August 27, 2026

Document #: 8ZDGF-1869-4

Dear Valued Customers

Nidec Components Corporation
Sensor Division

Product change notification – pressure sensors (LED plant relocation)

This is to inform you of upcoming changes to our pressure sensor products. This notification is intended to help you to take any necessary actions such as updating internal documentation or processes, in response to the changes described below.

1. Affected products

PS20、PS30、PS6、WL10

2. Change description

The manufacturing plant for LEDs will be relocated.

3. Reason for Change

Kingbright Electronics Co, Ltd, manufacture of LEDs has announced to relocate its manufacturing plant from Shenzhen to Huizhou. No changes will be made to the production equipment or manufacturing processes. We kindly ask you to review the details below and provide your approval in advance.

4. Impact on Quality and Performance

Based on our review of the factory relocation evaluation documents and reliability test results submitted by the manufacturer, equivalency with the current product has been confirmed. The LED is used in our sensor products as an indicator lamp for the 7-segment display and for visual confirmation of the switch ON/OFF status. It does not affect the sensor's measurement performance, control performance, or safety functions. In addition, manufacturer documentation confirms that there are no changes to manufacturing equipment, materials, production processes, inspection standards, or quality control standards. Therefore, no additional evaluation has been conducted by our company, and we deem the change acceptable based on the manufacturer's supporting evidence. The manufacturer's reliability report is attached for your reference. There is no impact on the product specifications, quality, or performance as a result of this change.

5. Scheduled Implementation Date

① KPT-1608LCGCK （PS6, WL10） From 2026 September onwards

② KPT-1608LR01C-KL （PS6、PS20、PS30、WL10） From 2026 August onwards

＊All the scheduled implementation dates above are on a production basis. The actual timing may vary depending on production conditions.

6. Others

We have verified that this change does not affect product quality or performance. To proceed with the formal implementation of this change, we respectfully request your approval. Please provide your signature in the space below.

Approval signature

【Date】 _____

【Company name】 _____

【Signature】 _____

Appendix 1 List of affected

products using LED

Product series name	Application	
	For the 7-segment display	For displaying switch output
PS30	KPT-1608LR01C-KL	KPT-1608LR01C-KL
PS6	KPT-1608LR01C-KL	KPT-1608LR01C-KL (SW1) KPT-1608LCGCK (SW2)
PS20	—	KPT-1608LR01C-KL
WL10	—	KPT-1608LCGCK (Green) KPT-1608LR01C-KL (Red)

LED Reliability Test Report

No. REL202512204

☐ :____year___month plan schedule

☐ :__Customer's requirement

■ :Verification

Supplier	Kingbright	Emitting Color	Green
Laboratory	Kingbright Laboratory	Scope of Inspection	WI-MQ00-R-0106
P/N	KPT-1608LCGCK	Report date	2025/12/2

No.	Test Item	Test Date	Test Condition	Standards	Judgement	Number Of Damaged	Sample
1	Continuous operating	2025/10/17 ~ 2025/12/1	IF =2mA Ta = 25 Degree C. T = 1000 h	A schedule	Passed	0/22	22pcs
2	High temp. and hum. storage	2025/10/17 ~ 2025/12/1	Ta = 60 Degree C. T = 1000 h RH = 90 %RH	B schedule	Passed	0/22	22pcs
3	Solderability	2025/10/19	Ta = 245 Degree C. T = 5 s Reflow	Cover 95%	Passed	0/22	22pcs
4	Soldering resistance	2025/10/22	Ta=260 Degree C. T=5 s 2 times Reflow	A schedule	Passed	0/22	22pcs
5	Thermal shock	2025/10/22 ~ 2025/10/27	Ta = -40 Degree C. ~ 100 Degree C. T = 15 min ~ 15 min × 100 cycles	B schedule	Passed	0/22	22pcs
6	Drop	2025/10/27 ~ 2025/10/27	H=100 cm T=3 cycles	B schedule	Passed	0/22	22pcs
7	Vibration	2025/10/27	Accelerate speed 200 m / s^2 Frequency = 100 ~ 2000 Hz , T = 48min, X.Y.Z Three directions,Four times	A schedule	Passed	0/22	22pcs

Standard schedule

	Characteristics item	Symbol	Standards
A	Forward voltage	VF (V)	USL *1.1(MAX)
	Reverse current	IR (μA)	USL*2 (MAX)
	Intensity value	IV (mcd)	Initial value * 0.6 (MIN)
	Appearance	/	Damage

Standard schedule

	Characteristics item	Symbol	Standards
B	Forward voltage	VF (V)	USL*1.1(MAX)
	Reverse current	IR (μA)	USL*2(MAX)
	Intensity value	IV (mcd)	Initial value * 0.8 (MIN)
	Appearance	/	Damage

Specification

Characteristics	Symbol	Spec
VF	VF (V)	MAX 2.3 V
IR	IR (uA)	MAX 10 μA
IV	IV (mcd)	MIN 1.2 mcd
Remark	LSL	Initial SPEC LSL
	USL	Initial SPEC USL

Conclusion: The products of the relocated factory were all verified for reliability。

Tested by:Runhong Sui

Checked by:Cathee Yu

Approved by:Benson Huang

LED Reliability Test

Test Item : Continuous operating

Part No: KPT-1608LCGCK

Emitting Color: Green

Life test forward current:2mA

Reference : EIAJ ED-4701 100 101

Test reason: Reliability Test

Sampling method:

Intensity test forward current(mA): 2 mA

MIL-STD-19500D LTPD=10%

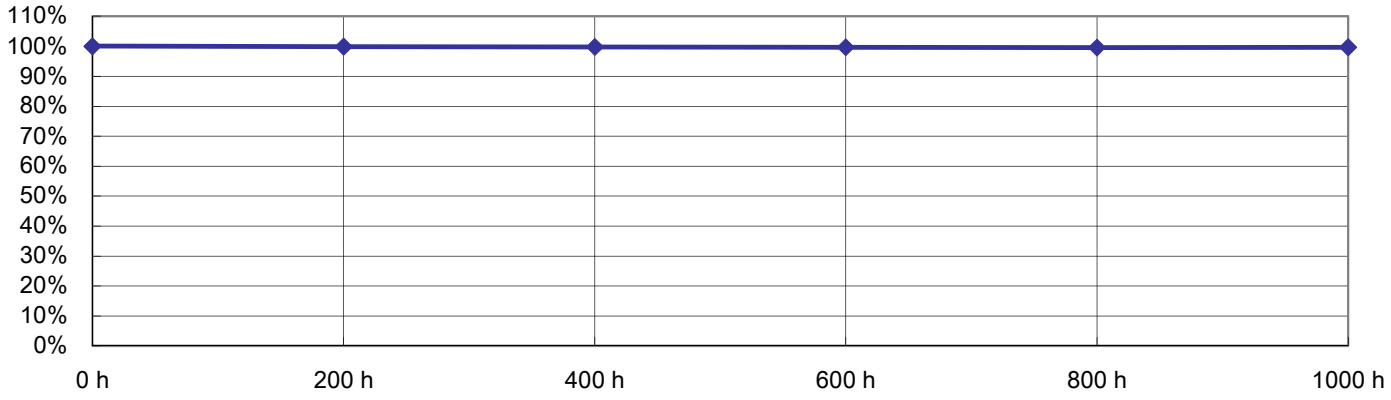
Test condition: Ta = 25 Degree C. RH < 75 %RH ,1000 h

Report date:2025/12/2

Inspection condition:Ta=25 Degree C. RH<75% RH

No. \ h / mcd	0 h	200 h	400 h	600 h	800 h	1000 h	Before test			After test		
							VF	IR	λD	VF	IR	λD
1	4.20	4.19	4.19	4.19	4.18	4.19	1.93	0.1	572.1	1.95	0.1	572.0
2	4.17	4.16	4.17	4.16	4.15	4.15	1.93	0.1	572.0	1.95	0.1	572.1
3	4.19	4.19	4.18	4.17	4.17	4.17	1.93	0.1	571.9	1.93	0.1	571.8
4	4.20	4.19	4.22	4.21	4.20	4.21	1.92	0.1	572.0	1.93	0.1	572.1
5	4.15	4.16	4.13	4.13	4.12	4.13	1.94	0.1	572.3	1.94	0.1	572.2
6	4.22	4.19	4.18	4.17	4.17	4.17	1.94	0.1	572.2	1.94	0.1	572.3
7	4.15	4.12	4.14	4.19	4.19	4.19	1.92	0.1	572.4	1.92	0.1	572.3
8	4.22	4.22	4.21	4.16	4.19	4.20	1.94	0.1	572.0	1.95	0.1	572.1
9	4.16	4.14	4.14	4.09	4.14	4.14	1.95	0.1	572.3	1.95	0.1	572.2
10	4.11	4.10	4.11	4.11	4.10	4.11	1.94	0.1	572.4	1.95	0.1	572.5
11	4.19	4.19	4.17	4.17	4.16	4.16	1.92	0.1	572.6	1.94	0.1	572.5
12	4.20	4.20	4.23	4.22	4.22	4.22	1.92	0.1	572.4	1.93	0.1	572.5
13	4.15	4.18	4.12	4.12	4.11	4.12	1.94	0.1	572.1	1.95	0.1	572.2
14	4.17	4.14	4.15	4.16	4.15	4.16	1.92	0.1	572.0	1.92	0.1	571.9
15	4.23	4.22	4.23	4.22	4.22	4.22	1.94	0.1	572.3	1.96	0.1	572.4
16	4.07	4.07	4.07	4.06	4.06	4.06	1.89	0.1	572.4	1.91	0.1	572.5
17	4.22	4.22	4.20	4.20	4.19	4.19	1.94	0.1	572.5	1.94	0.1	572.4
18	4.14	4.12	4.10	4.10	4.09	4.10	1.94	0.1	572.3	1.96	0.1	572.4
19	4.17	4.16	4.15	4.15	4.15	4.16	1.95	0.1	571.9	1.95	0.1	571.8
20	4.13	4.13	4.14	4.13	4.13	4.13	1.95	0.1	572.3	1.95	0.1	572.4
21	4.21	4.21	4.21	4.20	4.20	4.20	1.90	0.1	572.3	1.90	0.1	572.2
22	4.19	4.19	4.18	4.18	4.14	4.16	1.93	0.1	572.2	1.93	0.1	572.3
MAX	4.23	4.22	4.23	4.22	4.22	4.22	1.95	0.1	572.6	1.96	0.1	572.5
MIN	4.07	4.07	4.07	4.06	4.06	4.06	1.89	0.1	571.9	1.90	0.1	571.8
AVG	4.17	4.17	4.16	4.16	4.16	4.16	1.93	0.1	572.2	1.94	0.1	572.2
Percentage%	100.0%	99.8%	99.7%	99.6%	99.5%	99.7%						
Test Date	2025/10/17	2025/10/26	2025/11/4	2025/11/13	2025/11/22	2025/12/1	2025/10/17	2025/10/17	2025/10/17	2025/12/1	2025/12/1	2025/12/1

Intensity Degradation Curve



Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item : High temperature and high humidity storage

Part No: KPT-1608LCGCK

Life test forward current: /

Test reason: Reliability Test

Intensity test forward current (mA): 2 mA

Test condition : Ta = 60 Degree C. , RH = 90 %RH ,1000 h

Inspection condition:Ta=25 Degree C. RH<75% RH

Emitting Color: Green

Reference:EIAJ ED-4701 100 103

Sampling method:

MIL-STD-19500D LTPD=10%

Report date:2025/12/2

Range	Before test			After test		
Test date	2025/10/17			2025/12/1		
No.	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)
	MAX 2.3 V	MAX 10 μA	MIN 1.2 mcd	MAX 2.3 V	MAX 10 μA	MIN 1.2 mcd
1	1.93	0.1	4.18	1.93	0.1	4.18
2	1.89	0.1	4.13	1.89	0.1	4.06
3	1.91	0.1	4.21	1.90	0.1	4.19
4	1.93	0.1	4.22	1.92	0.1	4.22
5	1.94	0.1	4.17	1.91	0.1	4.12
6	1.92	0.1	4.19	1.92	0.1	4.14
7	1.91	0.1	4.25	1.90	0.1	4.28
8	1.91	0.1	4.09	1.92	0.1	4.02
9	1.92	0.1	4.24	1.91	0.1	4.25
10	1.91	0.1	4.11	1.92	0.1	4.11
11	1.93	0.1	4.19	1.94	0.1	4.15
12	1.89	0.1	4.20	1.90	0.1	4.21
13	1.92	0.1	4.15	1.93	0.1	4.11
14	1.90	0.1	4.17	1.91	0.1	4.10
15	1.94	0.1	4.22	1.93	0.1	4.21
16	1.93	0.1	4.06	1.93	0.1	4.05
17	1.88	0.1	4.22	1.89	0.1	4.18
18	1.91	0.1	4.14	1.90	0.1	4.09
19	1.94	0.1	4.16	1.93	0.1	4.13
20	1.89	0.1	4.13	1.90	0.1	4.12
21	1.92	0.1	4.20	1.91	0.1	4.19
22	1.89	0.1	4.22	1.88	0.1	4.21
MIN	1.88	0.1	4.06	1.88	0.1	4.02
AVG	1.91	0.1	4.17	1.91	0.1	4.15
MAX	1.94	0.1	4.25	1.94	0.1	4.28
Percentage%	100%	100%	100%	100%	100%	99.4%
γ	0	0	0	0	0	0
η	22	22	22	22	22	22
Judgement	Passed	Passed	Passed	Passed	Passed	Passed

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item :Solderablilty
Part No: KPT-1608LCGCK
Life test forward current: /
Test reason:Reliability Test
Intensity test forward current (mA):/
Test condition:Ta = 245 Degree C. , 5 s Reflow
Inspection condition:Ta=25 Degree C. RH<75% RH

Emitting Color: Green
Reference : EIAJ ED-4701 300 303
Sampling method:
MIL-STD-19500D LTPD=10%
Report date:2025/12/2

No.	Appearance	Appearance judgement
Test date	2025/10/19	2025/10/19
1	Wetting	Passed
2	Wetting	Passed
3	Wetting	Passed
4	Wetting	Passed
5	Wetting	Passed
6	Wetting	Passed
7	Wetting	Passed
8	Wetting	Passed
9	Wetting	Passed
10	Wetting	Passed
11	Wetting	Passed
12	Wetting	Passed
13	Wetting	Passed
14	Wetting	Passed
15	Wetting	Passed
16	Wetting	Passed
17	Wetting	Passed
18	Wetting	Passed
19	Wetting	Passed
20	Wetting	Passed
21	Wetting	Passed
22	Wetting	Passed
γ	0	0
η	22	22
Judgement	Passed	

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item : Soldering resistance

Emitting Color: Green

Part No: KPT-1608LCGCK

Reference : EIAJ ED-4701 300 301

Life test forward current:/

Sampling method:

Test reason:Reliability Test

MIL-STD-19500D LTPD=10%

Intensity test forward current (mA): 2 mA

Report date:2025/12/2

Test condition:Ta = 260 Degree C. ,T = 5 s 2 times Reflow

Inspection condition:Ta=25 Degree C. RH<75% RH

Range	Before test		After test	
Test date	2025/10/22		2025/10/22	
No.	VF (IF =2 mA)	IR (VR = 5 V)	VF (IF =2 mA)	IR (VR = 5 V)
	MAX 2.3 V	MAX 10 μA	MAX 2.3 V	MAX 10 μA
1	1.95	0.1	1.96	0.1
2	1.94	0.1	1.94	0.1
3	1.95	0.1	1.96	0.1
4	1.95	0.1	1.96	0.1
5	1.90	0.1	1.91	0.1
6	1.93	0.1	1.94	0.1
7	1.95	0.1	1.96	0.1
8	1.93	0.1	1.94	0.1
9	1.95	0.1	1.95	0.1
10	1.94	0.1	1.94	0.1
11	1.92	0.1	1.93	0.1
12	1.92	0.1	1.92	0.1
13	1.94	0.1	1.94	0.1
14	1.92	0.1	1.92	0.1
15	1.94	0.1	1.94	0.1
16	1.91	0.1	1.91	0.1
17	1.94	0.1	1.94	0.1
18	1.93	0.1	1.94	0.1
19	1.95	0.1	1.95	0.1
20	1.95	0.1	1.95	0.1
21	1.90	0.1	1.90	0.1
22	1.93	0.1	1.93	0.1
MIN	1.90	0.1	1.90	0.1
AVG	1.93	0.1	1.94	0.1
MAX	1.95	0.1	1.96	0.1
Percentage%	100%	100%	100%	100%
γ	0	0	0	0
η	22	22	22	22
Judgement	Passed	Passed	Passed	Passed

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item : Thermal shock

Emitting Color: Green

Part No: KPT-1608LCGCK

Reference : EIAJ ED-4701 300 307

Life test forward current: /

Sampling method:

Test reason: Reliability Test

MIL-STD-19500D LTPD=10%

Intensity test forward current (mA): 2 mA

Report date:2025/12/2

Test condition: Ta = -40 Degree C. ~ 100 Degree C.T = 15 min ~ 15 min × 100 cycles

Inspection condition:Ta = 25 Degree C. RH<75% RH

Range	Before test			After test		
Test date	2025/10/22			2025/10/27		
No.	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)
	MAX 2.3 V	MAX 10 μA	MIN 1.2 mcd	MAX 2.3 V	MAX 10 μA	MIN 1.2 mcd
1	1.90	0.1	4.51	1.90	0.1	4.51
2	1.89	0.1	4.24	1.89	0.1	4.16
3	1.91	0.1	4.30	1.91	0.1	4.27
4	1.91	0.1	4.24	1.91	0.1	4.24
5	1.89	0.1	4.19	1.90	0.1	4.16
6	1.91	0.1	4.28	1.92	0.1	4.22
7	1.92	0.1	4.28	1.93	0.1	4.26
8	1.91	0.1	4.24	1.91	0.1	4.21
9	1.89	0.1	4.25	1.90	0.1	4.23
10	1.89	0.1	4.31	1.90	0.1	4.28
11	1.91	0.1	4.20	1.91	0.1	4.16
12	1.89	0.1	4.38	1.90	0.1	4.39
13	1.91	0.1	4.10	1.92	0.1	4.05
14	1.91	0.1	4.11	1.91	0.1	4.09
15	1.91	0.1	4.17	1.91	0.1	4.15
16	1.91	0.1	4.08	1.91	0.1	4.06
17	1.91	0.1	4.23	1.91	0.1	4.19
18	1.95	0.1	4.27	1.95	0.1	4.21
19	1.92	0.1	4.18	1.93	0.1	4.16
20	1.92	0.1	4.56	1.92	0.1	4.54
21	1.92	0.1	4.22	1.92	0.1	4.20
22	1.90	0.1	4.20	1.90	0.1	4.18
MIN	1.89	0.1	4.08	1.89	0.1	4.05
AVG	1.91	0.1	4.25	1.91	0.1	4.22
MAX	1.95	0.1	4.56	1.95	0.1	4.54
Percentage%	100.0%	100.0%	100.0%	100.2%	100.0%	99.4%
γ	0	0	0	0	0	0
η	22	22	22	22	22	22
Judgement	Passed	Passed	Passed	Passed	Passed	Passed

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item :Drop

Part No: KPT-1608LCGCK

Life test forward current: /

Test reason:Reliability Test

Intensity test forward current (mA): 2 mA

Test condition:H=100 cm,T=3 cycles

Inspection condition:Ta = 25 Degree C. RH < 75% RH

Emitting Color: Green

Reference : JIS C0044

Sampling method:

MIL-STD-19500D LTPD=10%

Report date:2025/12/2

Range	Before test			After test		
Test date	2025/10/27			2025/10/27		
No.	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)
	MAX 2.3 V	MAX 10 μA	MIN 1.2 mcd	MAX 2.3 V	MAX 10 μA	MIN 1.2 mcd
1	1.92	0.1	4.15	1.93	0.1	4.15
2	1.91	0.1	4.22	1.91	0.1	4.15
3	1.91	0.1	4.15	1.93	0.1	4.14
4	1.93	0.1	4.22	1.92	0.1	4.23
5	1.91	0.1	4.16	1.93	0.1	4.13
6	1.93	0.1	4.57	1.95	0.1	4.52
7	1.91	0.1	4.40	1.91	0.1	4.39
8	1.93	0.1	4.41	1.95	0.1	4.36
9	1.93	0.1	4.36	1.92	0.1	4.35
10	1.94	0.1	4.38	1.95	0.1	4.38
11	1.92	0.1	4.44	1.94	0.1	4.41
12	1.91	0.1	4.52	1.91	0.1	4.54
13	1.93	0.1	4.47	1.93	0.1	4.44
14	1.91	0.1	4.39	1.90	0.1	4.40
15	1.94	0.1	4.42	1.93	0.1	4.42
16	1.91	0.1	4.38	1.91	0.1	4.38
17	1.93	0.1	4.46	1.93	0.1	4.43
18	1.93	0.1	4.56	1.92	0.1	4.51
19	1.94	0.1	4.59	1.93	0.1	4.57
20	1.94	0.1	4.14	1.92	0.1	4.14
21	1.90	0.1	4.38	1.92	0.1	4.37
22	1.92	0.1	4.29	1.91	0.1	4.29
MIN	1.90	0.1	4.14	1.90	0.1	4.13
AVG	1.92	0.1	4.37	1.92	0.1	4.35
MAX	1.94	0.1	4.59	1.95	0.1	4.57
Percentage%	100.0%	100.0%	100.0%	100.0%	100.0%	99.7%
γ	0	0	0	0	0	0
η	22	22	22	22	22	22
Judgement	Passed	Passed	Passed	Passed	Passed	Passed

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item :Vibration

Emitting Color: Green

Part No: KPT-1608LCGCK

Reference: EIAJ ED-4701 400 403

Life test forward current: /

Sampling method:

Test reason:Reliability Test

MIL-STD-19500D LTPD=10%

Intensity test forward current (mA): 2 mA

Report date:2025/12/2

Test condition:Accelerate speed 200m/s^2

Frequency = 100 ~ 2000 Hz ,T = 48 min , X , Y , Z Three directions , Four times

Inspection condition:Ta = 25 Degree C. RH<75% RH

Range	Before test			After test		
Test date	2025/10/27			2025/10/27		
No.	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)
	MAX 2.3 V	MAX 10 μA	MIN 1.2 mcd	MAX 2.3 V	MAX 10 μA	MIN 1.2 mcd
1	1.93	0.1	4.14	1.95	0.1	4.14
2	1.96	0.1	4.36	1.98	0.1	4.30
3	1.95	0.1	4.38	1.93	0.1	4.37
4	1.93	0.1	4.37	1.91	0.1	4.39
5	1.91	0.1	4.45	1.89	0.1	4.43
6	1.95	0.1	4.13	1.97	0.1	4.10
7	1.95	0.1	4.10	1.97	0.1	4.09
8	1.91	0.1	4.38	1.90	0.1	4.34
9	1.92	0.1	4.37	1.93	0.1	4.37
10	1.89	0.1	4.33	1.91	0.1	4.34
11	1.93	0.1	4.13	1.92	0.1	4.12
12	1.91	0.1	4.10	1.92	0.1	4.13
13	1.95	0.1	4.19	1.94	0.1	4.16
14	1.95	0.1	3.97	1.92	0.1	3.99
15	1.91	0.1	4.28	1.90	0.1	4.29
16	1.92	0.1	4.17	1.92	0.1	4.18
17	1.95	0.1	4.16	1.94	0.1	4.15
18	1.93	0.1	4.06	1.92	0.1	4.03
19	1.95	0.1	4.41	1.95	0.1	4.41
20	1.93	0.1	4.10	1.92	0.1	4.10
21	1.95	0.1	4.22	1.95	0.1	4.22
22	1.96	0.1	4.29	1.96	0.1	4.29
MIN	1.89	0.1	3.97	1.89	0.1	3.99
AVG	1.93	0.1	4.23	1.93	0.1	4.22
MAX	1.96	0.1	4.45	1.98	0.1	4.43
Percentage%	100%	100%	100%	100%	100%	99.9%
γ	0	0	0	0	0	0
η	22	22	22	22	22	22
Judgement	Passed	Passed	Passed	Passed	Passed	Passed

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test Report

No. REL202512207

☐ :____year___month plan schedule

☐ :__Customer's requirement

■ :Verification

Supplier	Kingbright	Emitting Color	Red
Laboratory	Kingbright Laboratory	Scope of Inspection	WI-MQ00-R-0106
P/N	KPT-1608LR01C-KL	Report date	2025/12/2

No.	Test Item	Test Date	Test Condition	Standards	Judgement	Number Of Damaged	Sample
1	Continuous operating	2025/10/17 ~ 2025/12/1	IF =2mA Ta = 25 Degree C. T = 1000 h	A schedule	Passed	0/22	22pcs
2	High temp. and hum. storage	2025/10/17 ~ 2025/12/1	Ta = 60 Degree C. T = 1000 h RH = 90 %RH	B schedule	Passed	0/22	22pcs
3	Solderability	2025/10/19	Ta = 245 Degree C. T = 5 s Reflow	Cover 95%	Passed	0/22	22pcs
4	Soldering resistance	2025/10/22	Ta=260 Degree C. T=5 s 2 times Reflow	A schedule	Passed	0/22	22pcs
5	Thermal shock	2025/10/22 ~ 2025/10/27	Ta = -40 Degree C. ~ 100 Degree C. T = 15 min ~ 15 min × 100 cycles	B schedule	Passed	0/22	22pcs
6	Drop	2025/10/27 ~ 2025/10/27	H=100 cm T=3 cycles	B schedule	Passed	0/22	22pcs
7	Vibration	2025/10/27	Accelerate speed 200 m / s^2 Frequency = 100 ~ 2000 Hz , T = 48min, X.Y.Z Three directions,Four times	A schedule	Passed	0/22	22pcs

Standard schedule

	Characteristics item	Symbol	Standards
A	Forward voltage	VF (V)	USL *1.1(MAX)
	Reverse current	IR (μA)	USL*2 (MAX)
	Intensity value	IV (mcd)	Initial value * 0.6 (MIN)
	Appearance	/	Damage

Standard schedule

	Characteristics item	Symbol	Standards
B	Forward voltage	VF (V)	USL*1.1(MAX)
	Reverse current	IR (μA)	USL*2(MAX)
	Intensity value	IV (mcd)	Initial value * 0.8 (MIN)
	Appearance	/	Damage

Specification

Characteristics	Symbol	Spec
VF	VF (V)	MAX 2.2 V
IR	IR (uA)	MAX 10 μA
IV	IV (mcd)	MIN 10 mcd
Remark	LSL	Initial SPEC LSL
	USL	Initial SPEC USL

Conclusion: The products of the relocated factory were all verified for reliability。

Tested by:Runhong Sui

Checked by:Cathee Yu

Approved by:Benson Huang

LED Reliability Test

Test Item : Continuous operating

Part No: KPT-1608LR01C-KL

Emitting Color: Red

Life test forward current:2mA

Reference : EIAJ ED-4701 100 101

Test reason: Reliability Test

Sampling method:

Intensity test forward current(mA): 2 mA

MIL-STD-19500D LTPD=10%

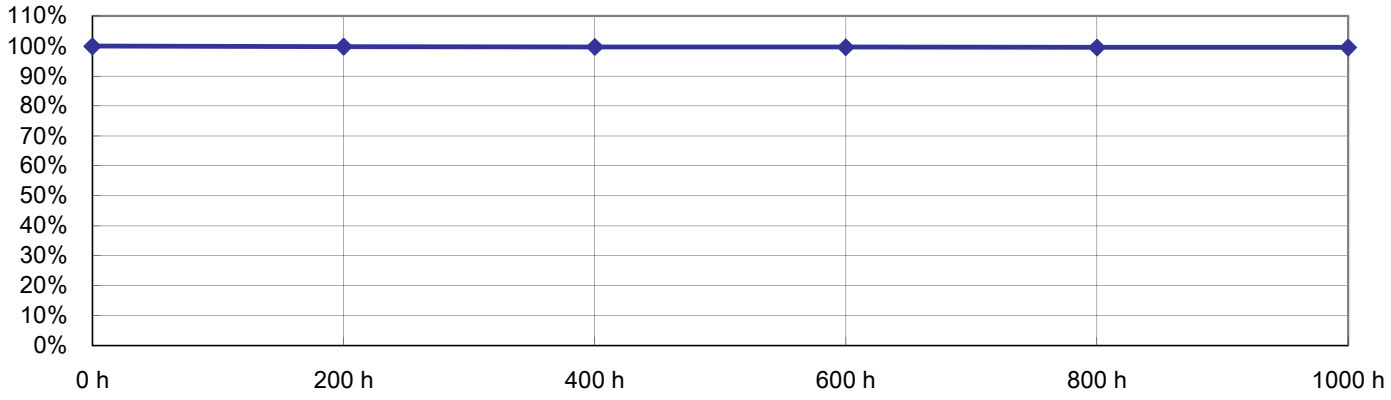
Test condition: Ta = 25 Degree C. RH < 75 %RH ,1000 h

Report date:2025/12/2

Inspection condition:Ta=25 Degree C. RH<75% RH

No. \ h / mcd	0 h	200 h	400 h	600 h	800 h	1000 h	Before test			After test		
							VF	IR	λD	VF	IR	λD
1	26.88	26.84	26.85	26.82	26.77	26.79	1.76	0.1	632.1	1.78	0.1	632.0
2	26.66	26.61	26.66	26.61	26.55	26.56	1.76	0.1	632.0	1.78	0.1	632.1
3	26.83	26.79	26.74	26.72	26.66	26.68	1.76	0.1	631.9	1.76	0.1	631.8
4	26.91	26.82	26.98	26.96	26.90	26.92	1.75	0.1	632.0	1.76	0.1	632.1
5	26.58	26.66	26.44	26.42	26.37	26.39	1.77	0.1	632.3	1.77	0.1	632.2
6	26.99	26.84	26.74	26.71	26.66	26.68	1.77	0.1	632.2	1.77	0.1	632.3
7	26.58	26.34	26.50	26.85	26.79	26.81	1.75	0.1	632.4	1.75	0.1	632.3
8	26.99	26.98	26.92	26.65	26.84	26.87	1.77	0.1	632.0	1.78	0.1	632.1
9	26.61	26.51	26.47	26.18	26.46	26.48	1.78	0.1	632.3	1.78	0.1	632.2
10	26.32	26.25	26.28	26.32	26.25	26.28	1.77	0.1	632.4	1.78	0.1	632.5
11	26.83	26.79	26.68	26.66	26.61	26.63	1.75	0.1	632.6	1.77	0.1	632.5
12	26.88	26.91	27.06	27.04	26.99	27.00	1.75	0.1	632.4	1.76	0.1	632.5
13	26.58	26.76	26.39	26.37	26.32	26.33	1.77	0.1	632.1	1.78	0.1	632.2
14	26.69	26.50	26.55	26.60	26.57	26.57	1.75	0.1	632.0	1.75	0.1	631.9
15	27.04	27.01	27.06	27.04	26.98	27.00	1.77	0.1	632.3	1.79	0.1	632.4
16	26.02	26.04	26.04	26.02	25.96	25.98	1.72	0.1	632.4	1.74	0.1	632.5
17	27.01	27.03	26.87	26.85	26.80	26.81	1.77	0.1	632.5	1.77	0.1	632.4
18	26.50	26.36	26.26	26.24	26.18	26.20	1.77	0.1	632.3	1.78	0.1	632.4
19	26.66	26.61	26.55	26.57	26.58	26.60	1.78	0.1	631.9	1.78	0.1	631.8
20	26.46	26.43	26.48	26.46	26.40	26.42	1.78	0.1	632.3	1.78	0.1	632.4
21	26.93	26.95	26.93	26.90	26.85	26.87	1.73	0.1	632.3	1.73	0.1	632.2
22	26.83	26.82	26.75	26.73	26.52	26.62	1.76	0.1	632.2	1.76	0.1	632.3
MAX	27.04	27.03	27.06	27.04	26.99	27.00	1.78	0.1	632.6	1.79	0.1	632.5
MIN	26.02	26.04	26.04	26.02	25.96	25.98	1.72	0.1	631.9	1.73	0.1	631.8
AVG	26.72	26.68	26.64	26.62	26.59	26.61	1.76	0.1	632.2	1.77	0.1	632.2
Percentage%	100.0%	99.8%	99.7%	99.6%	99.5%	99.6%						
Test Date	2025/10/17	2025/10/26	2025/11/4	2025/11/13	2025/11/22	2025/12/1	2025/10/17	2025/10/17	2025/10/17	2025/12/1	2025/12/1	2025/12/1

Intensity Degradation Curve



Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item : High temperature and high humidity storage

Part No: KPT-1608LR01C-KL

Life test forward current: /

Test reason: Reliability Test

Intensity test forward current (mA): 2 mA

Test condition : Ta = 60 Degree C. , RH = 90 %RH ,1000 h

Inspection condition:Ta=25 Degree C. RH<75% RH

Emitting Color: Red

Reference:EIAJ ED-4701 100 103

Sampling method:

MIL-STD-19500D LTPD=10%

Report date:2025/12/2

Range	Before test			After test		
Test date	2025/10/17			2025/12/1		
No.	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)
	MAX 2.2 V	MAX 10 μA	MIN 10 mcd	MAX 2.2 V	MAX 10 μA	MIN 10 mcd
1	1.76	0.1	26.74	1.76	0.1	26.77
2	1.72	0.1	26.45	1.72	0.1	25.97
3	1.74	0.1	26.96	1.73	0.1	26.80
4	1.76	0.1	27.02	1.75	0.1	27.02
5	1.77	0.1	26.72	1.74	0.1	26.34
6	1.75	0.1	26.83	1.75	0.1	26.50
7	1.74	0.1	27.18	1.73	0.1	27.39
8	1.74	0.1	26.15	1.75	0.1	25.72
9	1.75	0.1	27.15	1.74	0.1	27.18
10	1.74	0.1	26.29	1.74	0.1	26.31
11	1.76	0.1	26.80	1.77	0.1	26.59
12	1.72	0.1	26.86	1.73	0.1	26.96
13	1.75	0.1	26.56	1.76	0.1	26.29
14	1.73	0.1	26.67	1.74	0.1	26.27
15	1.77	0.1	27.01	1.76	0.1	26.96
16	1.76	0.1	25.99	1.76	0.1	25.94
17	1.72	0.1	26.99	1.72	0.1	26.77
18	1.74	0.1	26.48	1.73	0.1	26.16
19	1.77	0.1	26.64	1.76	0.1	26.45
20	1.72	0.1	26.43	1.73	0.1	26.38
21	1.75	0.1	26.91	1.74	0.1	26.83
22	1.72	0.1	26.99	1.71	0.1	26.93
MIN	1.72	0.1	25.99	1.71	0.1	25.72
AVG	1.74	0.1	26.72	1.74	0.1	26.57
MAX	1.77	0.1	27.18	1.77	0.1	27.39
Percentage%	100%	100%	100%	100%	100%	99.4%
γ	0	0	0	0	0	0
η	22	22	22	22	22	22
Judgement	Passed	Passed	Passed	Passed	Passed	Passed

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item :Solderablilty
Part No: KPT-1608LR01C-KL
Life test forward current: /
Test reason:Reliability Test
Intensity test forward current (mA):/
Test condition:Ta = 245 Degree C. , 5 s Reflow
Inspection condition:Ta=25 Degree C. RH<75% RH

Emitting Color: Red
Reference : EIAJ ED-4701 300 303
Sampling method:
MIL-STD-19500D LTPD=10%
Report date:2025/12/2

No.	Appearance	Appearance judgement
Test date	2025/10/19	2025/10/19
1	Wetting	Passed
2	Wetting	Passed
3	Wetting	Passed
4	Wetting	Passed
5	Wetting	Passed
6	Wetting	Passed
7	Wetting	Passed
8	Wetting	Passed
9	Wetting	Passed
10	Wetting	Passed
11	Wetting	Passed
12	Wetting	Passed
13	Wetting	Passed
14	Wetting	Passed
15	Wetting	Passed
16	Wetting	Passed
17	Wetting	Passed
18	Wetting	Passed
19	Wetting	Passed
20	Wetting	Passed
21	Wetting	Passed
22	Wetting	Passed
γ	0	0
η	22	22
Judgement	Passed	

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item : Soldering resistance

Emitting Color: Red

Part No: KPT-1608LR01C-KL

Reference : EIAJ ED-4701 300 301

Life test forward current:/

Sampling method:

Test reason:Reliability Test

MIL-STD-19500D LTPD=10%

Intensity test forward current (mA): 2 mA

Report date:2025/12/2

Test condition:Ta = 260 Degree C. ,T = 5 s 2 times Reflow

Inspection condition:Ta=25 Degree C. RH<75% RH

Range	Before test		After test	
Test date	2025/10/22		2025/10/22	
No.	VF (IF =2 mA)	IR (VR = 5 V)	VF (IF =2 mA)	IR (VR = 5 V)
	MAX 2.2 V	MAX 10 μA	MAX 2.2 V	MAX 10 μA
1	1.78	0.1	1.79	0.1
2	1.77	0.1	1.77	0.1
3	1.78	0.1	1.79	0.1
4	1.78	0.1	1.78	0.1
5	1.73	0.1	1.74	0.1
6	1.76	0.1	1.76	0.1
7	1.78	0.1	1.79	0.1
8	1.76	0.1	1.77	0.1
9	1.78	0.1	1.78	0.1
10	1.76	0.1	1.77	0.1
11	1.75	0.1	1.76	0.1
12	1.75	0.1	1.75	0.1
13	1.76	0.1	1.77	0.1
14	1.75	0.1	1.75	0.1
15	1.77	0.1	1.77	0.1
16	1.74	0.1	1.74	0.1
17	1.76	0.1	1.77	0.1
18	1.76	0.1	1.77	0.1
19	1.78	0.1	1.78	0.1
20	1.77	0.1	1.77	0.1
21	1.73	0.1	1.73	0.1
22	1.75	0.1	1.76	0.1
MIN	1.73	0.1	1.73	0.1
AVG	1.76	0.1	1.77	0.1
MAX	1.78	0.1	1.79	0.1
Percentage%	100%	100%	100%	100%
γ	0	0	0	0
η	22	22	22	22
Judgement	Passed	Passed	Passed	Passed

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item : Thermal shock

Emitting Color: Red

Part No: KPT-1608LR01C-KL

Reference : EIAJ ED-4701 300 307

Life test forward current: /

Sampling method:

Test reason: Reliability Test

MIL-STD-19500D LTPD=10%

Intensity test forward current (mA): 2 mA

Report date:2025/12/2

Test condition: Ta = -40 Degree C. ~ 100 Degree C.T = 15 min ~ 15 min × 100 cycles

Inspection condition:Ta = 25 Degree C. RH<75% RH

Range	Before test			After test		
Test date	2025/10/22			2025/10/27		
No.	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)
	MAX 2.2 V	MAX 10 μA	MIN 10 mcd	MAX 2.2 V	MAX 10 μA	MIN 10 mcd
1	1.73	0.1	28.88	1.74	0.1	28.88
2	1.72	0.1	27.12	1.73	0.1	26.60
3	1.74	0.1	27.53	1.74	0.1	27.33
4	1.74	0.1	27.14	1.75	0.1	27.12
5	1.72	0.1	26.84	1.73	0.1	26.60
6	1.75	0.1	27.36	1.75	0.1	27.01
7	1.75	0.1	27.42	1.76	0.1	27.29
8	1.74	0.1	27.12	1.75	0.1	26.95
9	1.72	0.1	27.23	1.73	0.1	27.05
10	1.73	0.1	27.58	1.73	0.1	27.39
11	1.74	0.1	26.90	1.75	0.1	26.65
12	1.72	0.1	28.03	1.73	0.1	28.11
13	1.75	0.1	26.21	1.75	0.1	25.92
14	1.74	0.1	26.32	1.74	0.1	26.15
15	1.74	0.1	26.66	1.74	0.1	26.58
16	1.74	0.1	26.09	1.74	0.1	26.01
17	1.74	0.1	27.08	1.74	0.1	26.84
18	1.78	0.1	27.31	1.78	0.1	26.95
19	1.76	0.1	26.73	1.76	0.1	26.59
20	1.75	0.1	29.18	1.75	0.1	29.09
21	1.75	0.1	27.00	1.75	0.1	26.90
22	1.73	0.1	26.90	1.73	0.1	26.72
MIN	1.72	0.1	26.09	1.73	0.1	25.92
AVG	1.74	0.1	27.21	1.74	0.1	27.03
MAX	1.78	0.1	29.18	1.78	0.1	29.09
Percentage%	100.0%	100.0%	100.0%	100.2%	100.0%	99.4%
γ	0	0	0	0	0	0
η	22	22	22	22	22	22
Judgement	Passed	Passed	Passed	Passed	Passed	Passed

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item :Drop

Emitting Color: Red

Part No: KPT-1608LR01C-KL

Reference : JIS C0044

Life test forward current: /

Sampling method:

Test reason:Reliability Test

MIL-STD-19500D LTPD=10%

Intensity test forward current (mA): 2 mA

Report date:2025/12/2

Test condition:H=100 cm,T=3 cycles

Inspection condition:Ta = 25 Degree C. RH < 75% RH

Range	Before test			After test		
Test date	2025/10/27			2025/10/27		
No.	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)
	MAX 2.2 V	MAX 10 μA	MIN 10 mcd	MAX 2.2 V	MAX 10 μA	MIN 10 mcd
1	1.75	0.1	26.58	1.76	0.1	26.57
2	1.74	0.1	26.99	1.74	0.1	26.56
3	1.74	0.1	26.58	1.76	0.1	26.48
4	1.76	0.1	26.99	1.75	0.1	27.04
5	1.74	0.1	26.61	1.76	0.1	26.45
6	1.77	0.1	29.24	1.78	0.1	28.94
7	1.74	0.1	28.17	1.74	0.1	28.09
8	1.76	0.1	28.23	1.78	0.1	27.88
9	1.76	0.1	27.91	1.75	0.1	27.86
10	1.77	0.1	28.03	1.78	0.1	28.04
11	1.75	0.1	28.39	1.77	0.1	28.22
12	1.74	0.1	28.91	1.74	0.1	29.08
13	1.76	0.1	28.64	1.76	0.1	28.41
14	1.74	0.1	28.09	1.73	0.1	28.18
15	1.77	0.1	28.26	1.76	0.1	28.26
16	1.74	0.1	28.05	1.74	0.1	28.05
17	1.76	0.1	28.55	1.76	0.1	28.38
18	1.76	0.1	29.16	1.75	0.1	28.87
19	1.77	0.1	29.36	1.77	0.1	29.27
20	1.77	0.1	26.49	1.75	0.1	26.49
21	1.73	0.1	28.01	1.74	0.1	27.98
22	1.75	0.1	27.45	1.74	0.1	27.45
MIN	1.73	0.1	26.49	1.73	0.1	26.45
AVG	1.75	0.1	27.94	1.75	0.1	27.84
MAX	1.77	0.1	29.36	1.78	0.1	29.27
Percentage%	100.0%	100.0%	100.0%	100.0%	100.0%	99.7%
γ	0	0	0	0	0	0
η	22	22	22	22	22	22
Judgement	Passed	Passed	Passed	Passed	Passed	Passed

Tested by: Runhong Sui

Checked by: Cathee Yu

LED Reliability Test

Test Item :Vibration

Emitting Color: Red

Part No: KPT-1608LR01C-KL

Reference: EIAJ ED-4701 400 403

Life test forward current: /

Sampling method:

Test reason:Reliability Test

MIL-STD-19500D LTPD=10%

Intensity test forward current (mA): 2 mA

Report date:2025/12/2

Test condition:Accelerate speed 200m/s^2

Frequency = 100 ~ 2000 Hz ,T = 48 min , X , Y , Z Three directions , Four times

Inspection condition:Ta = 25 Degree C. RH<75% RH

Range	Before test			After test		
Test date	2025/10/27			2025/10/27		
No.	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)	VF (IF =2 mA)	IR (VR = 5 V)	IV (IF = 2 mA)
	MAX 2.2 V	MAX 10 μA	MIN 10 mcd	MAX 2.2 V	MAX 10 μA	MIN 10 mcd
1	1.76	0.1	26.48	1.77	0.1	26.52
2	1.79	0.1	27.93	1.80	0.1	27.54
3	1.78	0.1	28.04	1.76	0.1	27.98
4	1.76	0.1	27.96	1.74	0.1	28.07
5	1.74	0.1	28.49	1.72	0.1	28.38
6	1.78	0.1	26.45	1.79	0.1	26.24
7	1.78	0.1	26.22	1.80	0.1	26.20
8	1.74	0.1	28.04	1.74	0.1	27.75
9	1.75	0.1	27.96	1.76	0.1	27.96
10	1.72	0.1	27.69	1.74	0.1	27.76
11	1.76	0.1	26.45	1.75	0.1	26.34
12	1.74	0.1	26.22	1.75	0.1	26.43
13	1.78	0.1	26.80	1.77	0.1	26.64
14	1.78	0.1	25.40	1.75	0.1	25.53
15	1.74	0.1	27.40	1.74	0.1	27.46
16	1.75	0.1	26.72	1.75	0.1	26.77
17	1.77	0.1	26.64	1.77	0.1	26.53
18	1.76	0.1	25.98	1.75	0.1	25.77
19	1.78	0.1	28.22	1.77	0.1	28.19
20	1.76	0.1	26.21	1.75	0.1	26.26
21	1.78	0.1	27.00	1.78	0.1	27.02
22	1.78	0.1	27.43	1.78	0.1	27.48
MIN	1.72	0.1	25.40	1.72	0.1	25.53
AVG	1.76	0.1	27.08	1.76	0.1	27.04
MAX	1.79	0.1	28.49	1.80	0.1	28.38
Percentage%	100%	100%	100%	100%	100%	99.9%
γ	0	0	0	0	0	0
η	22	22	22	22	22	22
Judgement	Passed	Passed	Passed	Passed	Passed	Passed

Tested by: Runhong Sui

Checked by: Cathee Yu