

AC LED Chip

□ Features:

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

□ Applications:

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

□ Mechanical Specification:

(1) Dimension

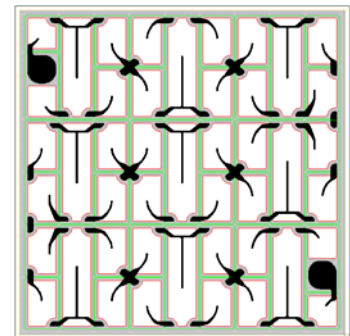
Chip size : 55 mil x 55mil (1400 ± 25μm x 1400 ± 25μm)

Thickness : 5.9 mil (150 ± 10 μm)

Bonding pad :4.7 mil (120 ± 10 μm)

(2) Metallization

Topside electrode : Au alloy (x2)



□ Electro-optical Characteristics at 25 °C:

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
AC voltage	V [RMS]	10mA [RMS]	82	90	98	v
Dominant wavelength	λ_d	10mA [RMS]	455	---	465	nm
Radiant power	Po	H12	155	---	185	mW
Power factor (with resistor)		10mA [RMS]	---	0.9	---	---

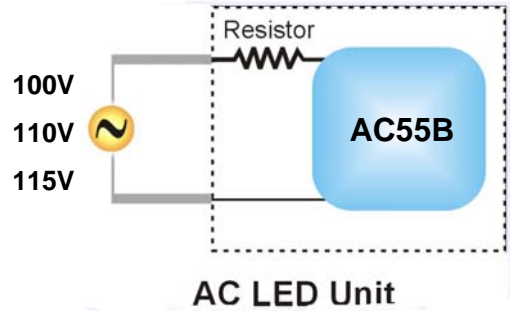
□ Absolute Maximum Ratings:

Parameter	Symbol	Condition	Rating	Unit
Root mean square current	I [RMS]	---	≤ 15	mA
Junction temperature	Tj	---	≤ 115	°C
Storage temperature	Tstg	chip	-40 ~ +85	°C
		chip-on-tape/storage	0 ~ 40	°C
		chip-on-tape/transportation	-20 ~ +65	°C
Temperature during packaging	---	---	280(<10sec)	°C

Operating Instruction:

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

AC LED unit electrical power calculation:
 Electrical power(W) = I [RMS] x V [RMS] x PF
 = 10mA x 110V x 0.9
 = 1 W

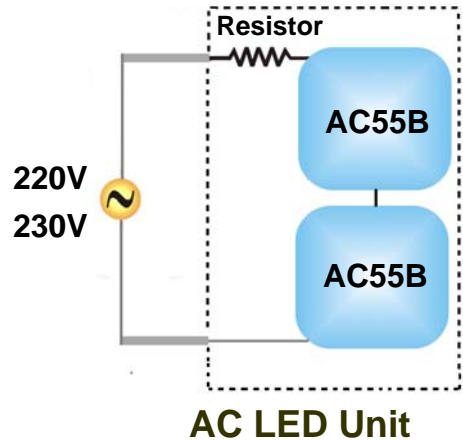


1-2. Resistor sheet

Voltage Bin	Driving current:10mA [RMS]		
	100V [RMS]	110V [RMS]	115V [RMS]
	Resistor value±100 (ohm)	Resistor value±100 (ohm)	Resistor value±100 (ohm)
82-84	1540	2490	3010
84-86	1400	2260	2740
86-88	1210	2150	2610
88-90	1000	1960	2370
90-92	825	1780	2260
92-94	649	1540	2050
94-96	464	1400	1870
96-98	274	1210	1690

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

AC LED unit electrical power calculation:
 Electrical power(W) = I [RMS] x V [RMS] x PF
 = 10mA x 220V x 0.9
 = 2 W



2-2. Resistor sheet

Voltage Bin	Driving current:10mA [RMS]	
	220V [RMS]	230V [RMS]
	Resistor value±100 (ohm)	Resistor value±100 (ohm)
"82-84" + "96-98"	3700	4700
"84-86" + "94-96"	3660	4610
"86-88" + "92-94"	3690	4660
"88-90" + "90-92"	3740	4630

□ Characteristic Curves:

(1) Current-Voltage characteristics:

1-1. With external resistor @100V

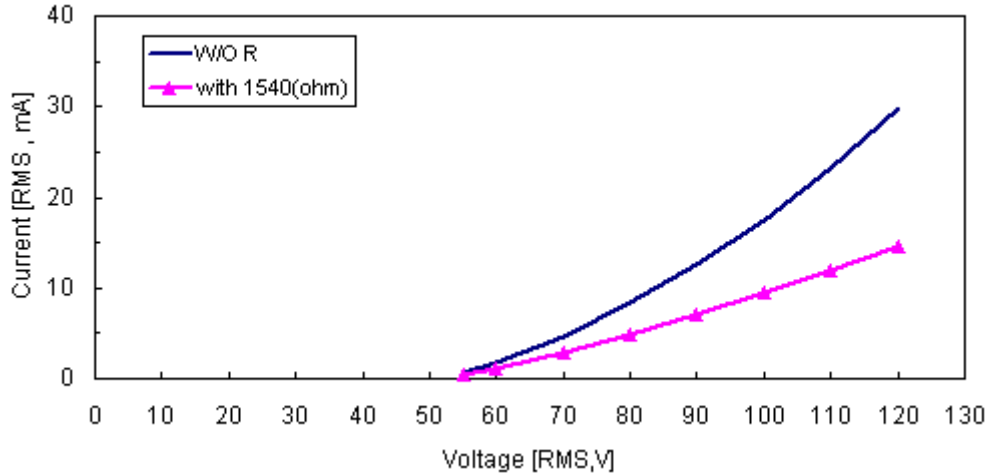


Fig-1 82-84V [RMS] AC55B

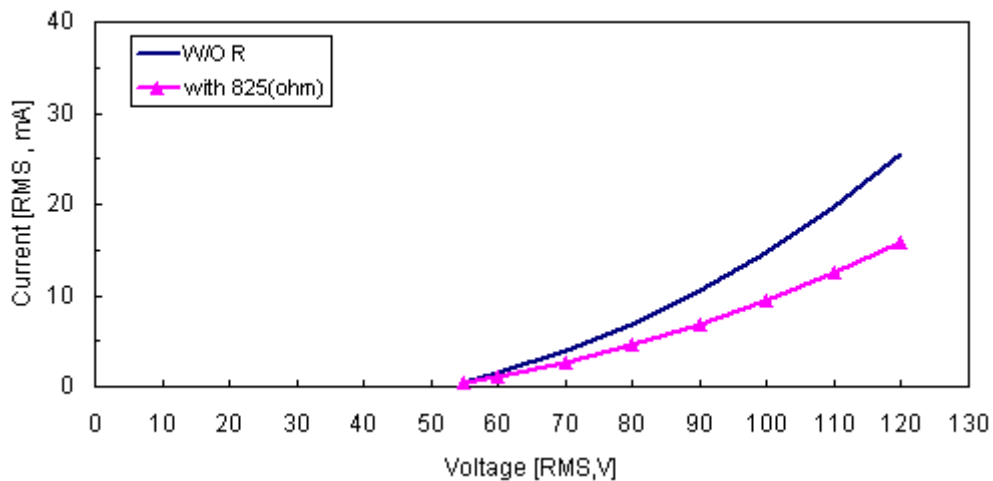


Fig-2 90-92V [RMS] AC55B

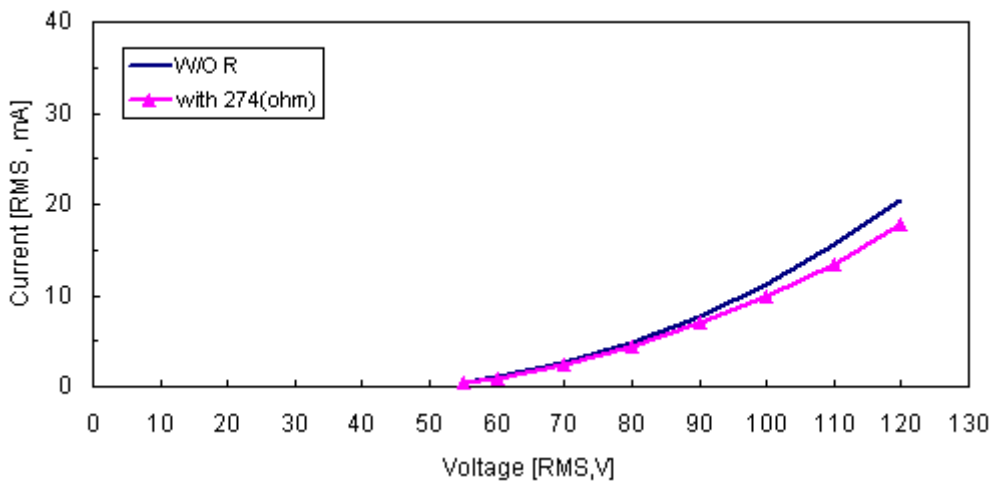


Fig-3 96-98V [RMS] AC55B

1-2. With external resistor @110V

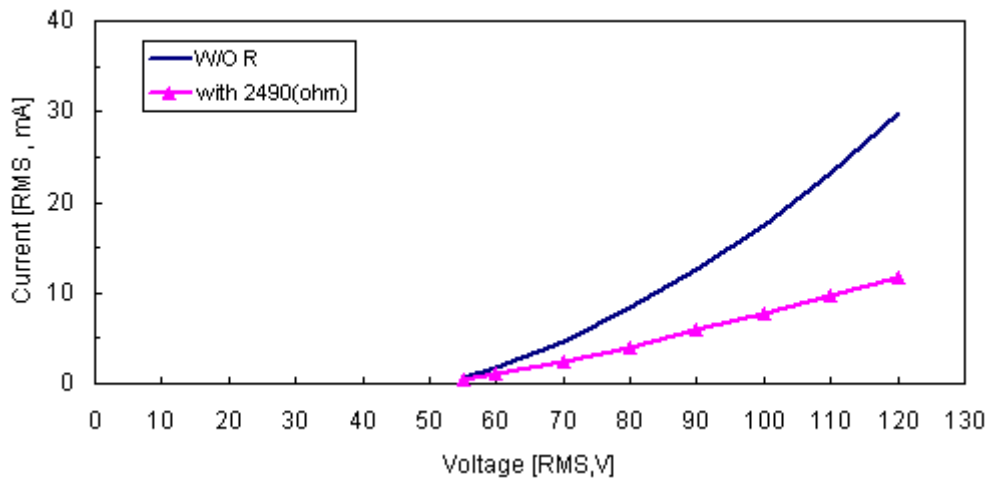


Fig-1 82-84V [RMS] AC55B

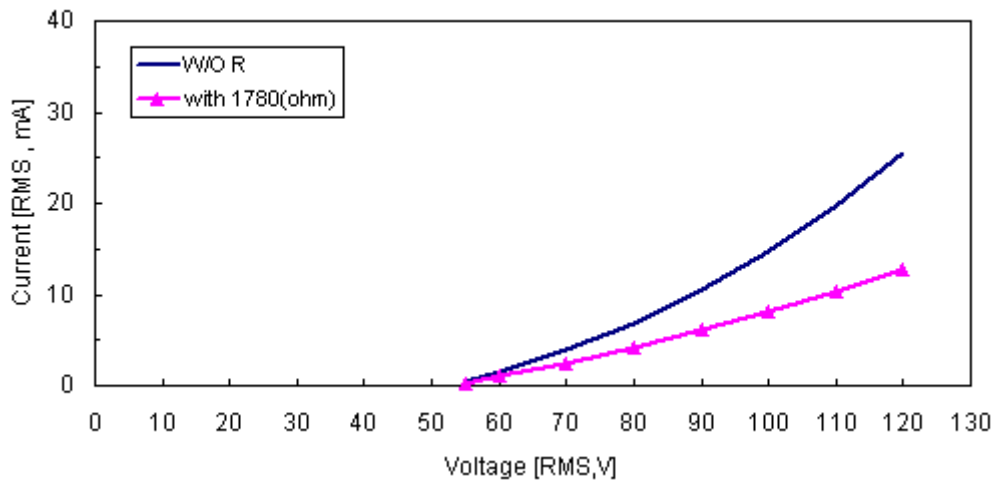


Fig-2 90-92V [RMS] AC55B

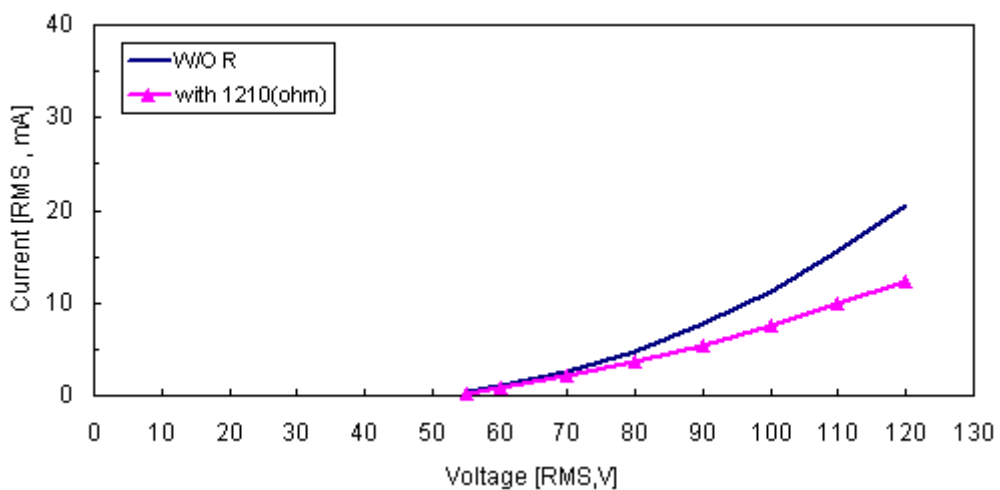


Fig-3 96-98V [RMS] AC55B

1-3. With external resistor @115V

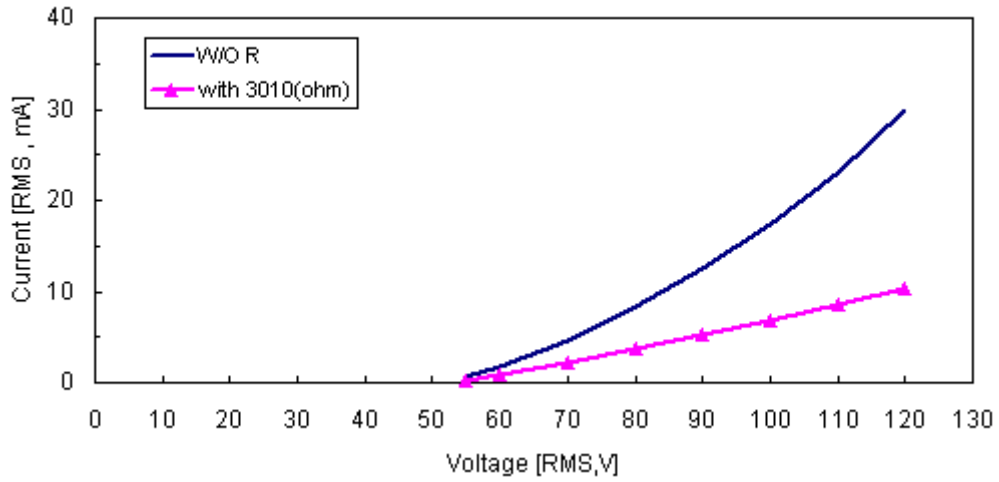


Fig-1 82-84V [RMS] AC55B

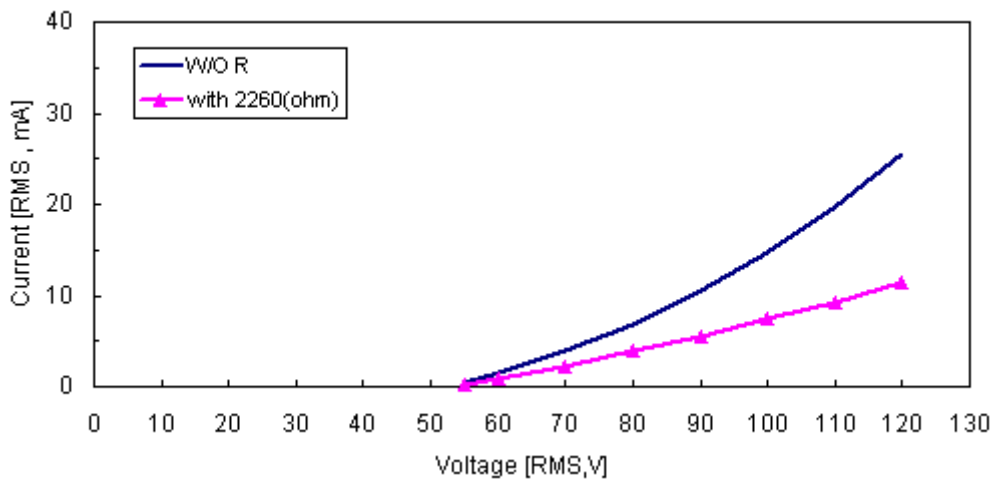


Fig-2 90-92V [RMS] AC55B

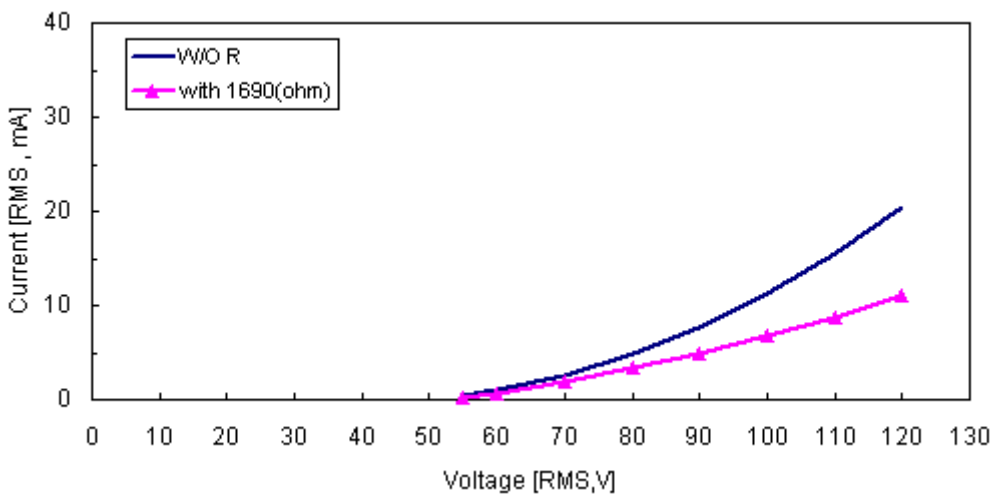


Fig-3 96-98V [RMS] AC55B

(2) Voltage-Radiant power characteristics:

2-1. With external resistor @100V

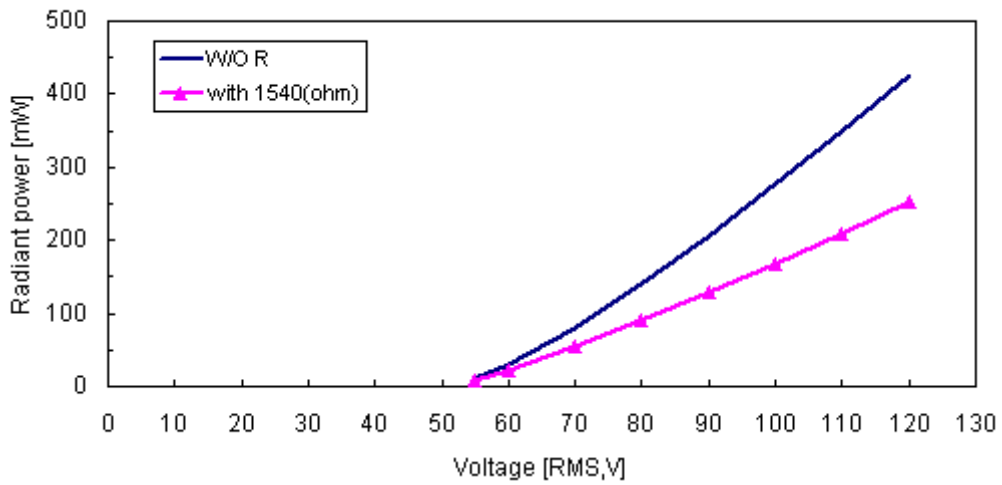


Fig-1 82-84V [RMS] AC55B

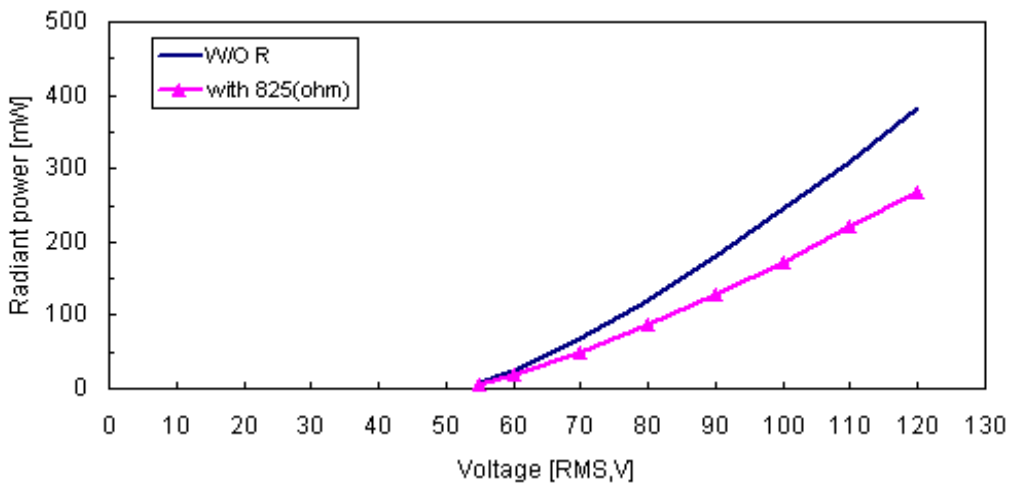


Fig-2 90-92V [RMS] AC55B

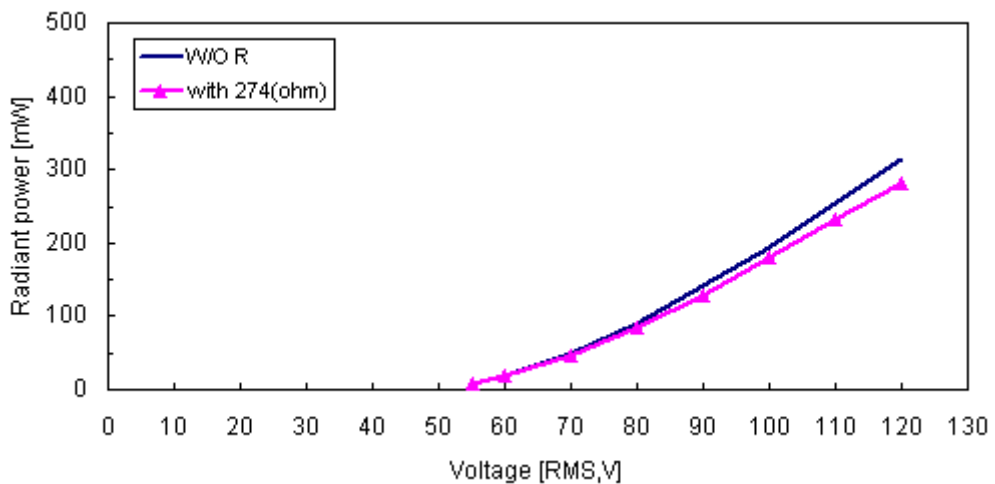


Fig-3 96-98V [RMS] AC55B

2-2. With external resistor @110V

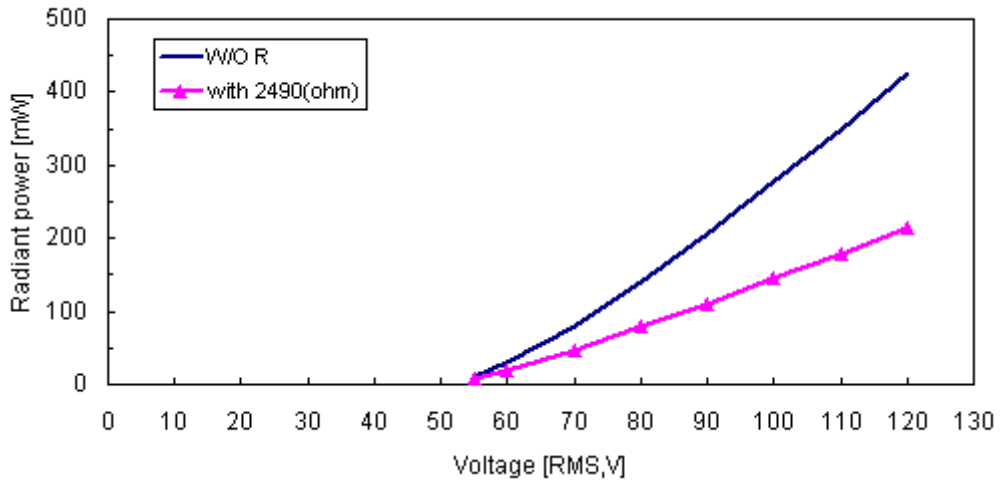


Fig-1 82-84V [RMS] AC55B

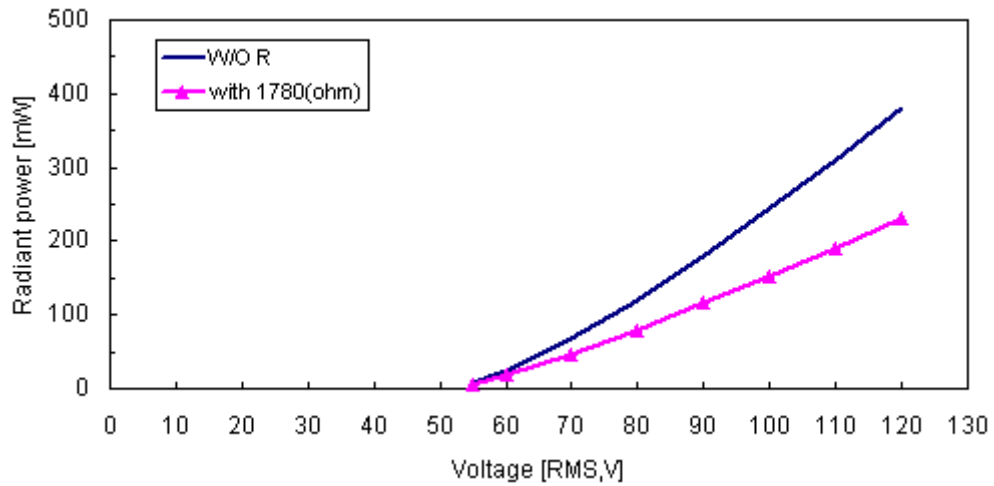


Fig-2 90-92V [RMS] AC55B

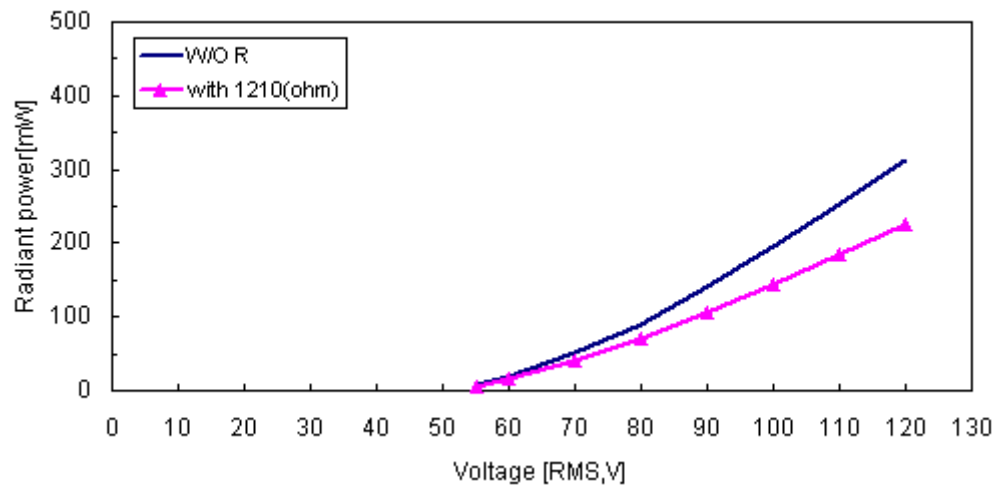


Fig-3 96-98V [RMS] AC55B

2-3. With external resistor @115V

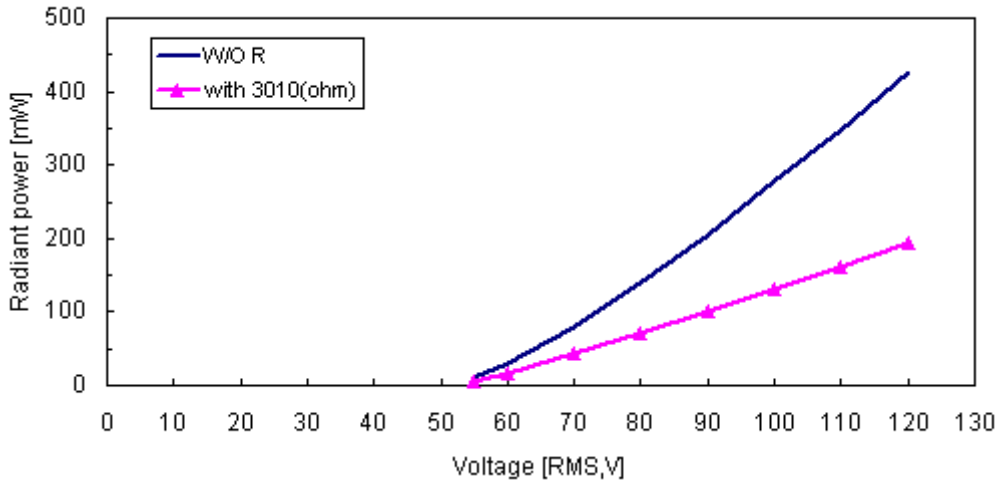


Fig-1 82-84V [RMS] AC55B

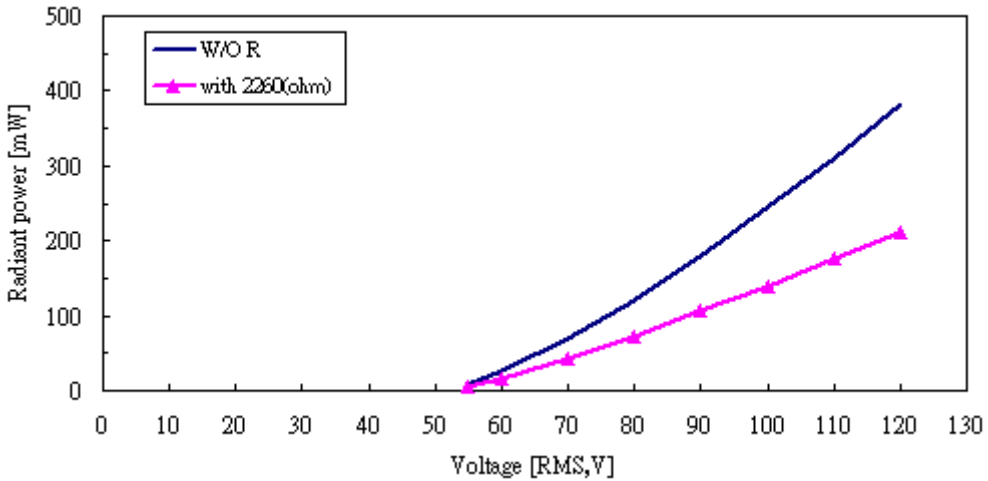


Fig-2 90-92V [RMS] AC55B

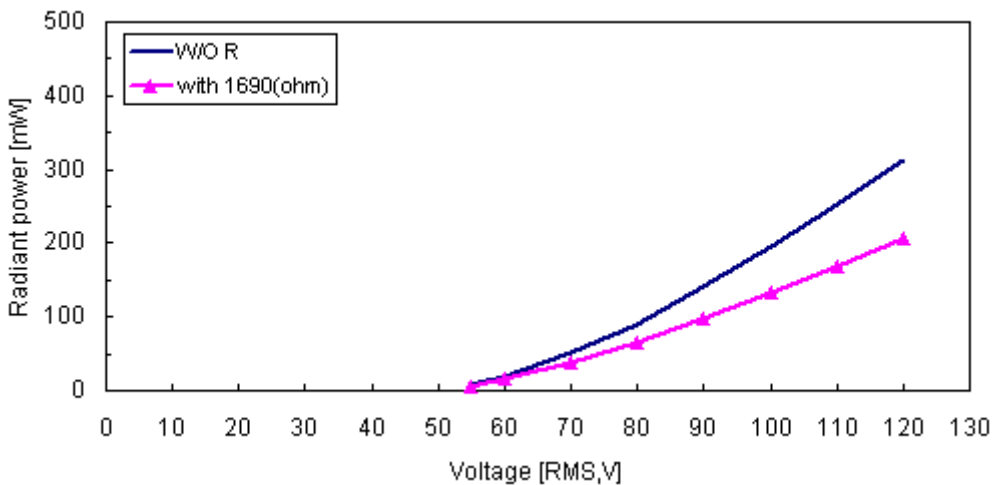


Fig-3 96-98V [RMS] AC55B

(3) Dominant wavelength-Voltage characteristics:

3-1. With external resistor @100V

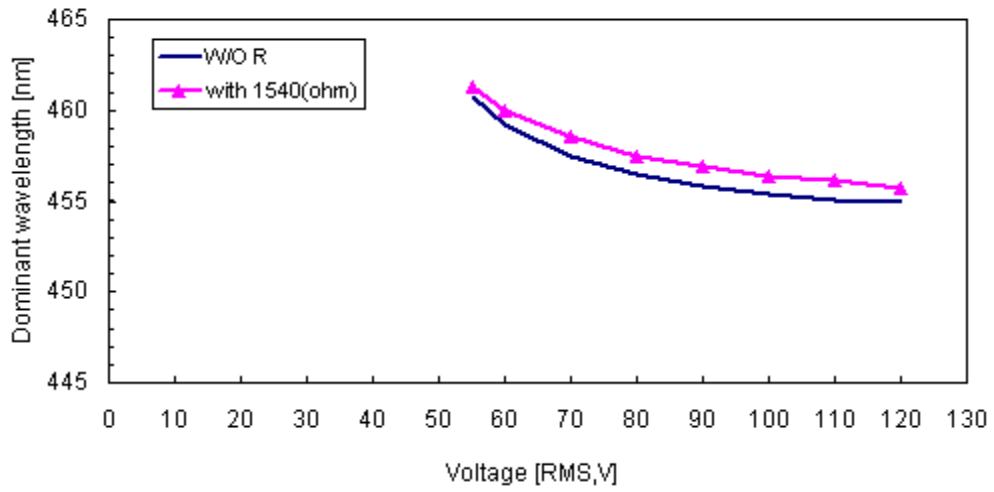


Fig-1 82-84V [RMS] AC55B

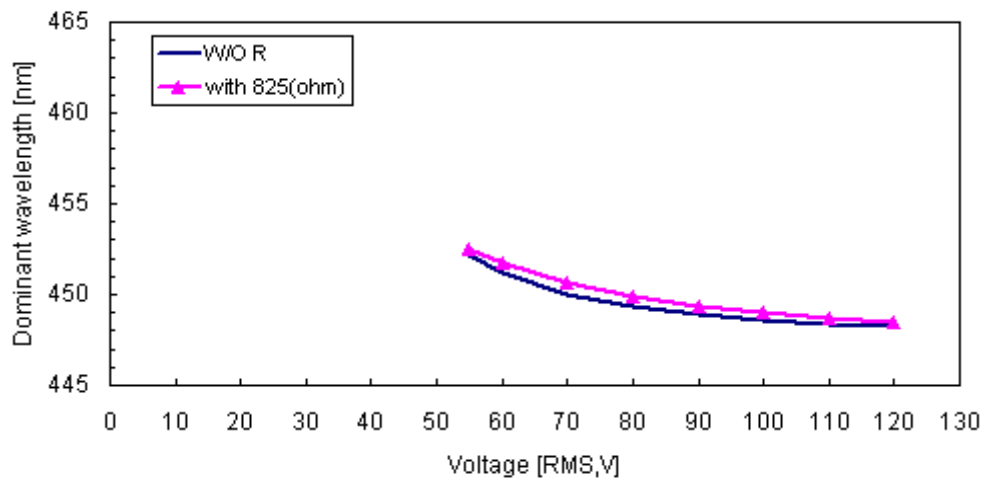


Fig-2 90-92V [RMS] AC55B

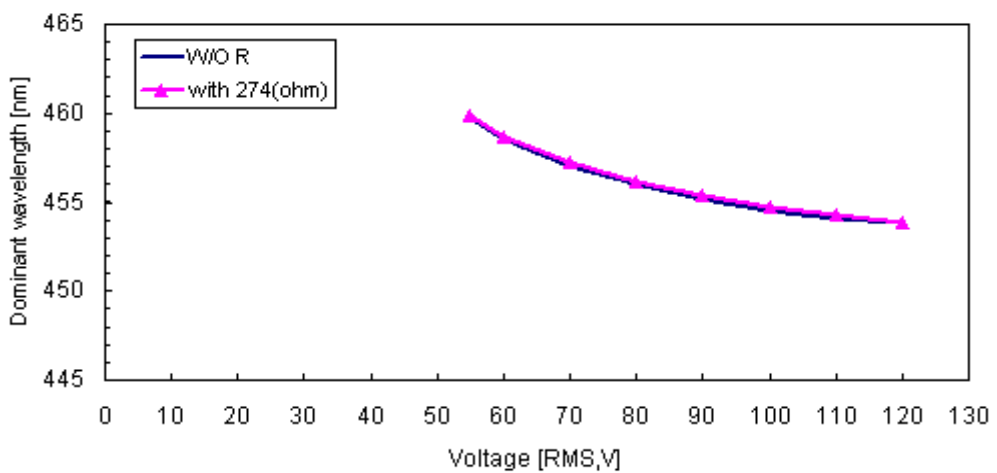


Fig-3 96-98V [RMS] AC55B

3-2. With external resistor @110V

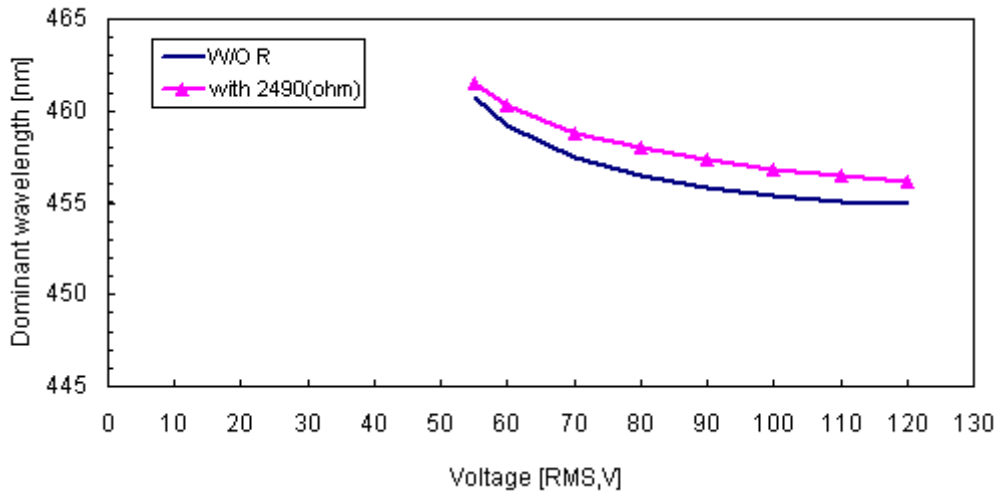


Fig-1 82-84V [RMS] AC55B

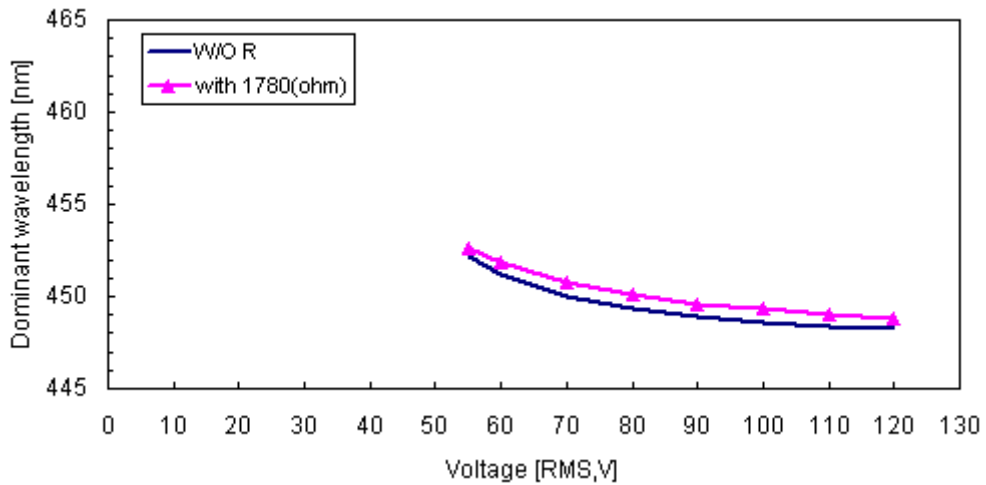


Fig-2 90-92V [RMS] AC55B

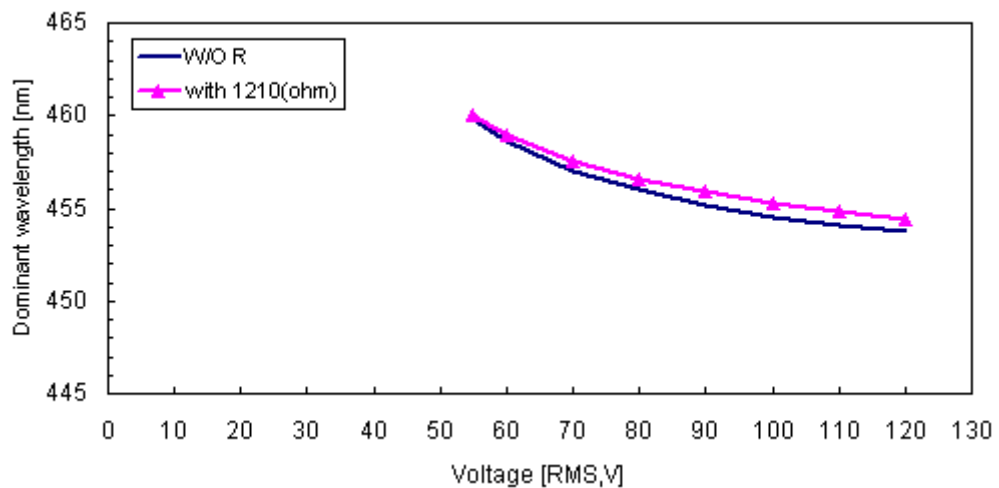


Fig-3 96-98V [RMS] AC55B

3-3. With external resistor @115V

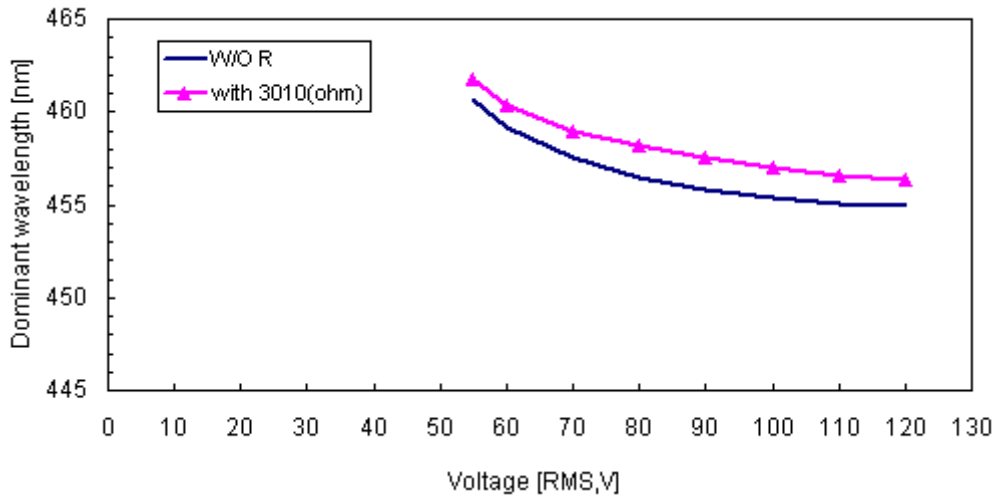


Fig-1 82-84V [RMS] AC55B

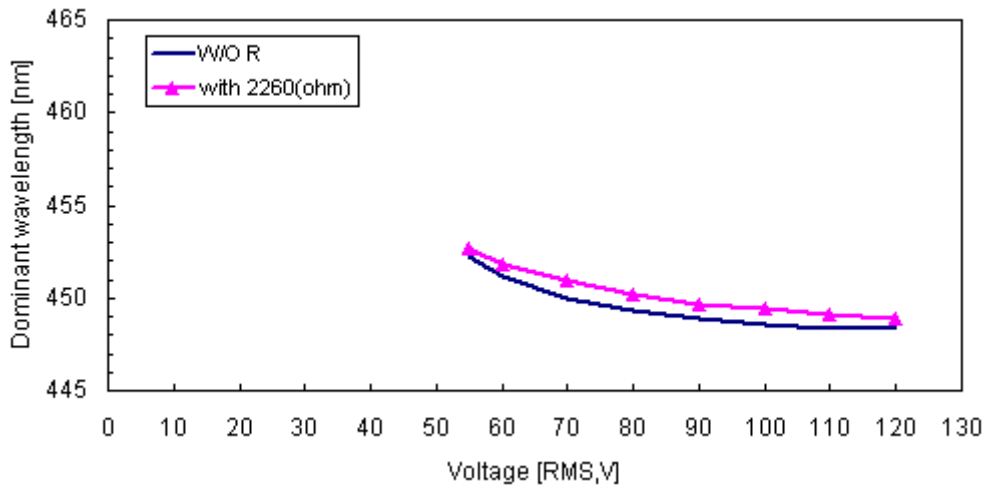


Fig-2 90-92V [RMS] AC55B

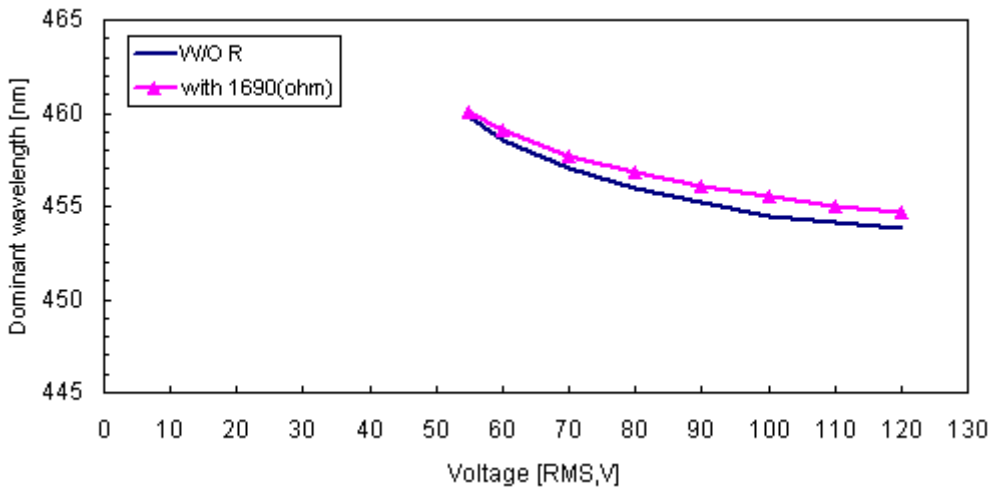


Fig-3 96-98V [RMS] AC55B

(4) Radiation Pattern

This is a representative radiation pattern for the AC55B AC LED product. Actual patterns will vary slightly for each chip.

