Product Change Notification

PCN26-11-Rev A_AP & APB series – White LED change

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Document subject to change without prior notice

Document revision

Revision	Date	Description	Author
A	March 25th, 2026	Creation	Lina Guan

Summary

1. Purpose 4
2. Overview 4
3. Impact of Change and Qualification 6
4. Part numbers affected 7
5. Date of application 8
6. Conditions of application 8
7. Customer qualification 8
8. Acknowledgement 8
9. Support 8

1. Purpose

C&K has been notified by its supplier, the end of production of several LEDs.
This discontinuation from KINGBRIGHT (supplier A), without direct replacement proposal, is leading C&K to modify its AP & APB lighted series by using the closest replacement from the market.
C&K switches selected ORMSEN (supplier B) to replace the White LED in its products.
The impact for our customers will be some differences in the lighting characteristics.

2. Overview

2.1 Change definition

Supplier A: KINGBRIGHT manufacturer of the White LED, reference **WP964-CKC18.**

Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) [2] @ 20mA		Viewing Angle [1]
			Min.	Typ.	2θ1/2
WP964-CKC18	White (InGaN)	Water Clear	1900	3000	50°

Notes:
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity/ luminous Flux: +/-15%.
3. Luminous intensity value is traceable to the CIE127-2007 compliant national standards.

Electrical / Optical Characteristics at TA=25°C

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
V_F [1]	Forward Voltage	White	3.3	4.0	V	I_F=20mA
I_R	Reverse Current	White		50	uA	V_R = 5V
X [2]	Chromaticity Coordinates	White	0.31			
Y [2]			0.31			
C	Capacitance	White	100		pF	V_F=0V;f=1MHz

Absolute Maximum Ratings at TA=25°C

Parameter	White	Units
Power dissipation	120	mW
DC Forward Current	30	mA
Peak Forward Current [1]	150	mA
Reverse Voltage	5	V
Operating/Storage Temperature	-40°C To +85°C	
Lead Solder Temperature [2]	260°C For 3 Seconds	
Lead Solder Temperature [3]	260°C For 5 Seconds	

Supplier B: ORMSEN manufacturer of the White LED, reference **OS-RUT2304C-TR1(CK)**.
The color, luminous intensity and ratings of new White LED are very close to the existing one.
The viewing angle is somewhat a little bit different to the existing one.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	White	Water Clear

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Continuous Forward Current	IF	30	mA
Peak Forward Current (Duty 1/10 @ 1KHZ)	IFP	100	mA
Reverse Voltage	VR	5	V
Power Dissipation	Pd	100	mW
Operating Temperature	Topr	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +85	℃
Soldering Temperature	Tsol	260 ℃ for 5 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	2000	4000	7000	mcd	IF=20mA
Viewing Angle	2θ1/2	-----	40	-----	deg	IF=20mA
Chromaticity Coordinates	X	-----	0.31	-----	X	IF=20mA
	Y	-----	0.31	-----	Y	IF=20mA
Spectrum Radiation Bandwidth	Δλ	-----	20	-----	nm	IF=20mA
Forward Voltage	VF	-----	3.3	4.0	V	IF=20mA
Reverse Current	IR	-----	-----	10	μA	VR=5V

3. Impact of Change and Qualification

3.1 Impact of Change:

There is no change to the form, fit and function of the switch.

3.2 Qualification method:

As the modification only affects the LED and its integration in the switch, the qualification focuses solely on the LED performance:

- Luminosity, Chromaticity Coordinates
- Endurance test
- Climatic tests
- Salt spray test
- Soldering test

The qualification has been completed in C&K, test report is available upon request.

Samples for qualification are already available upon request.

4. Part numbers affected

All item featuring **White LED** are affected by this notification.

Material N°	Material Description
AP0030	SWITCH AP4N001TZBE SS-FORM
AP0041-000	SWITCH AP0041 BLANK SS-FORM
AP0041-001	SWITCH AP0041 PLUS SS-FORM
AP0041-002	SWITCH AP0041 LOCKED SS-FORM
AP0041-003	SWITCH AP0041 STOP SS-FORM
AP0041-004	SWITCH AP0041 BRAKE SS-FORM
AP0041-005	SWITCH AP0041 START SS-FORM
AP0041-006	SWITCH AP0041 FAST SS-FORM
AP0041-007	SWITCH AP0041 SLOW SS-FORM
AP0041-008	SWITCH AP0041 UNLOCKED SS-FORM
AP0041-009	SWITCH AP0041 ROCK SS-FORM
AP0041-010	SWITCH AP0041 MINUS SS-FORM
AP2E201TWBE	SWITCH AP2E201TWBE
AP2E701TZBE	SWITCH AP2E701TZBE
AP2E901TWBE	SWITCH AP2E901TWBE
AP4D201TWBE	SWITCH AP4D201TWBE
AP4D201TZBE	SWITCH AP4D201TZBE
AP4D701TZBE	SWITCH AP4D701TZBE
AP4N001TZBE	SWITCH AP4N001TZBE

Material N°	Material Description
APB2E01TWBE000	SWITCH APB2E01TWBE000
APB2E01TWBE001	SWITCH APB2E01TWBE001
APB2E01TWBE002	SWITCH APB2E01TWBE002
APB2E01TWBE003	SWITCH APB2E01TWBE003
APB2E01TWBE004	SWITCH APB2E01TWBE004
APB2E01TWBE005	SWITCH APB2E01TWBE005
APB2E01TWBE006	SWITCH APB2E01TWBE006
APB2E01TWBE007	SWITCH APB2E01TWBE007
APB2E01TWBE008	SWITCH APB2E01TWBE008
APB2E01TWBE009	SWITCH APB2E01TWBE009
APB2E01TWBE010	SWITCH APB2E01TWBE010
APB2E01TZBE000	SWITCH APB2E01TZBE000
APB2E01TZBE001	SWITCH APB2E01TZBE001
APB2E01TZBE002	SWITCH APB2E01TZBE002
APB2E01TZBE003	SWITCH APB2E01TZBE003
APB2E01TZBE004	SWITCH APB2E01TZBE004
APB2E01TZBE005	SWITCH APB2E01TZBE005
APB2E01TZBE006	SWITCH APB2E01TZBE006
APB2E01TZBE007	SWITCH APB2E01TZBE007
APB2E01TZBE008	SWITCH APB2E01TZBE008
APB2E01TZBE009	SWITCH APB2E01TZBE009
APB2E01TZBE010	SWITCH APB2E01TZBE010
APB4E01SWBE000	SWITCH APB4E01SWBE000
APB4E01TWBE000	SWITCH APB4E01TWBE000
APB4E01TWBE002	SWITCH APB4E01TWBE002
APB4E01TWBE004	SWITCH APB4E01TWBE004
APB4E01TZBE000	SWITCH APB4E01TZBE000
APB4E01TZBE001	SWITCH APB4E01TZBE001
APB4E01TZBE002	SWITCH APB4E01TZBE002
APB4E01TZBE003	SWITCH APB4E01TZBE003
APB4E01TZBE004	SWITCH APB4E01TZBE004
APB4E01TZBE005	SWITCH APB4E01TZBE005
APB4E01TZBE006	SWITCH APB4E01TZBE006
APB4E01TZBE007	SWITCH APB4E01TZBE007
APB4E01TZBE008	SWITCH APB4E01TZBE008
APB4E01TZBE009	SWITCH APB4E01TZBE009
APB4E01TZBE010	SWITCH APB4E01TZBE010

5. Date of application

Effective immediately. There is no remaining stock of LEDs WP964-CKC18 from Supplier A.
All finished products are now manufactured using LEDs OS-RUT2304C-TR1(CK) from Supplier B.

6. Conditions of application

Pricing and stock handling policy:

- Pricing: Any pricing and other sales conditions remain valid.
- Stock handling: no obsolescence and no specification modification are applied on any P/N. No return or scrap for obsolescence will be accepted

7. Customer qualification

C&K recommends its customers to carry on the lighting compatibility check and qualifications they feel necessary to make sure that they will be ready at the date of application. Switching characteristics are not modified in order to minimize the customer impact and make easier the modification acceptation.

8. Acknowledgement

We kindly ask you to acknowledge receipt of this information to your sales representative so C&K can start planning the phase in – out process accordingly.

Please forward your requirements in terms of samples & qualification files at the following email address: lguan@Littelfuse.com

9. Support

For any question, please contact your sales representative