHK
Current Shunt	2M-05	T&M Research
Oscilloscope	TDS5104B	Tektronix
DC electronic Load	63209	Chroma
Electric vibration system	DC-1000	SZSY
Power Supply	6V3000A	YST
Temperature Measurement	40032	TH
Temperature/Humidity Chamber	RHP-150CT	REALE
Thermal Shock Chamber	TSA-71H-W	REALE

3. Test equipment and scheme

The test was conducted according to the test scheme of 0AKH_Test_Report_2018. Mark the sample number (sample number from 1-12) and use the same sample to test all items in the test plan.

4. Test result

4.1.1 Initial test result

4.1.2 DCR (No. 1)

Test result **pass**

Table 1 0AKH-500 (No. 1)

Type:	0AKH-500						
Start date:	2018/08/02			Finish date:	2018/08/02		
Room temperature:	25.9℃			Room humidity.	62%		
No.\ Item	DCR	Visual		No.\ Item	DCR	visual	
Unit:	mΩ			Unit:	mΩ		
Maximum：				Maximum：			
Minimum:		No appearance damage		Minimum:		No appearance damage	
1	0.2212	pass		7	0.2241	pass	
2	0.2219	pass		8	0.2245	pass	
3	0.2221	pass		9	0.2232	pass	
4	0.2242	pass		10	0.2237	pass	
5	0.2233	pass		11	0.2251	pass	
6	0.2243	pass		12	0.2239	pass	

4.2. Electrical test result group A

4.2.1 Temperature rise (No. 2)

Test result: 通过

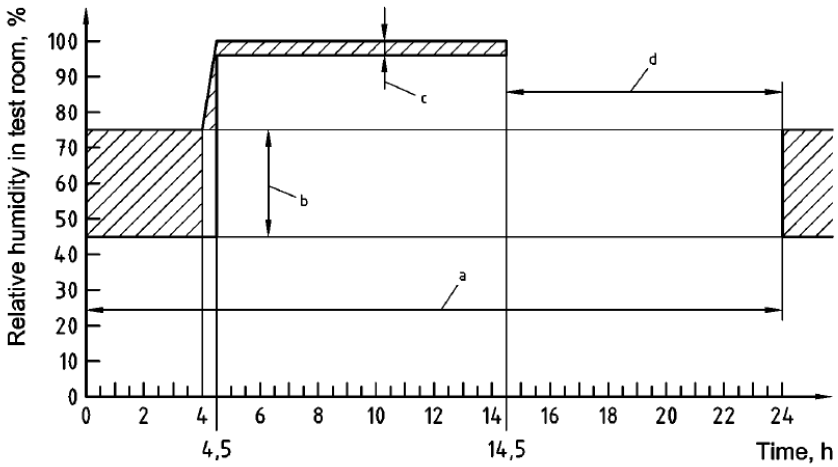
Table 2 0AKH-500 (No. 2)

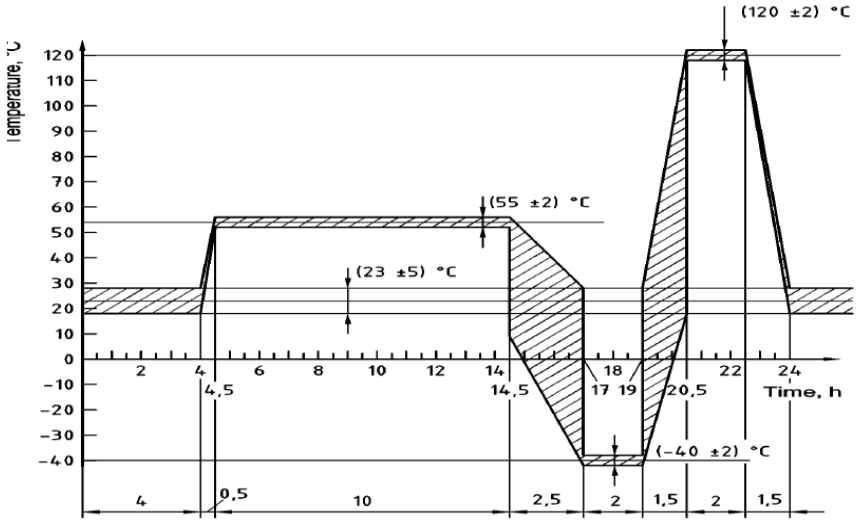
Type	0AKH-500						
Start date:	2018/8/6			Finish date:	2018/8/8		
Room temperature.	25.9℃			Room Humidity.	51%		
No.\ Item	Temperature rise @0.5In	Visual					
Unit:	K						
Maximum：							
Minimum:		No appearance damage					
1	29.5	pass					
2	30.2	pass					

4.3. Reliability test result group B

4.3.1 Temperature /humidity cycling test result(No. 3)

10 temperature-humidity cycles according the following setting and 24 hours per cycle





Test result: **pass**

Table 1 0AKH-500 (No. 3)

Type:	AKH-500						
Start date:	2018/08/19			Finish date:	2018/08/30		
Room temperature..:	25.7℃			Room Humidity.	55%		
No.\ Item	DCR	Visual					
Unit:	mΩ						
Maximum:							
Minimum:		No appearance damage					
3	0.2232	pass					
4	0.2241	pass					

4.3.2 Hot / cold shock test result (No. 4))

48 cycles of hot / cold shock and the condition of single cycle as the following:

1. -30+/-2℃ continued 30min;
2. Switching time 15s maximum;
3. 100+/-2℃ continued 30min;
4. Switching time 15s maximum;

Test result: **pass**

Table 2 0AKH-500(No. 4)

Type:	0AKH-500						
Start date:	2018/08/06			Finish date:	2018/08/09		
Room temperature.	26.3℃			Room humidity.	65%		
No.\ Item	DCR	Visual					
Unit:	mΩ						
Maximum：							
Minimum:		No appearance damage					
5	0.2243	pass					
6	0.2246	pass					

4.3.3 High temperature storage test result (No. 5)

Test result: **Pass**

Table 3 0AKH-500 (No. 5)

Type:	0AKH-500						
Start date:	2018/8/20			Finish date:	2018/8/25		
Room temperature.	25.7℃			Room humidity.	71%		
No.\ Item	DCR	Visual					
Unit:	mΩ						
Maximum：							
Minimum:		No appearance damage					
7	0.2251	pass					
8	0.2245	pass					

4.3.4 Mechanical shock test result (No. 6)

Test result: **Pass**

Table 4 0AKH-500 (No. 6)

Type:	0AKH-500						
Start date:	2018/8/10			Finish date::	2018/8/20		
Room temperature.	25.5℃			Room humidity.	67%		
No.\ Item	DCR	visual					
Unit:	mΩ						
Maximum：							
Minimum:		No appearance damage					
9	0.2239	pass					
10	0.2245	pass					

4.3.5 Impulse current cycle test result(No. 7)

Test result: **Pass**

Table 7 0AKH-500 (No. 7)

Type:	0AKH-500						
Start date::	2018/8/11			Finish date:: :	2018/8/29		
Room temperature.	24.7℃			Room humidity.	73%		
No.\ Item	DCR	Visual					
Unit:	mΩ						
Maximum：							
Minimum:		No appearance damage					
11	0.2268	pass					
12	0.2242	pass					

4.3.6 Test result of wiping the tubes with gasoline / lube, (No. 8)

*Gasoline is GB #92, lubricating oil is synthetic oil.

Test result: **Pass**

Table 8 0AKH-500 (No. 8)

Type:	0AKH-500		
Start date::	2018/08/31	Finish date::	2018/08/31
Room temperature.	25.1℃	Room humidity.	63%

No.\ Item	Marking can be recognized		No.\ Item	Marking can be recognized			
Unit:			Unit:				
Maximum：			Maximum：：				
Minimum::			Minimum::				
1	pass		7	pass			
2	pass		8	pass			
3	pass		9	pass			
4	pass		10	pass			
5	pass		11	pass			
6	pass		12	pass			

5. Test image

Image 1, Mechanical shock curve

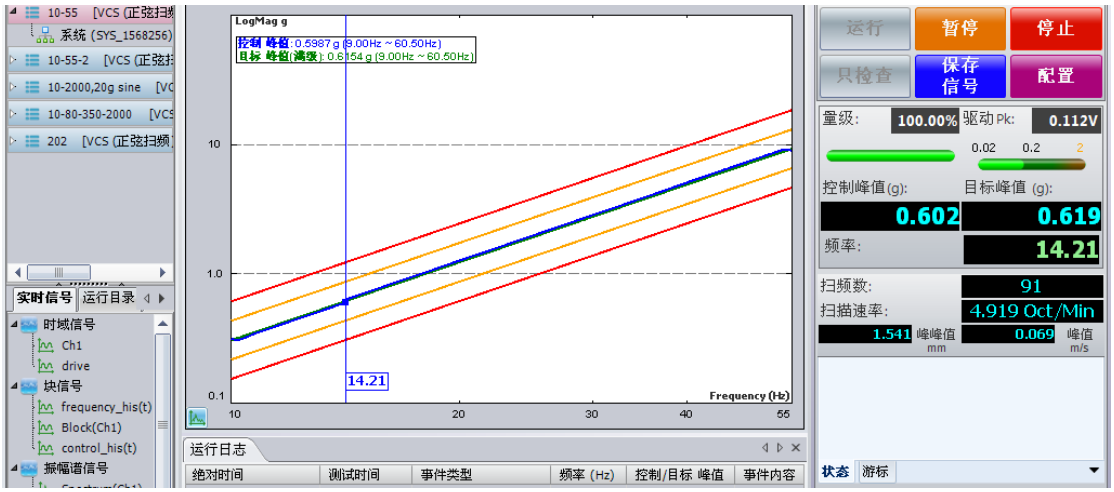


Image 2, Hot -cold shock curve

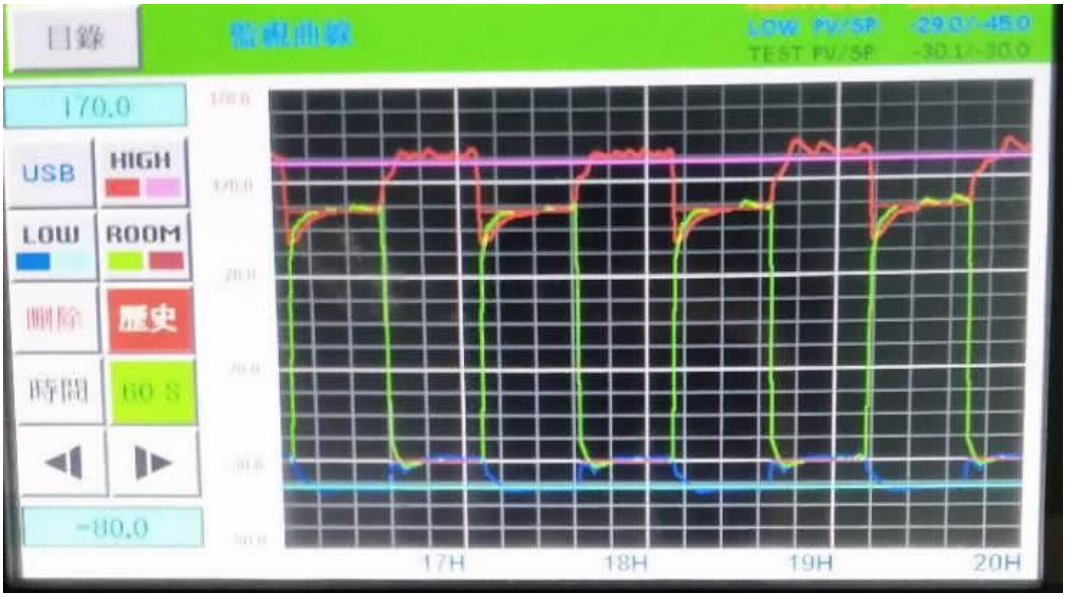


Image 3, Temperature-humidity cycling curve