AMERICAN BRIGHT OPTOELECTRONICS CORP.
13815-C MAGNOLIA AVE., CHINO, CA 91710
TOLL-FREE: 888-LED-0800 TEL: 909-628-5050 FAX: 909-628-5006
w w w . a m e r i c a n b r i g h t l e d . c o m

AB-GES-C06112Wxx3T2

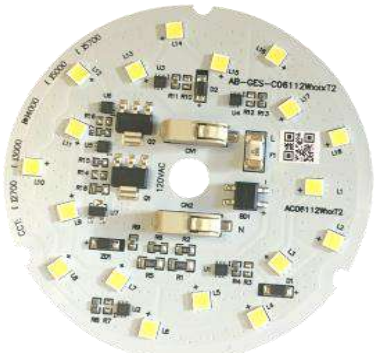


Figure: AC Module

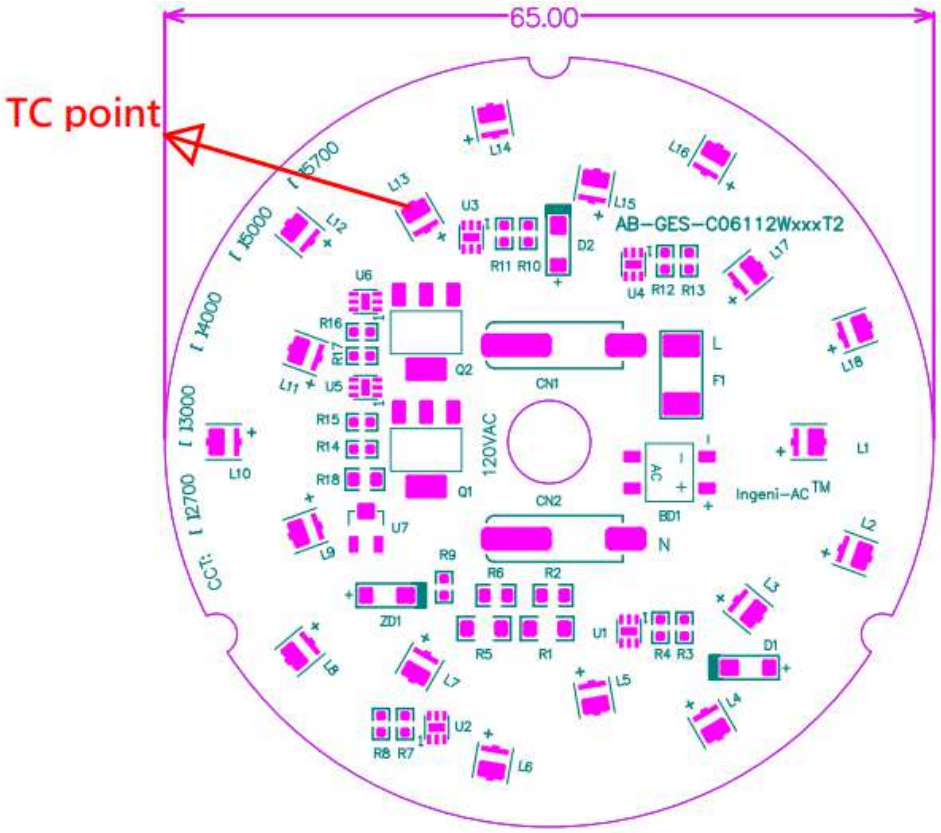
Features:

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

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. Tc point is at the LED solder pad. The Temperature of Tc & 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]	T_j	115	°C
Storage Temperature	T_{stg}	-40 ~ 100 °C	°C
Operation Temperature	T_{opr}	-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=25ºC

Parameter	Symbol	Min.	Typ.	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=25ºC

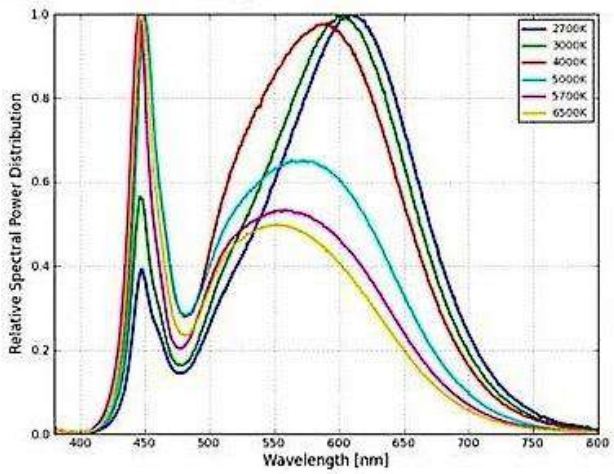
Model name	AC Power(W)			Color Temp	Luminous Flux(lm)		CRI
	Min	Typ.	Max	(K)	Min	Typ	
AB-GES-C06112W303T2	10.4	12.0	13.4	3000	990	1100	>80
AB-GES-C06112W403T2	10.4	12.0	13.4	4000	1050	1180	>80
AB-GES-C06112W503T2	10.4	12.0	13.4	5000	1050	1180	>80

- 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 ±175K ; 4000K ±300K ; 6500K ±400K

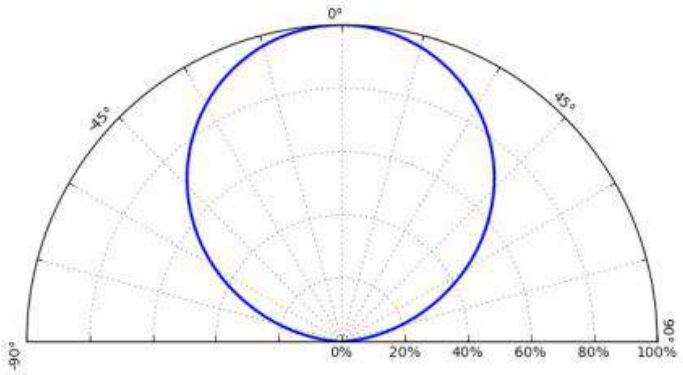
■Thermal Resistance, Ta=25ºC

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

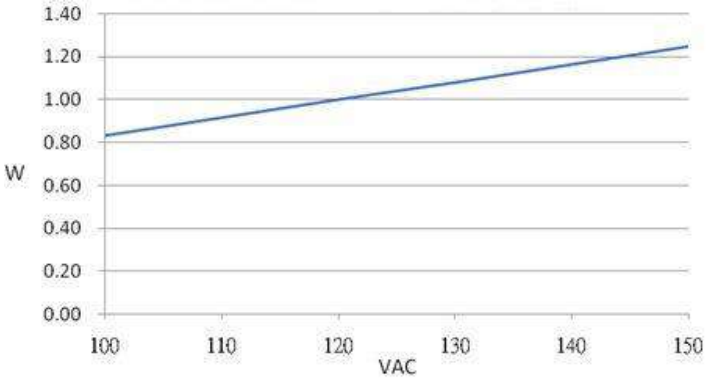
■ Relative Spectrum of Emission (Ta=25ºC, Test current=60mA)



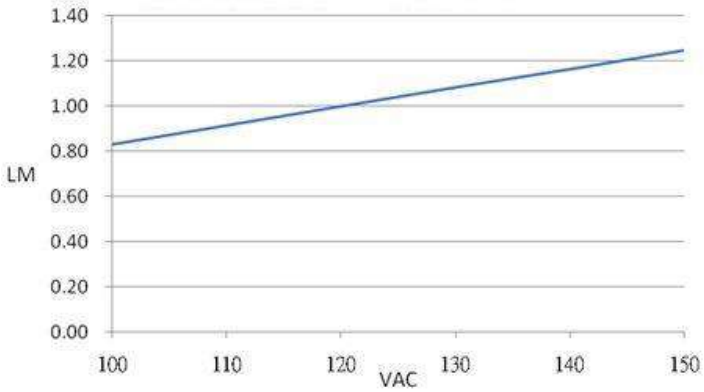
■ Radiation Pattern (Tj=25 ºC)



■ Relative power distribution vs. Input voltage (Ta=25ºC)

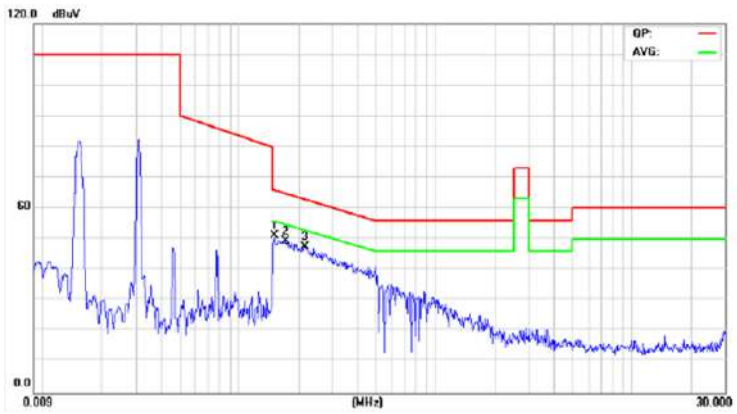


■ Relative luminous output vs. Input voltage (Ta=25ºC)



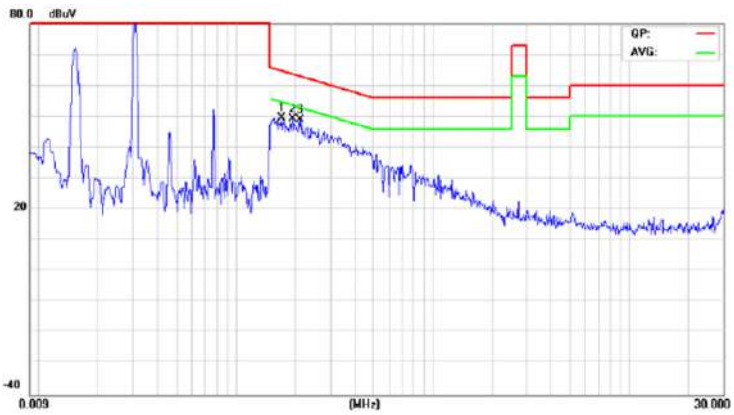
■ Conduction Testing[5] 1 (120Vac/60Hz)

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



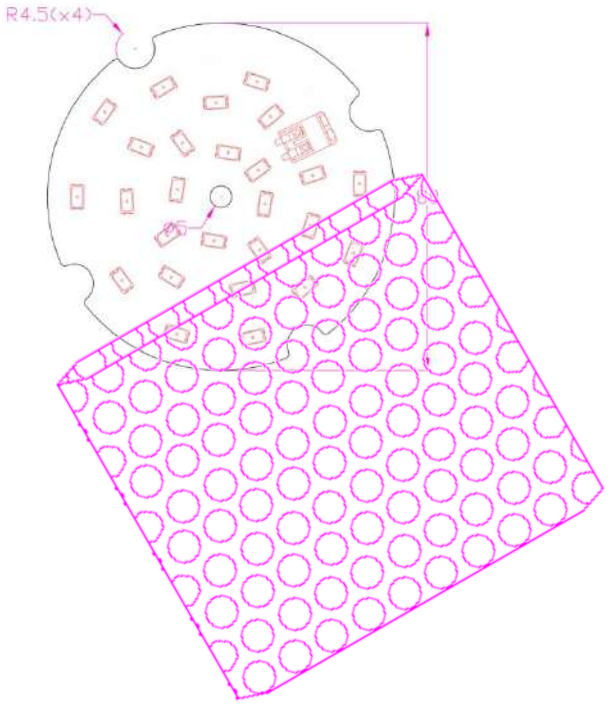
■ Conduction Testing[5] 2 (120Vac/60Hz)

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



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			
x	0.4373	0.4562	0.4813	0.4593
y	0.3893	0.4260	0.4319	0.3944

	Rank sw30			
x	0.4147	0.4299	0.4562	0.4373
y	0.3814	0.4165	0.4260	0.3893

	Rank sw35			
x	0.3898	0.3996	0.4299	0.4147
y	0.3716	0.4015	0.4165	0.3814

	Rank sw40			
x	0.3670	0.3736	0.3996	0.3898
y	0.3578	0.3874	0.4015	0.3716

	Rank sw45			
x	0.3515	0.3548	0.3736	0.3670
y	0.3487	0.3736	0.3874	0.3578

Color Ranks - Cool White

	Rank b3			
x	0.2870	0.2830	0.3040	0.3070
y	0.2950	0.3050	0.3300	0.3150

	Rank b4			
x	0.3070	0.3040	0.3300	0.3300
y	0.3150	0.3300	0.3600	0.3390

	Rank b5			
x	0.2960	0.2870	0.3070	0.3110
y	0.2760	0.2950	0.3150	0.2940

	Rank b6			
x	0.3110	0.3070	0.3300	0.3300
y	0.2940	0.3150	0.3390	0.3180

	Rank c1			
x	0.3300	0.3300	0.3610	0.3570
y	0.3390	0.3600	0.3850	0.3610

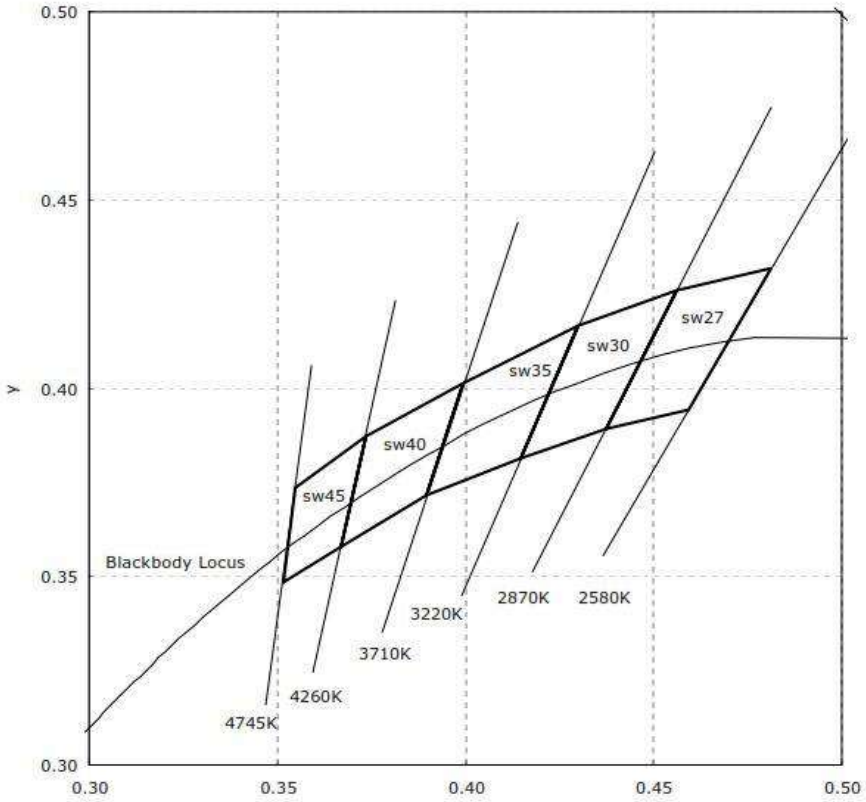
	Rank c2			
x	0.3300	0.3300	0.3570	0.3560
y	0.3180	0.3390	0.3610	0.3510

	Rank sw50			
x	0.3366	0.3376	0.3548	0.3515
y	0.3369	0.3616	0.3736	0.3487

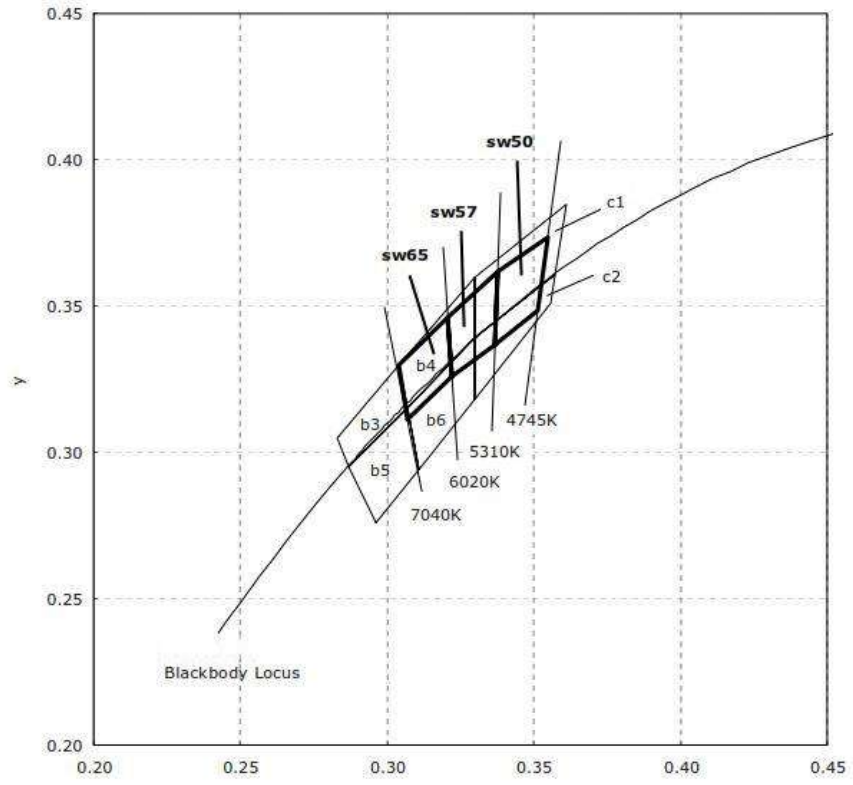
	Rank sw57			
x	0.3221	0.3207	0.3376	0.3366
y	0.3261	0.3462	0.3616	0.3369

	Rank sw65			
x	0.3070	0.3040	0.3207	0.3221
y	0.3113	0.3300	0.3462	0.3261

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.

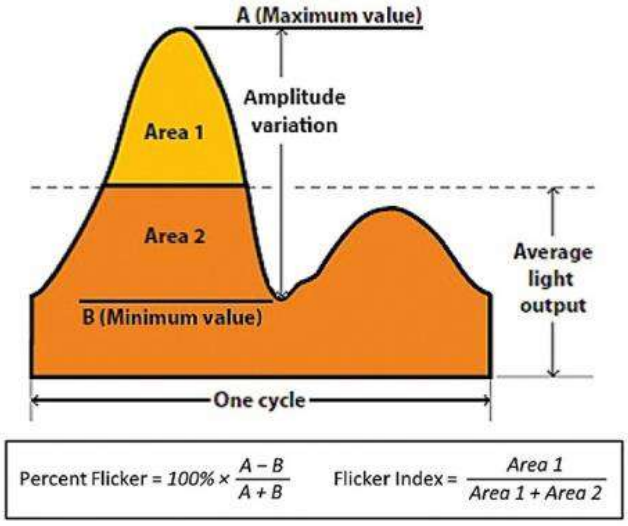
Percent - Older more common metric that measures peak to peak amplitude. No other attributes of the AC wave are taken into account. Measurements of percent range from 0%-100%

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.

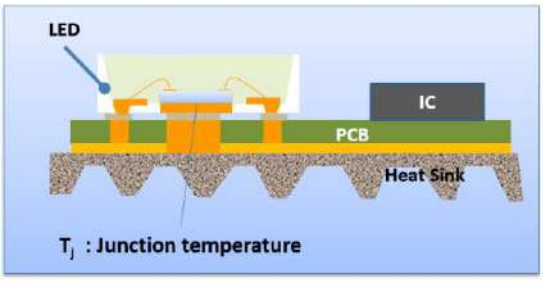
AC Module Index	<.3
Any LED system with Electrolytic Capacitor	.02~.2

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.



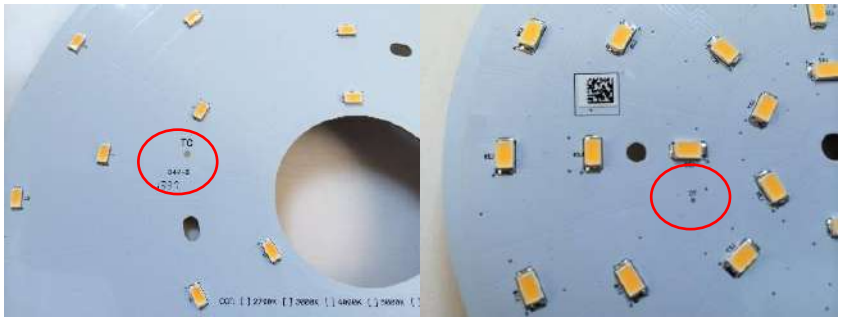
If the thermal dissipation is good enough, the junction temperature will be lower and the lifetime performance will be better.

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.

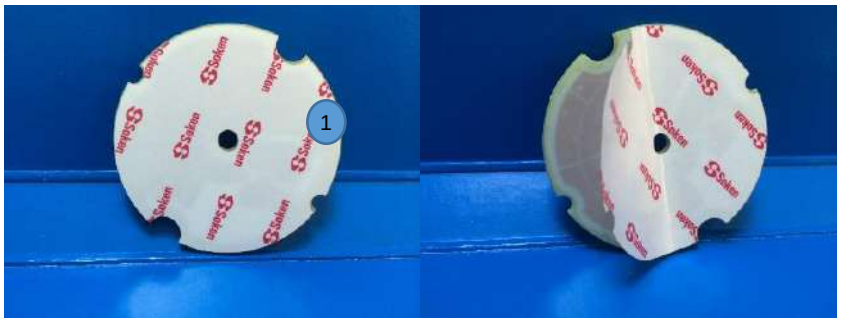
Each AC LED module has one T_C point, which is set up for monitoring the operating temperature and junction temperature of the LED.



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	BJB
Photo		
Conductor size	Solid: 0.2-0.75mm^2 Fine stranded: 0.2-0.75mm^2	Solid: 0.34-0.75mm^2
Conductor size (AWG)	18-24	18-24

Connector spec summary

AMERICAN BRIGHT OPTOELECTRONICS CORP.
13815-C MAGNOLIA AVE., CHINO, CA 91710
TOLL-FREE: 888-LED-0800 TEL: 909-628-5050 FAX: 909-628-5006
w w w . a m e r i c a n b r i g h t l e d . c o m

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 NA6631	DV-600P	DV-600PR-WH	TAL06P-C1	TI06P-C1
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 NO:6672	SCL-153P	MACL-153M P2	R62.6674 12A	R50-6602 IW	CTCL-153PDH
Digital/Analog	Digital	Analog	Analog	Digital	Analog	Analog	Analog
Score	3	3	**8**	4	4	**10**	3

Item	15	16	17	18	19	20	21
Brand	Lutron	Lutron	Lutron	Lutron	COOPER	LEVITON	LEVITON
Dimmer part#	TGCL-153PH-WH	TG-603PGH-WH	CTCL-153PDH-WH	DVWCL-153PH-WH	DVW-603PGH-P2	SURE SLIDE NO.6674	TRIMATRON NO.6683
Digital/Analog	Analog	Analog	Analog	Analog	Analog	Analog	Analog
Score	**8**	3	2	2	2	2	5

Item	22	23	24	25	26	27	28
Brand	COOPER	COOPER	Lutron	Lutron	LEVITON	Lutron	Lutron
Dimmer part#	T9573AW-K	SAL06P-W	CT-600PR	LG-600	DSL06	MSCL-OP153MH-WH	TGCL-153PH-LA
Digital/Analog	Analog	Analog	Analog	Analog	Analog	Digital	Analog
Score	**1**	3	3	3	4	2	2

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.