



Fuse Qualification Summary Report - 0AKKX(63A-175A) Fuse series

Fuse Type and Rating : 0AKKX 63A/80A/160A

Production Lot Number : ENG'samples

Project Number : FPQ-133

Fuse Part Number : 0AKKB9630-XX/0AKKB9800-XX/0AKKBK160-XX

Reference	Test Description	Testing Condition	Acceptance Criteria	Result
UL248-1	Cold resistance	Ambient Temperature 23+-5°C current ≤10% In, Measure Point: Fuse Cap	Record data	12/12 pass for each P/N
ISO8820-8 JSAE JASO D622	Temperature rise test	Ambient Temperature 23+-5°C; Current: 50% of rated current	Temperature Rise <50K	2/2 pass
JASO D622 6.3.4.1	Temperature and humidity cycle	Make 10 temperature / humidity change cycles in the constant temperature and humidity tank according to the standard	No appearance damage, Rc change <10%	2/2 pass
JASO D622 6.3.6	Thermal shock resistance test	48cycles, -30° C-100° C;	No appearance damage, Rc change <10%	2/2 pass
User-defined	High temperature storage test	Storage under 125degrees for 100hours;	No appearance damage, Rc change <10%	2/2 pass
MIL-STD-202 Method 204	Vibration Durability	For 5g's for 20 min, XYZ was performed in three directions, with 12 cycles each	No appearance damage, Rc change <10%	2/2 pass
JASO D622 6.3.2	Transient current intermittent cycle durability test	Ambient Temperature 23+-5°C; One cycle contain a current of 2In/0.25sec, and follow by current of 0.5In/15sec; Total 50000cycle	No appearance damage, Rc change <10%	2/2 pass
GB/T31465.1-5.4	Wipe off the Lubricant & Fuel oil	Wipe the marking with fuel oil and lubricant for 30sec each	After test, marking is clear and identifiable	12/12 pass
JASO D622 ISO8820-8	Strength of fuse links	Tighten and loosed the fuses(M8) with 12+/-1 Nm torque for 3 times	Terminals maintain integrated after test.	12/12 pass

Reported By: Hongguo Hu

Approved by: Simon Chiu

Test Complete Date: Apr 24 , 2021

Cold resistance

Fuse Type and Rating : 0AKKX 63A/80A/160A

Production Lot Number : ENG'samples

Project Number : FPQ-133

Fuse Part Number : 0AKKB9630-XX/0AKKB9800-XX/0AKKBK160-XX

Condition : UL248-1

Ambient Temperature 23+-5°C current ≤10% In, Measure Point: Fuse Cap

Type:	0AKKB 63A					
Start Date:	3/12/2021			End Date:	3/12/2021	
Room Temp.:	22.3	°C		Room Humi.:	53	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	No Visual Damage		Upper Limit:	No Visual Damage		
Lower Limit:			Lower Limit:			
1	2.112	pass	7	2.101	pass	
2	2.126	pass	8	2.093	pass	
3	2.114	pass	9	2.097	pass	
4	2.112	pass	10	2.116	pass	
5	2.125	pass	11	2.088	pass	
6	2.112	pass	12	2.109	pass	

Type:	0AKKB 80A					
Start Date:	3/12/2021			End Date:	3/12/2021	
Room Temp.:	22.3	°C		Room Humi.:	53	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	No Visual Damage		Upper Limit:	No Visual Damage		
Lower Limit:			Lower Limit:			
1	1.620	pass	7	1.564	pass	
2	1.571	pass	8	1.566	pass	
3	1.585	pass	9	1.589	pass	
4	1.582	pass	10	1.601	pass	
5	1.583	pass	11	1.573	pass	
6	1.575	pass	12	1.564	pass	

Type:	0AKKB 160A					
Start Date:	3/12/2021			End Date:	3/12/2021	
Room Temp.:	22.3	°C		Room Humi.:	53	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	No Visual Damage		Upper Limit:	No Visual Damage		
Lower Limit:			Lower Limit:			
1	0.7422	pass	7	0.7411	pass	
2	0.7405	pass	8	0.7398	pass	
3	0.7416	pass	9	0.7426	pass	
4	0.7430	pass	10	0.7387	pass	
5	0.7431	pass	11	0.7436	pass	
6	0.7409	pass	12	0.7422	pass	

Temperature rise test

Fuse Type and Rating : 0AKKX 63A/80A/160A

Production Lot Number : ENG'samples

Project Number : FPQ-133

Fuse Part Number : 0AKKB9630-XX/0AKKB9800-XX/0AKKBK160-XX

Condition : ISO8820-8JSAE JASO D622
Ambient Temperature 23+-5°C; Current: 50% of rated current

Type:	0AKKB 63A					
Start Date:	3/13/2021			End Date:	3/15/2021	
Room Temp.:	22.1	°C		Room Humi.:	55	%
No.\Name	Temperature rise @0.5In	Visual Check	No.\Name	Temperature rise @0.5In	Visual Check	
Unit:	K		Unit:	K		
Upper Limit:	50	No Visual Damage	Upper Limit:	50	No Visual Damage	
Lower Limit:			Lower Limit:			
1	19.6	pass	2	20.3	pass	

Type:	0AKKB 80A					
Start Date:	3/13/2021			End Date:	3/15/2021	
Room Temp.:	22.1	°C		Room Humi.:	55	%
No.\Name	Temperature rise @0.5In	Visual Check	No.\Name	Temperature rise @0.5In	Visual Check	
Unit:	K		Unit:	K		
Upper Limit:	50	No Visual Damage	Upper Limit:	50	No Visual Damage	
Lower Limit:			Lower Limit:			
1	25.6	pass	2	25.3	pass	

Type:	0AKKB 160A					
Start Date:	3/13/2021			End Date:	3/15/2021	
Room Temp.:	22.1	°C		Room Humi.:	55	%
No.\Name	Temperature rise @0.5In	Visual Check	No.\Name	Temperature rise @0.5In	Visual Check	
Unit:	K		Unit:	K		
Upper Limit:	50	No Visual Damage	Upper Limit:	50	No Visual Damage	
Lower Limit:			Lower Limit:			
1	31.3	pass	2	30.9	pass	

Temperature and humidity cycle

Fuse Type and Rating : 0AKKX 63A/80A/160A

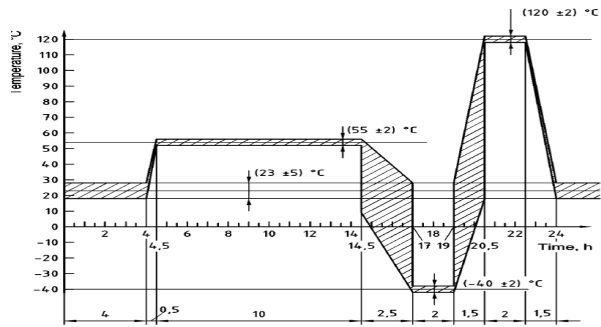
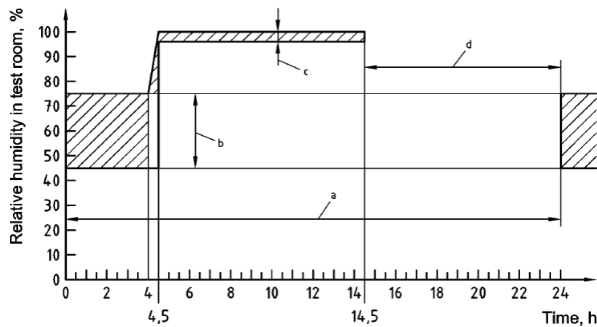
Production Lot Number : ENG'samples

Project Number : FPQ-133

Fuse Part Number : 0AKKB9630-XX/0AKKB9800-XX/0AKKBK160-XX

Condition : JASO D622 6.3.4.1

Make 10 temperature / humidity change cycles in the constant temperature and humidity tank according to the standard



Type:	0AKKB 63A			End Date:	3/27/2021	
Start Date:	3/15/2021			Room Humi.:	48	%
Room Temp.:	24.2	°C		Room Humi.:	48	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	2.339	No Visual Damage	Upper Limit:	2.339	No Visual Damage	
Lower Limit:	1.879		Lower Limit:	1.879		
3	2.094	pass	4	2.098	pass	

Type:	0AKKB 80A			End Date:	3/27/2021	
Start Date:	3/15/2021			Room Humi.:	48	%
Room Temp.:	24.2	°C		Room Humi.:	48	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	1.782	No Visual Damage	Upper Limit:	1.782	No Visual Damage	
Lower Limit:	1.408		Lower Limit:	1.408		
3	1.581	pass	4	1.575	pass	

Type:	0AKKB 160A			End Date:	3/27/2021	
Start Date:	3/15/2021			Room Humi.:	48	%
Room Temp.:	24.2	°C		Room Humi.:	48	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.8180	No Visual Damage	Upper Limit:	0.8180	No Visual Damage	
Lower Limit:	0.6648		Lower Limit:	0.6648		
3	0.7403	pass	4	0.7380	pass	



Thermal shock resistance test

Fuse Type and Rating : 0AKKX 63A/80A/160A

Production Lot Number : ENG'samples

Project Number : FPQ-133

Fuse Part Number : 0AKKB9630-XX/0AKKB9800-XX/0AKKBK160-XX

Condition : JASO D622 6.3.6

48cycles, -30° C-100° C;

The condition of a single cycle:

-Leave the test pieces inside the room at $(-30 \pm 2)^\circ\text{C}$ for 30 minutes.

-Move then to another room at $(100 \pm 2)^\circ\text{C}$ within 15 seconds and leave them for 30 minutes.

-Move them back to the original room at $(-30 \pm 2)^\circ\text{C}$ within 15 seconds.

Type:	0AKKB 63A					
Start Date:	3/23/2021			End Date:	3/26/2021	
Room Temp.:	25.1	°C		Room Humi.:	59	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	2.339	No Visual Damage	Upper Limit:	2.339	No Visual Damage	
Lower Limit:	1.879		Lower Limit:	1.879		
5	2.113	pass	6	2.096	pass	

Type:	0AKKB 80A					
Start Date:	3/23/2021			End Date:	3/26/2021	
Room Temp.:	25.1	°C		Room Humi.:	59	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	1.782	No Visual Damage	Upper Limit:	1.782	No Visual Damage	
Lower Limit:	1.408		Lower Limit:	1.408		
5	1.579	pass	6	1.569	pass	

Type:	0AKKB 160A					
Start Date:	3/23/2021			End Date:	3/26/2021	
Room Temp.:	25.1	°C		Room Humi.:	59	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.8180	No Visual Damage	Upper Limit:	0.8180	No Visual Damage	
Lower Limit:	0.6648		Lower Limit:	0.6648		
5	0.7396	pass	6	0.7366	pass	

High temperature storage test

Fuse Type and Rating : 0AKKX 63A/80A/160A

Production Lot Number : ENG'samples

Project Number : FPQ-133

Fuse Part Number : 0AKKB9630-XX/0AKKB9800-XX/0AKKBK160-XX

Condition : User-defined

Storage under 125degrees for 100hours;

Type:	0AKKB 63A					
Start Date:	3/25/2021			End Date:	4/2/2021	
Room Temp.:	24.1	°C		Room Humi.:	53	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	2.339	No Visual Damage	Upper Limit:	2.339	No Visual Damage	
Lower Limit:	1.879		Lower Limit:	1.879		
7	2.083	pass	8	2.091	pass	

Type:	0AKKB 80A					
Start Date:	3/25/2021			End Date:	4/2/2021	
Room Temp.:	24.1	°C		Room Humi.:	53	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	1.782	No Visual Damage	Upper Limit:	1.782	No Visual Damage	
Lower Limit:	1.408		Lower Limit:	1.408		
7	1.562	pass	8	1.564	pass	

Type:	0AKKB 160A					
Start Date:	3/25/2021			End Date:	4/2/2021	
Room Temp.:	24.1	°C		Room Humi.:	53	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.8180	No Visual Damage	Upper Limit:	0.8180	No Visual Damage	
Lower Limit:	0.6648		Lower Limit:	0.6648		
7	0.7373	pass	8	0.7356	pass	



Vibration Durability

Fuse Type and Rating : 0AKKX 63A/80A/160A

Production Lot Number : ENG'samples

Project Number : FPQ-133

Fuse Part Number : 0AKKB9630-XX/0AKKB9800-XX/0AKKBK160-XX

Condition : MIL-STD-202 Method 204

For 5g's for 20 min, XYZ was performed in three directions, with 12 cycles each

Type:	0AKKB 63A					
Start Date:	4/12/2021			End Date:	4/14/2021	
Room Temp.:	23.6	°C		Room Humi.:	62	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	2.339	No Visual Damage	Upper Limit:	2.339	No Visual Damage	
Lower Limit:	1.879		Lower Limit:	1.879		
9	2.078	pass	10	2.103	pass	

Type:	0AKKB 80A					
Start Date:	4/12/2021			End Date:	4/14/2021	
Room Temp.:	23.6	°C		Room Humi.:	62	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	1.782	No Visual Damage	Upper Limit:	1.782	No Visual Damage	
Lower Limit:	1.408		Lower Limit:	1.408		
9	1.581	pass	10	1.588	pass	

Type:	0AKKB 160A					
Start Date:	4/12/2021			End Date:	4/14/2021	
Room Temp.:	23.6	°C		Room Humi.:	62	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.8180	No Visual Damage	Upper Limit:	0.8180	No Visual Damage	
Lower Limit:	0.6648		Lower Limit:	0.6648		
9	0.7381	pass	10	0.7351	pass	

Transient current intermittent cycle durability test

Fuse Type and Rating : 0AKKX 63A/80A/160A

Production Lot Number : ENG'samples

Project Number : FPQ-133

Fuse Part Number : 0AKKB9630-XX/0AKKB9800-XX/0AKKBK160-XX

Condition : JASO D622 6.3.2

Ambient Temperature 23+-5°C; One cycle contain a current of 2In/0.25sec, and follow by current of 0.5In/15sec;
Total 50000cycle

Type:	0AKKB 63A					
Start Date:	4/10/2021			End Date:	4/22/2021	
Room Temp.:	25.3	°C		Room Humi.:	63	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	2.339	No Visual Damage	Upper Limit:	2.339	No Visual Damage	
Lower Limit:	1.879		Lower Limit:	1.879		
11	2.087	pass	12	2.099	pass	

Type:	0AKKB 80A					
Start Date:	4/10/2021			End Date:	4/22/2021	
Room Temp.:	25.3	°C		Room Humi.:	63	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	1.782	No Visual Damage	Upper Limit:	1.782	No Visual Damage	
Lower Limit:	1.408		Lower Limit:	1.408		
11	1.569	pass	12	1.563	pass	

Type:	0AKKB 160A					
Start Date:	4/10/2021			End Date:	4/22/2021	
Room Temp.:	25.3	°C		Room Humi.:	63	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.8180	No Visual Damage	Upper Limit:	0.8180	No Visual Damage	
Lower Limit:	0.6648		Lower Limit:	0.6648		
11	0.7382	pass	12	0.7394	pass	

Wipe off the Lubricant & Fuel oil

Fuse Type and Rating : 0AKKX 63A/80A/160A

Production Lot Number : ENG'samples

Project Number : FPQ-133

Fuse Part Number : 0AKKB9630-XX/0AKKB9800-XX/0AKKBK160-XX

Condition : GB/T31465.1-5.4

Wipe the marking with fuel oil and lubricant for 30sec each

Type:	0AKKB 63A					
Start Date:	4/23/2021			End Date:	4/23/2021	
Room Temp.:	24.3	°C		Room Humi.:	61	%
No.\Name	Marking still legible		No.\Name	Marking still legible		
1	pass		7	pass		
2	pass		8	pass		
3	pass		9	pass		
4	pass		10	pass		
5	pass		11	pass		
6	pass		12	pass		

Strength of fuse links

Fuse Type and Rating : 0AKKX 63A/80A/160A

Production Lot Number : ENG'samples

Project Number : FPQ-133

Fuse Part Number : 0AKKB9630-XX/0AKKB9800-XX/0AKKBK160-XX

Condition : JASO D622ISO8820-8

Tighten and loosed the fuses(M8) with 12+/-1 Nm torque for 3 times

Type:	0AKKB 63A					
Start Date:	3/12/2021			End Date:	4/23/2021	
Room Temp.:	25.7	°C		Room Humi.:	67	%
No.\Name	The frequency of Tighten and loosed	Visual Check	No.\Name	The frequency of Tighten and loosed	Visual Check	
Unit:			Unit:			
Upper Limit:		No Visual Damage	Upper Limit:		No Visual Damage	
Lower Limit:	3		Lower Limit:	3		
1	>3	pass	7	>3	pass	
2	>3	pass	8	>3	pass	
3	>3	pass	9	>3	pass	
4	>3	pass	10	>3	pass	
5	>3	pass	11	>3	pass	
6	>3	pass	12	>3	pass	

Type:	0AKKB 160A					
Start Date:	4/9/2021			End Date:	4/23/2021	
Room Temp.:	25.7	°C		Room Humi.:	67	%
No.\Name	The frequency of Tighten and loosed	Visual Check	No.\Name	The frequency of Tighten and loosed	Visual Check	
Unit:			Unit:			
Upper Limit:		No Visual Damage	Upper Limit:		No Visual Damage	
Lower Limit:	3		Lower Limit:	3		
1	>3	pass	7	>3	pass	
2	>3	pass	8	>3	pass	
3	>3	pass	9	>3	pass	
4	>3	pass	10	>3	pass	
5	>3	pass	11	>3	pass	
6	>3	pass	12	>3	pass	