

## ARL-8003RGBW-B-7color Slow



### Features

Electricity control IC embedded  
 Fancy, fun, hottest in the market.  
 Lens size with 5mm / 8mm / 10mm options  
 Viewing Angles 40°..  
 Operating voltage range : 3V-5V DC.  
 Frequency tolerance : ±20%  
 RoHS compliant

### Applications

Toys / sports utilities  
 Miniature key chains  
 Effect Lights.  
 Display / decoration lights .  
 Electronic displays and signals  
 Interior decoration lights.  
 Indicator lights.  
 Solar energy lights / garden lights

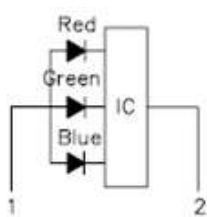
### Descriptions

New trend creations  
 Low energy consumptions  
 Low maintenance costs  
 High application design flexibility  
 High reliability

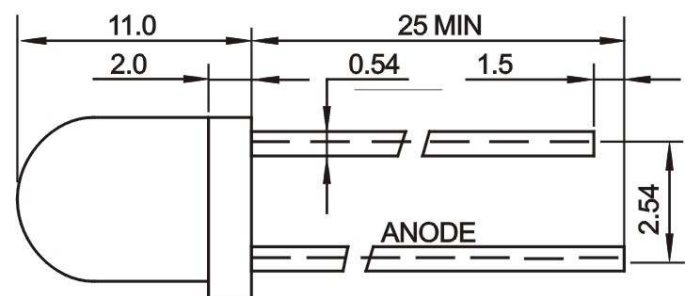
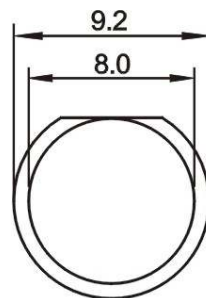
### Usage Notes:

Surge will damage the LED  
 When using LED, it must use a protective resistor in series with DC current about 20mA

### Package Dimensions



UNIT:mm



### Notes:

Other dimensions are in millimeters, tolerance is 0.25mm except being specified.  
 Protruded resin under flange is 1.5mm Max LED.  
 Bare copper alloy is exposed at tie-bar portion after cutting.

## Device Selection Guide

LED Part No.	Chip		Lens Color
	Material	Emitted Color	
ARL-8003RGBW-B-7color Slow	AlGaInP	Red	White Diffused
	InGaN	Green	
	InGaN	Blue	

## Absolute Maximum Rating (Ta= 25 °C)

Parameter	Symbol	Absolute Maximum Rating	Unit
Forward Pulse Current	I <sub>FPM</sub>	100	mA
Forward Current	I <sub>FM</sub>	30	mA
Reverse Voltage	V <sub>R</sub>	5	V
Operating Temperature	Topr	-40~+80	°C
Storage Temperature	Tstg	-40~+100	°C
Soldering Heat (5s)	Tsol	260	°C

## Electro-Optical Characteristics (Ta= 25 °C)

Parameter	Symbol	Device	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	I <sub>v</sub>	Red	100 0	---	1500	mcd	IF=20mA
		Green	150 0	---	2500		
		Blue	800	---	1200		
Viewing Angle	2θ <sub>1/2</sub>	Red	---	60	---	Deg	(Note 1)
		Green					
		Blue					
Peak Emission Wavelength	λ <sub>p</sub>	Red		630		nm	IF=20mA
		Green		525			
		Blue		470			
Spectral Line Half-Width	Δλ	Red		20		nm	IF=20mA
		Green		35			
		Blue		20			
Forward Voltage	V <sub>F</sub>	Red		2.2	2.5	V	IF=20mA
		Green		3.3	3.8		
		Blue		3.3	3.8		
Cycle	S			11		SEC	IF=20mA

**Reliability test items and conditions :**

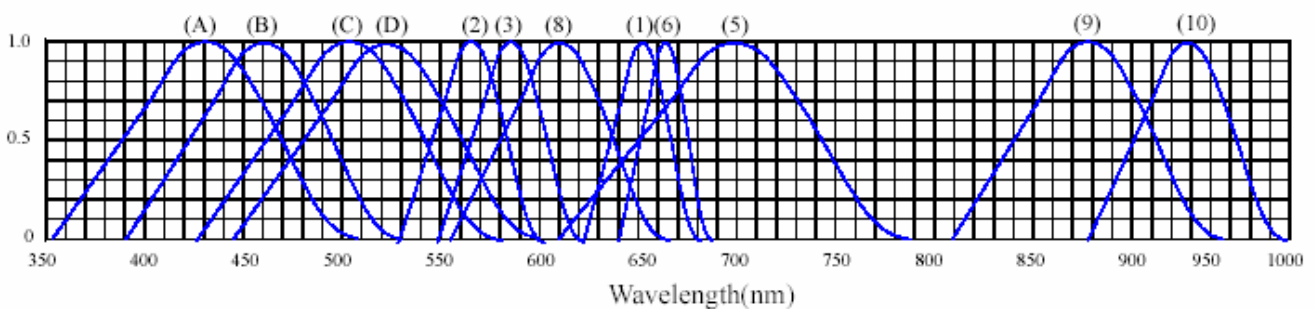
**Typical Electro-Optical Characteristics Curves**

NO	Item	Test Conditions	Test Hours/Cycle	Sample Size	Ac/Re
1	Solder Heat	TEMP : 260°C ± 5°C	5 SEC	76 PCS	0/1
2	Temperature Cycle	H : +85°C 30min └ 5min L : -55°C 30min	50 CYCLES	76 PCS	0/1
3	Thermal Shock	H : +100°C 5min └ 10set L : -10°C 5min	50 CYCLES	76 PCS	0/1
4	High Temperature Storage	TEMP : 100°C	1000 HRS	76 PCS	0/1
5	Low Temperature Storage	TEMP : -55°C	1000 HRS	76 PCS	0/1
6	DC Operating Life	TEMP : 25°C I <sub>F</sub> =20mA	1000 HRS	76 PCS	0/1
7	High Temperature / High Humidity	85°C / 85%RH	1000 HRS	76 PCS	0/1

**Flashing Mode**

Seven Color(R-G-B-RB-BG-GR-GB) Flash in turn; one fadeout, another fade-in at one time.

**TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS CURVES**



RELATIVE INTENSITY VS. WAVELENGTH( $\lambda_p$ )

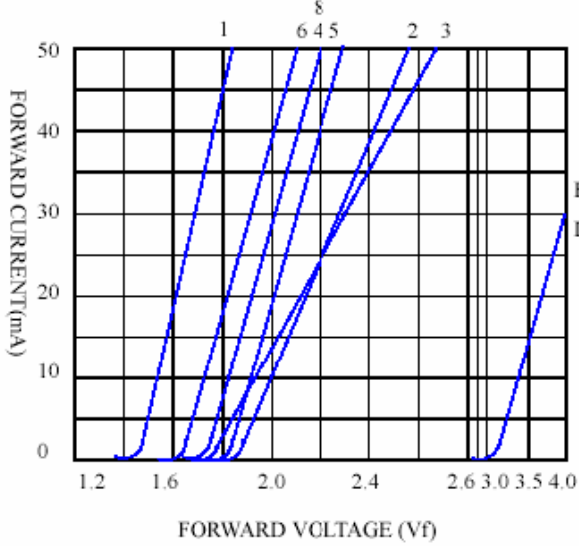
- (1) GaAsP/GaAs 655nm/Red
- (2) GaP 568nm/Yellow Green
- (3) GaAsP/GaP 585nm Yellow
- (4) GaAsP/GaP 635nm/ Hi-Eff Red
- (5) GaAlAs 880nm
- (6) GaAs/GaAs&GaAlAs/GaAs 940nm
- (7) GaN 430nm/Blue
- (8) InGaN 470nm/Blue

- (5) Gap 700nm/ Bright Red
- (6) GaAlAs/GaAs 660nm/ Super Red
- (8) GaAsP/GaP 610nm/ Orange

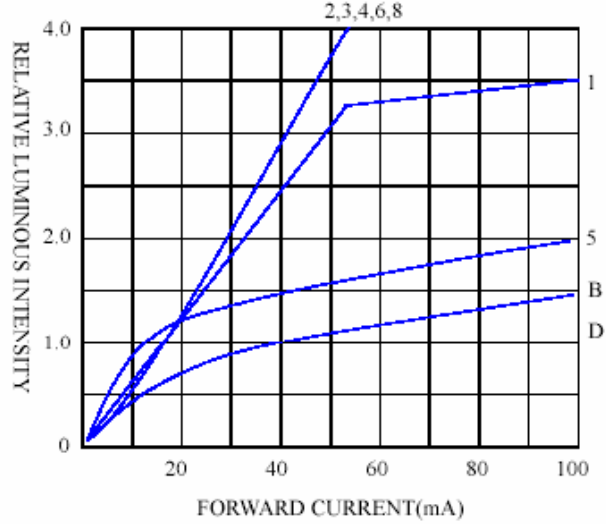
- (C) InGaN502nm/Bluish Green
- (D) InGaN525nm/Pure Green

## ◆ CHARACTERISTICS DIAGRAMS

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

