AB-GES-C06112Wxx3T2

Features:

- 12W circular AC LED light engine
- SimpleDrive® 120V AC drive technology
- Driver on Board structure
- Long life No Electrolytic capacitors
- Dimmable^[4]
- Easily integrated



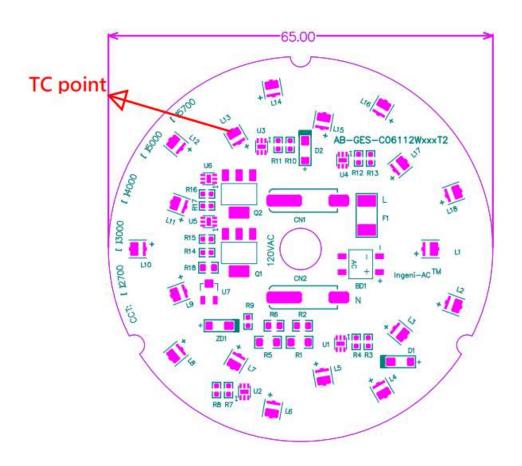
Figure: AC Module

Applications:

- Downlight (Diffused type)
- Can Lights
- Track Lights
- Wall Sconces
- In Ground Lights
- Spot Lights
- Vandal Proof Lights
- Ceiling Lights



Outline Dimensions



18 LEDs

Units: mm

Notes:

- 1. BJB's Terminal block is used
- 2. Thickness of PCB is 1.2mm. Thermal tape on the back side of module.
- 3. Tolerance of dimension is ± 0.15 mm
- 4. To point is at the LED solder pad. The Temperature of To & LED soldering pad needs to be lower than 75 °C and the temperature of top of IC needs to be lower than 110 °C^[2].
- 5. IMPORTANT: In order to pass UL1598, add an insulating thermal pad with at least 1.0mm thickness to the module.



Characteristics

■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Input Voltage	Vin	130	Vac
LED Junction Temperature ^[2]	Tj	115	°C
Storage Temperature	T _{stg}	-40 ~ 100 °C	°C
Operation Temperature	Topr	-40 ~ 85 °C	°C

Proper current rating must be observed to maintain junction temperature below maximum at all time. For this product, we suggest to keep the Temperature of TC point under 75°C, and the temperature of Top IC surface under 110°C. After passing the maximum temperature of IC, the rating current will be lower automatically for protecting the whole circuit.

■ Electrical Characteristics, Ta=25°C

Parameter	Symbol	Min.	Тур.	Max.	Unit
Input Voltage	Vin	110		130	Vac
Input Frequency	Freq.		50/60		Hz
Power Factor	PF	0.9		0.95	-
THDi				20%	
Flicker % ^[1]			100%		
Flicker Index ^[1]		0.3			

Surge protection is up to 0.5KV

■ Optical Characteristics (V_{in}=120V), Ta=25°C

Model name	AC	AC Power(W)		Color Temp	Luminou	s Flux(lm)	CRI
Woder Hame	Min	Тур.	Max	(K)	Min	Тур	Citi
AB-GES-C06112W303T2	10.4	12.0	13.4	3000	990	1100	>80
AB-GES-C06112W403T2	10.4	12.0	13.4	4000	1050	1180	>80
AB-GES-C06112W503T2	10.4	12.0	13.4	5000	1050	1180	>80

- Correlated color temperature is derived from the CIE 1931Chromaticity diagram.
- The luminous flux tolerance is ± 10%.
- This CRI value tolerance is ± 2.
- Calibration accuracy of CIEx and CIEy: ±0.007;
- Calibration error CCT 3000K \pm 175K ; 4000K \pm 300K ; 6500K \pm 400K

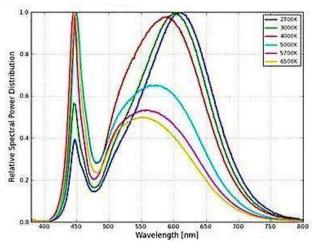
■Thermal Resistance, Ta=25°C

Part	Min.	Тур.	Max.	Unit
LED		11	17	°C/W
IC	15		20	°C/W

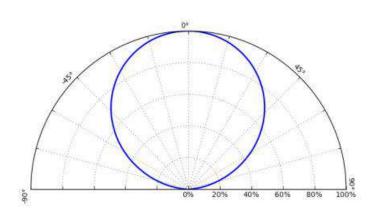
AB-GES-C06112Wxx3T2



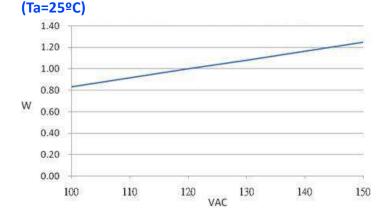
■ Relative Spectrum of Emission (Ta=25°C, Test current=60mA)



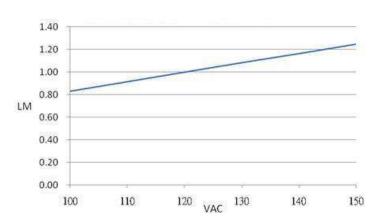
■ Radiation Pattern (Tj=25 °C)



■ Relative power distribution vs. Input voltage

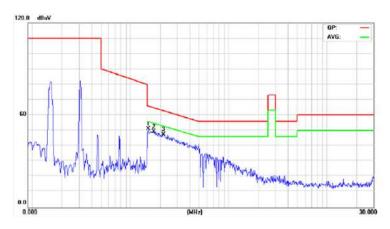


■ Relative luminous output vs. Input voltage (Ta=25°C)



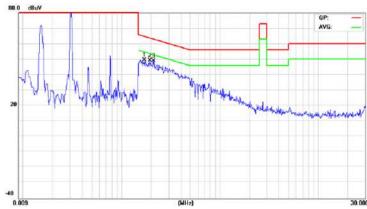
■ Conduction Testing^[5] 1 (120Vac/60Hz)

Standard: EN 55015 (QP), Temp. (C)/Hum.(%): 25°C/57%)



■ Conduction Testing^[5] 2 (120Vac/60Hz)

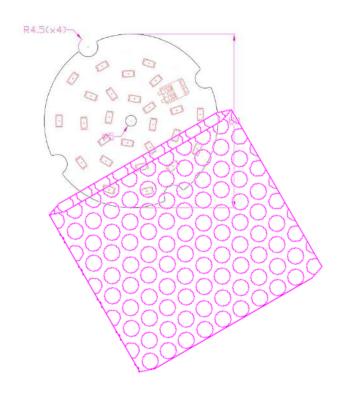
Standard: EN 55015 (QP), Temp. (C)/Hum.(%): 25°C/57%)



AB-GES-C06112Wxx3T2

Packaging

1. ESD bubble bag.



2 items per bag

1 Box = 100 PCS (about 2 Kgs)



Color Bin Code

Chromaticity Coordinates as per CIE 1931 Chromaticity Chart.

Color Ranks - Warm White

	Rank sw27			
х	0.4373	0.4562	0.4813	0.4593
У	0.3893	0.4260	0.4319	0.3944

		Rank	sw35	
х	0.3898	0.3996	0.4299	0.4147
у	0.3716	0.4015	0.4165	0.3814

		Rank	sw45	
х	0.3515	0.3548	0.3736	0.3670
V	0.3487	0.3736	0 3874	0.3578

Rank sw30 0.4147 0.4299 0.4562 0.4373 0.3814 0.4165 0.4260 0.3893

		Rank sw40				
X	0.3670	0.3736	0.3996	0.3898		
У	0.3578	0.3874	0.4015	0.3716		

Color Ranks - Cool White

	Rank b3			
х	0.2870	0.2830	0.3040	0.3070
у	0.2950	0.3050	0.3300	0.3150

	Rank b5				
×	0.2960	0.2870	0.3070	0.3110	
У	0.2760	0.2950	0.3150	0.2940	

		Rank c1				
×	0.3300	0.3300	0.3610	0.3570		
У	0.3390	0.3600	0.3850	0.3610		

	Rank sw50			
х	0.3366	0.3376	0.3548	0.3515
У	0.3369	0.3616	0.3736	0.3487

		Rank	sw65	
х	0.3070	0.3040	0.3207	0.3221
у	0.3113	0.3300	0.3462	0.3261

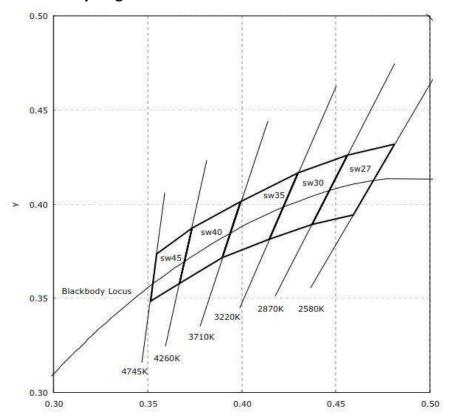
		Ran	k b4	
X	0.3070	0.3040	0.3300	0.3300
V	0.3150	0.3300	0.3600	0.3390

		Ran	nk b6	
X	0.3110	0.3070	0.3300	0.3300
У	0.2940	0.3150	0.3390	0.3180

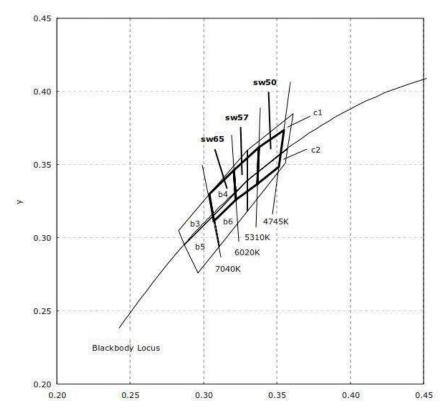
	e e	Rank c2				
X	0.3300	0.3300	0.3570	0.3560		
У	0.3180	0.3390	0.3610	0.3510		

		Rank sw57			
х	0.3221	0.3207	0.3376	0.3366	
V	0.3261	0.3462	0.3616	0.3369	

Chromaticity Diagram - Warm White



Chromaticity Diagram - Cool White





AC Module Flicker

Flicker for AC driven LED modules can be measured in two different manners, Percent and Index.

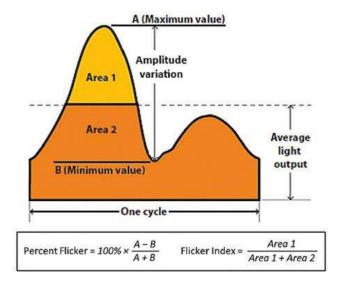
Percent - Older more common metric that measures peak to peak amplitude. No other attributes of the AC wave are taken into account. Measurements of percent range from 0%-100%

AC Module Flicker	100%
Any LED system with Electrolytic Capacitor	2%-90%

Index - A metric defined by the IES (Illuminating Engineering Society) that measures the shape, duty cycle, and peak to peak amplitude. This is a true measure of eye response to flicker. Measurement of index range form 1-1.0.

AC Module Index	<.3
Any LED system with Electrolytic Capacitor	.02~.2

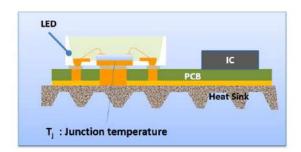
Graph showing measurement differences





Junction Temperature (T_J) & T_C Point

Junction Temperature is the most important factor of LED. Different life performance will be impacted by different junction temperature.



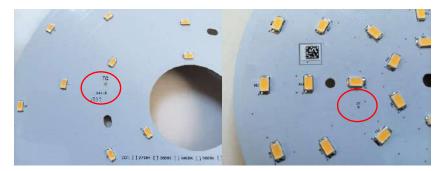
If the thermal dissipation is good enough, the junction temperature will be lower and the lifetime performance will be better.

If the junction temperature is higher than 120°C, the LED will deteriorate quickly.

How to monitor the junction temperature?

You need to measure the T_C point.

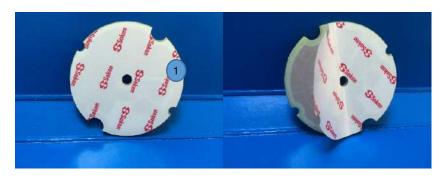
Each AC LED module has one T_C point, which is set up for monitoring the operating temperature and junction temperature of the LED.



You can use the high-temperature thermal conductivity glue (Such as SatlonD-3/606...etc.) to fix the thermal couple to the T_C point then measure the temperature. Once you got the T_C temperature measurement data, you can calculate the junction temperature based on the measurement data of the T_C.



Backside of AC LED module



Picture of the backside of module

Items:

Warning:

Remember to remove the protective paper on the thermal insulating tape from the backside of the module

Warning:

AC LED modules must be attached by an additional connection, not only the tape

Specification of the Thermal tape

Thickness	mm	0.25
Adhesive force	T ₀ (0 hrs)	4.0
	T ₂₄ (24 hrs)	4.6
Thermal conductivity	W/m •K	0.7
Thermal resistance	cm ² °C/W	3.6
Fire ret ardency	UL94	V0
Isolation strength	DC (kV)	>10
	AC (kV)	4.4



Installation Instructions Installation:

- 1. Remove the protective paper on the back side of AC LED module
- 2. Adjust the AC LED module to the desired position
- 3. Using a screw driver, attach the AC LED module
- 4. Select the proper wire

If a connector is going to be used with the AC Module, please follow the instructions below

	WAGO	ВЈВ
Photo	00	
Conductor size	Solid: 0.2-0.75mm ²	Solid: 0.34-0.75mm ²
	Fine stranded: 0.2-	
	0.75mm ²	
Conductor size	18-24	18-24
(AWG)		

Connector spec summary



Dimmer Lists - AB-GES-C06112Wxx3T2

Item	1	2	3	4	5	6	7
Brand	Legrand	Lutron	LEVITON	Lutron	Lutron	COOPER	COOPER
Dimmer part#	HCL453P	CT-103PR-WH	SURE SLIDE	DV-600P	DV-600PR-WH	TAL06P-C1	TI06P-C1
			NA6631				
Digital/Analog	Analog	Analog	Analog	Analog	Analog	Analog	Analog
Score	2	3	8	4	3	3	1
Item	8	9	10	11	12	13	14
Brand	Lutron	LEVITON	Lutron	Lutron	LEVITON	LEVITON	Lutron
Dimmer part#	MACL-153M	SURE SLIDE	SCL-153P	MACL-153M P2	R62.6674 12A	R50-6602 IW	CTCL-153PDH
		NO:6672					
Digital/Analog	Digital	Analog	Analog	Digital	Analog	Analog	Analog
Score	3	3	8	4	4	10	3
ltem	15	16	17	18	19	20	21
Item Brand	15 Lutron	16 Lutron	17 Lutron	18 Lutron	19 COOPER	20 LEVITON	21 LEVITON
Brand	Lutron	Lutron	Lutron	Lutron	COOPER	LEVITON	LEVITON
Brand	Lutron TGCL-153PH-	Lutron TG-603PGH-	Lutron CTCL-153PDH-	Lutron DVWCL-153PH-	COOPER DVW-603PGH-	LEVITON SURE SLIDE	LEVITON TRIMATRON
Brand Dimmer part#	Lutron TGCL-153PH- WH	Lutron TG-603PGH- WH	Lutron CTCL-153PDH- WH	Lutron DVWCL-153PH- WH	COOPER DVW-603PGH- P2	LEVITON SURE SLIDE NO.6674	LEVITON TRIMATRON NO.6683
Brand Dimmer part# Digital/Analog	Lutron TGCL-153PH- WH Analog	Lutron TG-603PGH- WH Analog	Lutron CTCL-153PDH- WH Analog	Lutron DVWCL-153PH- WH Analog	COOPER DVW-603PGH- P2 Analog	LEVITON SURE SLIDE NO.6674 Analog	LEVITON TRIMATRON NO.6683 Analog
Brand Dimmer part# Digital/Analog Score	Lutron TGCL-153PH- WH Analog	Lutron TG-603PGH- WH Analog	Lutron CTCL-153PDH- WH Analog 2	Lutron DVWCL-153PH- WH Analog 2	COOPER DVW-603PGH- P2 Analog 2	LEVITON SURE SLIDE NO.6674 Analog 2	LEVITON TRIMATRON NO.6683 Analog 5
Brand Dimmer part# Digital/Analog Score Item	Lutron TGCL-153PH- WH Analog 8	Lutron TG-603PGH- WH Analog 3	Lutron CTCL-153PDH- WH Analog 2 24	Lutron DVWCL-153PH- WH Analog 2 25	COOPER DVW-603PGH- P2 Analog 2 26	LEVITON SURE SLIDE NO.6674 Analog 2	LEVITON TRIMATRON NO.6683 Analog 5
Brand Dimmer part# Digital/Analog Score Item Brand	Lutron TGCL-153PH- WH Analog 8 22 COOPER	Lutron TG-603PGH- WH Analog 3 23 COOPER	Lutron CTCL-153PDH- WH Analog 2 24 Lutron	Lutron DVWCL-153PH- WH Analog 2 25 Lutron	COOPER DVW-603PGH- P2 Analog 2 26 LEVITON	LEVITON SURE SLIDE NO.6674 Analog 2 27 Lutron	LEVITON TRIMATRON NO.6683 Analog 5 28 Lutron
Brand Dimmer part# Digital/Analog Score Item Brand	Lutron TGCL-153PH- WH Analog 8 22 COOPER	Lutron TG-603PGH- WH Analog 3 23 COOPER	Lutron CTCL-153PDH- WH Analog 2 24 Lutron	Lutron DVWCL-153PH- WH Analog 2 25 Lutron	COOPER DVW-603PGH- P2 Analog 2 26 LEVITON	LEVITON SURE SLIDE NO.6674 Analog 2 27 Lutron MSCL-	LEVITON TRIMATRON NO.6683 Analog 5 28 Lutron

	Score Description
10	0-100% smoothly dimming
8	10-100% smoothly dimming
6	20-100% smoothly dimming
4	10-100% smoothly dimming/ slight flickering in specific dimming range
2	20-100% smoothly dimming/ slight flickering in specific dimming range
1	Notable Flicker
0	Not Compatible

Reference Information

- [1] Flicker information, please refer to page 8.
- [2] Junction Temperature (Tj) & Tc Point information please refer to page 9.
- [3] Thermal tape information, please refer to page 10.
- [4] Dimmer list, please refer to page 12.
- [5] The primary goal of **EMC testing** is to identify the sources of electromagnetic energy emitted from an electronic device in an effort to reduce potential interference to other equipment, as well as determine the susceptibility of the equipment from electromagnetic energy emitted from other electronic devices nearby.



Warranty

American Bright Optoelectronics Corp., warrants that its AC LED MODULES will be free from defects in material and workmanship from the date of manufacture by American Bright Optoelectronics Corp. for a period of 5 years (LED light generation module case temperature(s) not to exceed 75°C, IC temperature(s) not to exceed 110°C). The AC LED MODULES consists of a LED lighting components and the driver circuit (collectively, the "Power circuit"). This limited warranty only applies when the American Bright Optoelectronics Corp. LED module is properly connected and installed on the luminaire; operated within the electrical values recommended by American Bright Optoelectronics Corp.; and used in situations approved for the application and in the environmental conditions (temperature, humidity) within the normal specified operating range of the system.

This warranty is further conditioned upon proper storage, installation, use and maintenance. This warranty is not applicable to any Product which is not installed and operated in accordance with the current edition of The National Electric Code (NEC), the Standards for Safety of Underwriters' Laboratory, Inc. (UL), the Standards for the American National Standards Institute (ANSI), and with American Bright Optoelectronics Corp.'s instructions and guidelines for the Product. This warranty is not applicable to any Product or component subjected to abnormal stresses and operating conditions. Replacement of the American Bright Optoelectronics Corp. Product with LED components of other manufacturers will void the entire warranty.

THE WARRANTIES AND REMEDIES SET FORTH HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER, EXPRESS OR IMPLIED, INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OR TRADE. Purchaser's exclusive remedy, for any nonconformity or defect in any product shall be only those explicitly set forth herein.