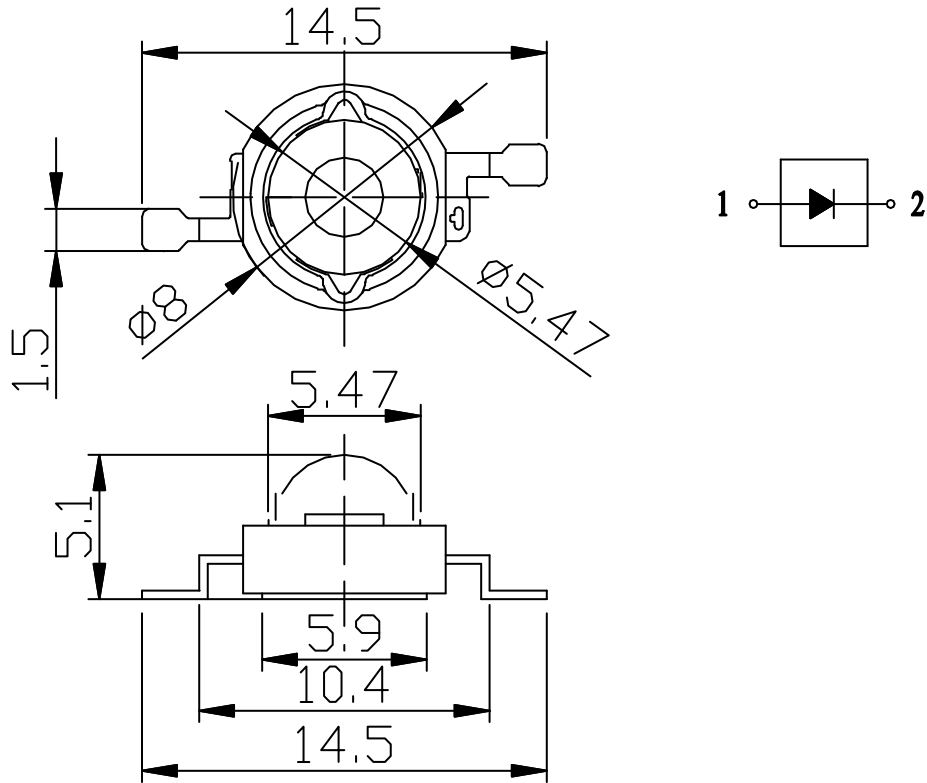




LED
MAC110-30_AC36D

1W AC LED (2800~3000K)

PACKAGE DIMENSIONS



Notes :

1. All dimensions are in mm.
2. Tolerance is +/-0.6mm unless otherwise noted.

DESCRIPTION

Part NO.	LED Chip		Lens Color
	Material	Color Coordinates	
MAC110-30_AC36D	InGaN / Sapphire	Warm White	Water Clear



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Absolute Maximum Ratings at Ta=25°C :

Parameter	Rating	Unit
Power Dissipation	1.1	W
LED Junction Temperature	120	°C
Operation Voltage	110	V
RMS Current	15	mA
Peak Pulsed Current (Ip)	22	mA
Operating Temperature Range	-40 to +75	°C
Storage Temperature Range	-40 to +100	°C
Soldering Temperature	Reflow Soldering : 260°C for 10 sec. Hand Soldering : 350°C for 3 sec.	
ESD Sensitivity	2000	V

Notes :

1. Please do not touch the AC LED conduction part when operating.
2. Please confirm whether the operating voltage is the rating voltage or not , and check the corresponding resistance of the current-limited resistor.
3. If the value of operating voltage is higher than the rating voltage , the power and the temperature of AC LED will be raised , it is recommended to refer to the specification to increase an external resistor to control the power and thermal.

Electrical Optical Characteristics

Parameter	Symbol	Condition	Values			Units
			Min.	Typ.	Max.	
Correlated Color Temperature	CCT	IF=15mA (DC)	2800		3000	K
CIE Chromaticity Coordinates : X Axis	X	IF=15mA (DC)		0.4578		
CIE Chromaticity Coordinates : Y Axis	Y	IF=15mA (DC)		0.4101		
Reverse Current	IR	Vr=5V	—	—	50	μA
Viewing angle	2θ1/2	IF=15mA (DC)	—	130	—	Deg.
Thermal Resistance Junction to Case	RθJ-C	IF=15mA (DC)	—	15	—	°C/W



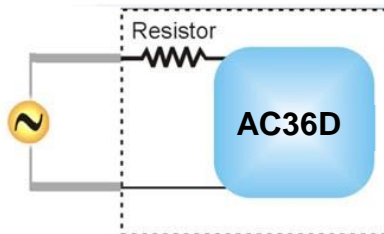
LED
MAC110-30_AC36D

1W AC LED (2800~3000K)

Recommended operating circuit for 100/110/115 V

AC LED unit electrical power calculation:

$$\begin{aligned} \text{Electrical power (W)} &= I \text{ [RMS]} \times V \text{ [RMS]} \times \text{PF} \\ &= 15\text{mA} \times 110\text{V} \times 0.85 \\ &= 1.4 \text{ W} \end{aligned}$$



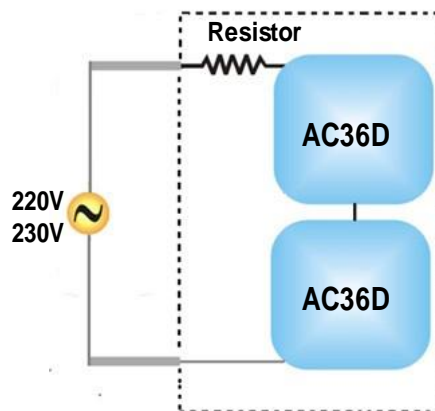
MAC110-30_AC36D

Voltage Bin	Driving current:15mA [RMS]	
	110V [RMS]	115V [RMS]
	Resistor value±2% (Ω)	Resistor value±2% (Ω)
94-96	825	1100
96-98	715	1000
98-100	590	866
100-102	487	787
102-104	383	649
104-106	274	536
106-108	162	442
108-110	54	332

Recommended operating circuit for 220/230 V

AC LED unit electrical power calculation:

$$\begin{aligned} \text{Electrical power (W)} &= I \text{ [RMS]} \times V \text{ [RMS]} \times \text{PF} \\ &= 15\text{mA} \times 220\text{V} \times 0.85 \\ &= 2.8 \text{ W} \end{aligned}$$



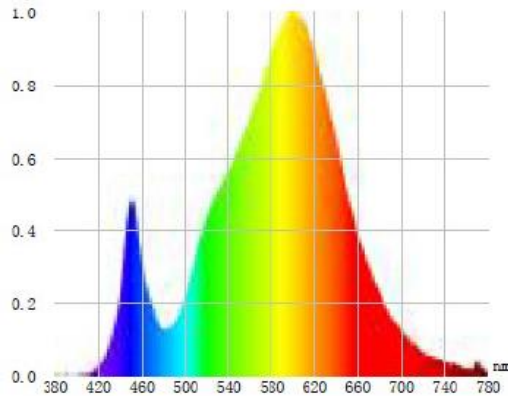
MAC110-30_AC36D

Voltage Bin	Driving current:15mA [RMS]	
	220V [RMS]	230V [RMS]
	Resistor value±2% (Ω)	Resistor value±2% (Ω)
“94-96” + “108-110”	879	1432
“96-98” + “106-108”	877	1442
“98-100” + “104-106”	864	1402
“100-102” + “102-104”	870	1436



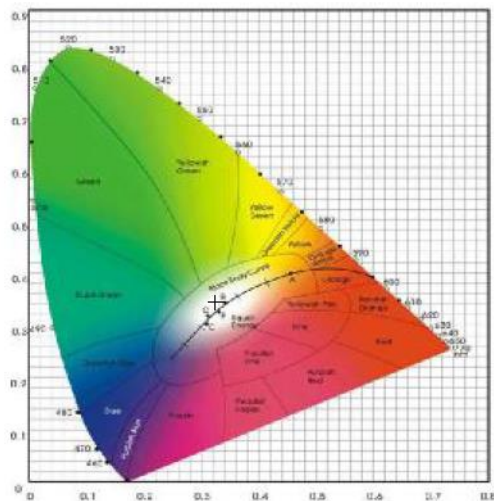
1W AC LED (2800~3000K)

Typical Electrical/Optical Characteristic Curves



Chromaticity Coordinates & Bin grading diagram :

CIE1931



	340-360	360-380
色参数(Color parameters)		
主波长 (Dominant Wavelength):	582.5nm	582.3nm
色纯度 P(Purity)	0.559	0.571
色温 TC(Color Temperature):	2885K	2877K
显色指数(Color Rendering Index)	76.64	76.92
色容差 (SDCM)	3.46 SDCM	4.45 SDCM
光参数(Optical parameters)		
光通量(Luminous Flux)	96.59 lm	104.76 lm
光功率(optical power)	281.60mW	303.95 mW
光效(Luminous Efficacy)	68.9 lm/w	75.92 lm/W



LED
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PRECAUTION IN USE

Storage

Recommended storage environment

Temperature : 5°C ~ 30°C (41°F~ 86°F)

Humidity : 60% RH Max.

Moisture measures : Please refer to Moisture-sensitive label on reels package bags.

If unused LEDs remain, they should be stored in moisture proof packages, such as sealed container with packages of moisture absorbent material (silica gel). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.

Fold the opened bag firmly and keep in dry environment.

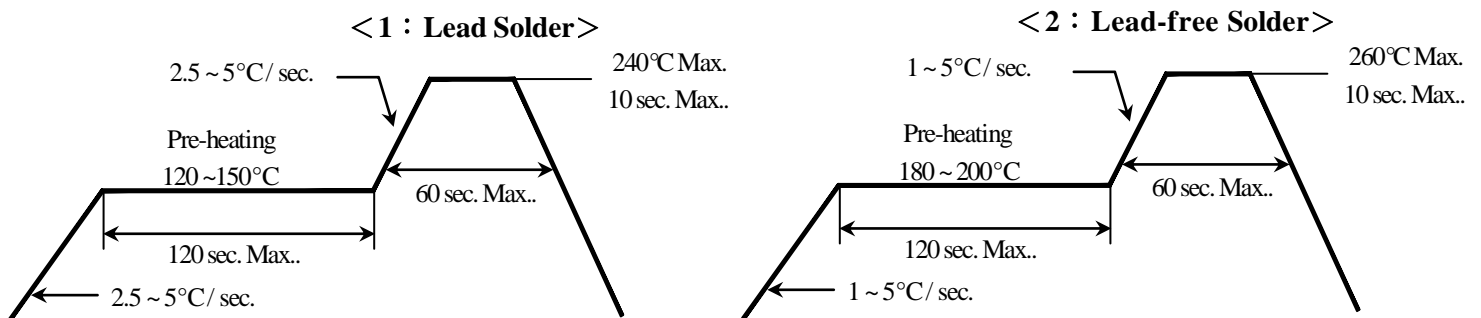
Soldering

	Reflow Soldering		Hand Soldering	
	Lead Solder	Lead - free Solder		
Pre-heat	120~150°C	180~200°C	Temperature	350°C Max.
Pre-heat time	120sec. Max.	120sec. Max.	Soldering time	3sec. Max. (one time only)
Peak temperature	240°C Max.	260°C Max.		
Soldering time	10sec. Max.	10sec. Max.		
Condition	refer to Temperature-profile 1	refer to Temperature-profile 2		

* After reflow soldering rapid cooling should be avoided.

[Temperature-profile (Surface of circuit board)]

Use the conditions shown to the under figure.



Recommended soldering pad design

Use the following conditions shown in the figure.

