



LED
AC36D

## InGaN AC LED Chip

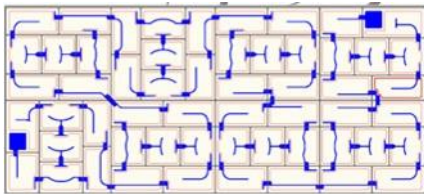
### ● Mechanical Specification:

#### (1) Dimension

- Chip size:  $898 \pm 25 \mu\text{m} \times 2015 \pm 25 \mu\text{m}$
- Thickness: 5.9 mil ( $150 \pm 10 \mu\text{m}$ )
- Bonding pad: 3.1 mil ( $80 \pm 10 \mu\text{m}$ )

#### (2) Metallization

- Topside electrode (x2): Au alloy
- Backside metal: Au alloy



#### Features:

- High luminous intensity
- 100% probing test
- Designed for 110/115V main voltage
- Can be used in seriesconnection for 220/230V
- Proper external resistor needs to be added in the circuit

#### Applications:

- Solid-state lighting
- E12 / E14 / E26 / E27 light bulb replacements

### ● Electro-optical Characteristics at 25°C

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
AC voltage	V [RMS]	15mA [RMS]	95	100	110	V
Dominant Wavelength	$\lambda_d$	15mA [RMS]	455	---	465	nm
Radiant power	Po	15mA [RMS]	340	---	360	mW
			360	---	380	
			380	---	400	
Power factor (with resistor)	---	15mA [RMS]	---	0.85	---	---

### ● Absolute Maximum Ratings:

Parameter	Symbol	Condition	Rating	Unit
Root mean square current	I [RMS]	-	$\leq 25$	mA
Junction temperature	T <sub>j</sub>	-	$\leq 115$	°C
Storage temperature	T <sub>stg</sub>	chip	-40 ~ +85	°C
		chip-on-tape/storage	5 ~ 35	°C
		chip-on-tape/transportation	-20 ~ +65	°C
Temperature during Packaging	-	-	280(<10sec)	°C



LED
AC36D

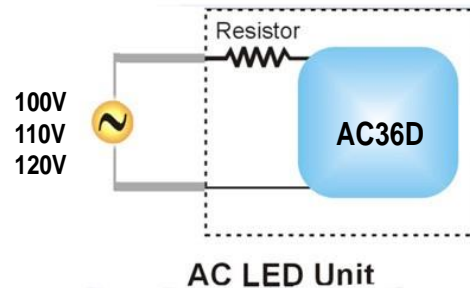
## InGaN AC LED Chip

### ● Operating Instruction:

#### 1-1. Recommended operating circuit for 100/110/115 V

AC LED unit electrical power calculation:

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



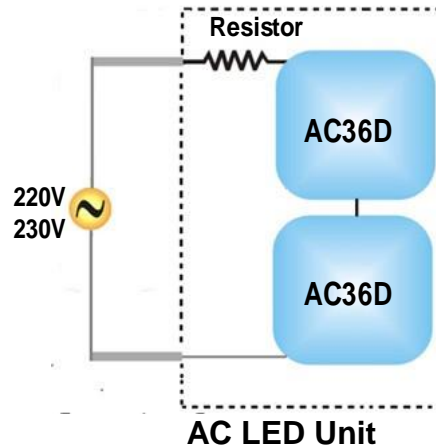
#### 1-2. Resistor sheet

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

#### 2-1. Recommended operating circuit for 220/230 V

AC LED unit electrical power calculation:

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



#### 2-2. Resistor sheet

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



LED
AC36D

## InGaN AC LED Chip

### ● Characteristic Curves:

#### (1) Current-Voltage characteristics:

1-1. With external resistor @110V

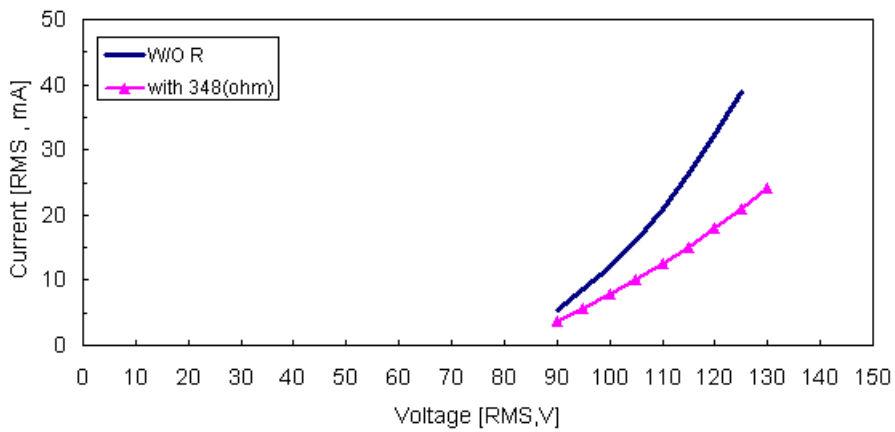


Fig-1 102-104V [RMS] AC36D

1-2. With external resistor @115V

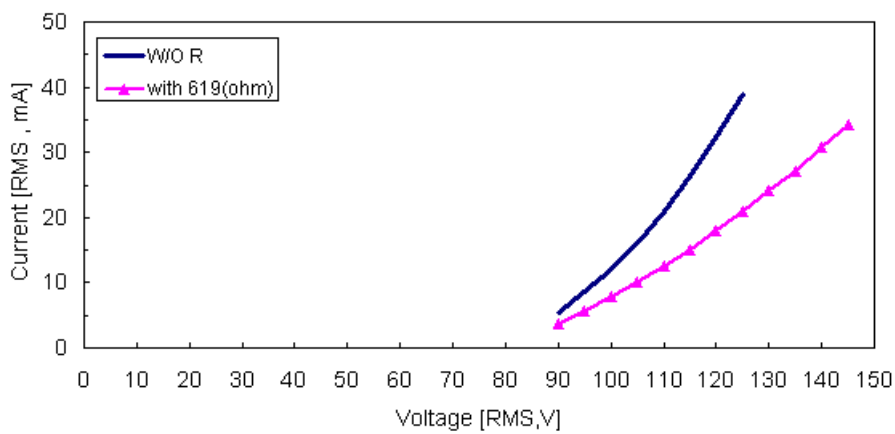


Fig-2 102-104V [RMS] AC36D



LED
AC36D

### InGaN AC LED Chip

## (2) Voltage-Radiant power characteristics:

### 2-1. With external resistor @110V

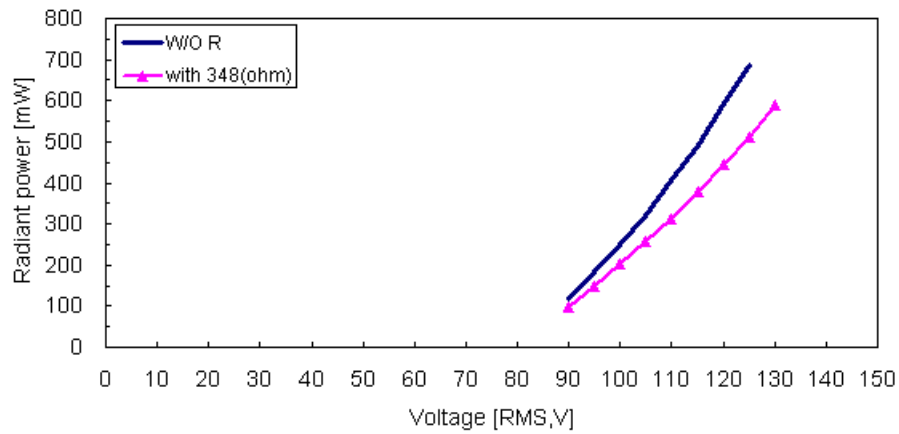


Fig-1 102-104V [RMS] AC36D

### 2-2. With external resistor @115V

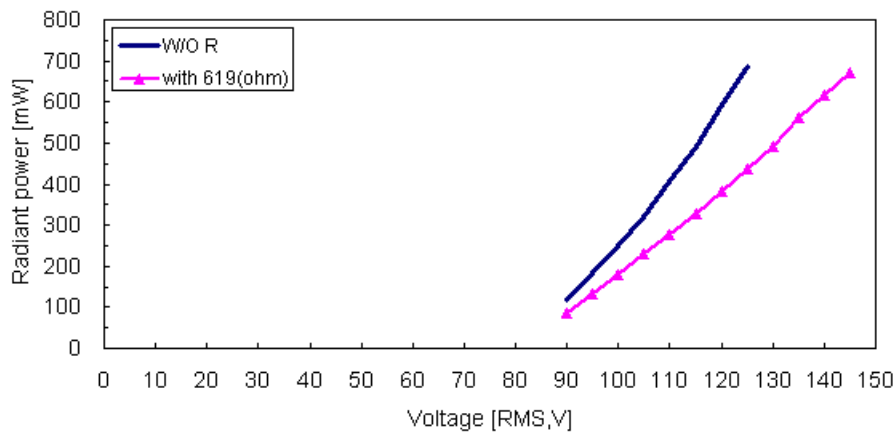


Fig-2 102-104V [RMS] AC36D



LED
AC36D

### InGaN AC LED Chip

#### (3) Dominant wavelength-Voltage characteristics:

##### 3-1. With external resistor @110V

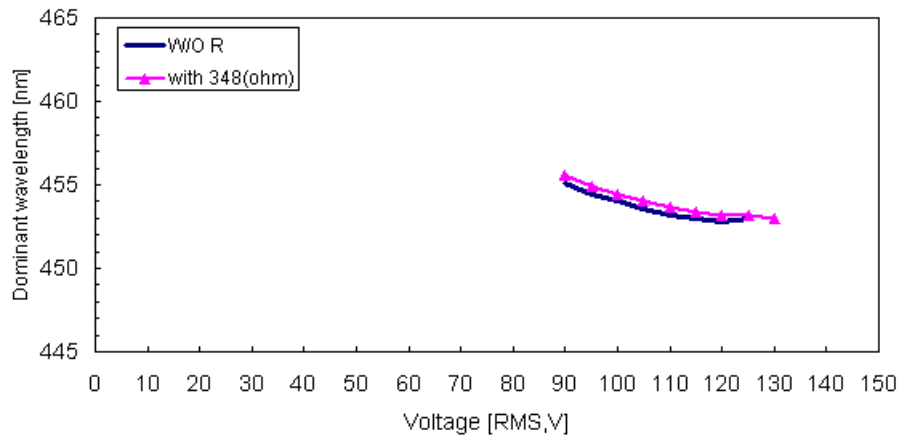


Fig-1 102-104V [RMS] AC36D

##### 3-2. With external resistor @115V

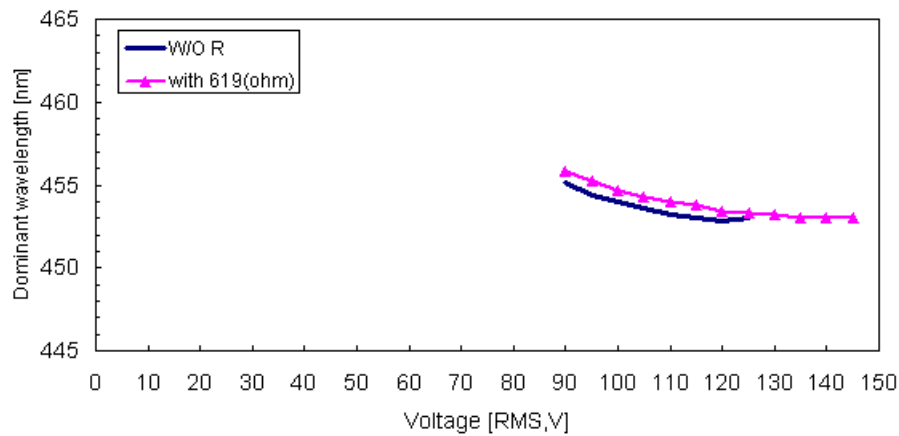


Fig-2 102-104V [RMS] AC36B



LED
AC36D

## InGaN AC LED Chip

### ● Radiation Pattern:

This is a representative radiation pattern for the AC36D AC LED product. Actual patterns will vary slightly for each chip.

