

AB-FY005I4 Addressable Flexible Light Series

5V DC, addressable flexible light strip and rope light



Features:

- UL listed
- IP20, IP65, IP68 options
- Addressable, wide viewing angle 120°/90°
- Storage temperature -40°C~70°C
- Operating temperature -20°C~50°C
- Environment humidity 40-70%RH

Applications:

- Conference/meeting rooms
- Hospitals
- Commercial/ residential buildings
- Entertaining lighting
- Hotels



AB-FYVVIZ Addressable Flexible Light Series

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Part number naming system:

Part numbers for AB-FYVVVIZ Addressable Flexible Light Series follow the convention below:

AB – FYVVVIZ – LLLWL – XA1

Y – Waterproof coating options (A- IP20 no coating, C-IP65 silicon coating, D-IP68 clear silicon tube, F-IP68 diffused silicon tube, H- 5mm IP68 diffused silicon tube)

VVV – Voltage (volt) of the light strip (005= 5V, 012=12V, 024=24V)

Z – Pin QTY of the IC LED (4- PLCC-4, 8- PLCC-8)

Voltage	LED Count/M	LED driver	PLCC PIN QTY & PACKAGE SIZE	Coating options
5V	90	P9411 ¹	4 / 3528	FH
	120	P9411	4 / 5050	FA, FC, FD, FF
12V	60	P943	8 / 5050	FA, FC, FD, FF
24V	60	P943	8 / 5050	FA, FC, FD, FF

LLL – Light strip length (unit: inch);

Voltage	LED Count/M	Length selection increment	Maximum available length	Coating options
5V	90	0.43 inch	118 inches	FH
	120	0.31 inch	96 inches	FA, FC, FD, FF
12V	60	1.97 inch	197 inches	FA, FC, FD, FF
24V	60	3.94 inch	394 inches	FA, FC, FD, FF

WL – Lead length (unit: inch); standard length is 12 inches.

X – CRI (8 – 80, 9 – 90, X – not applicable)

Ax – Version (Internal Code)

For example, the below part number of AB-FY005I4 Addressable Flexible Light Series stand for 5V, IP20, tape light 96 inches length, and lead 12 inches length, and addressable IC LED PLCC-4:

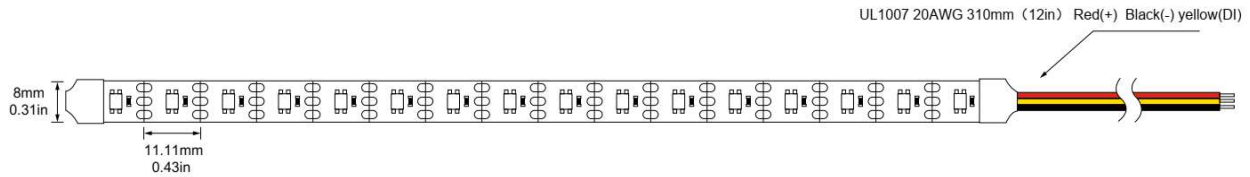
AB – FA005I4 – 09612 – XA1

¹ Please refer to section: Technical Specs for the LED with built-in driver

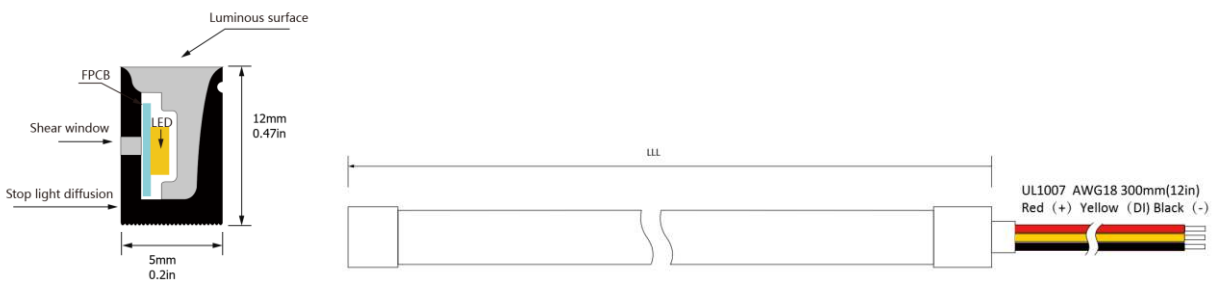
Technical Specs for the strips:

Outline Dimension:

1. DC 5V – 90LED/M (available in AB-FH coating):

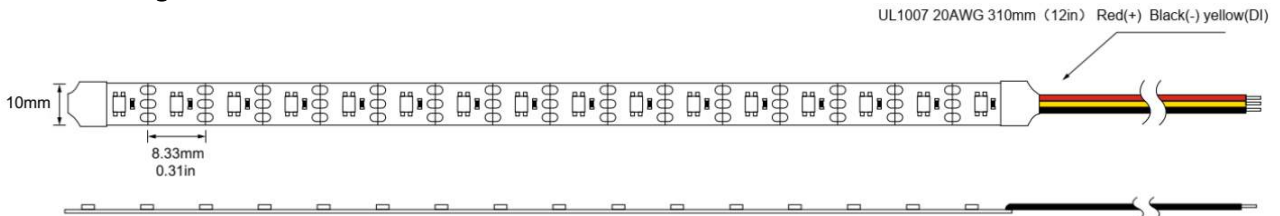


AB-FH Coating:



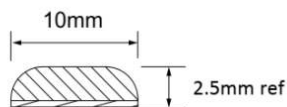
2. DC 5V – 120LED/M (available in AB-FA, FC, FD, FF coating):

AB-FA Coating:



2,3

AB-FC Coating:

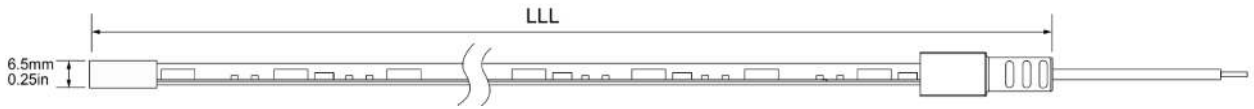


² Picture refers to AB-FA type, for other types of coating, please refer to AB-FC, AB-FD, AB-FF and AB-FH.

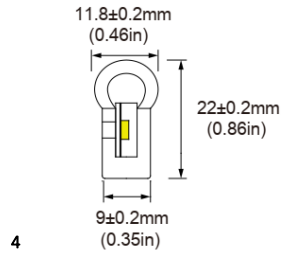
³ Cuttable length:

Voltage	LED Count/M	Cuttable unit length
5V	90	0.43 inch
	120	0.31 inch

AB-FD Coating:

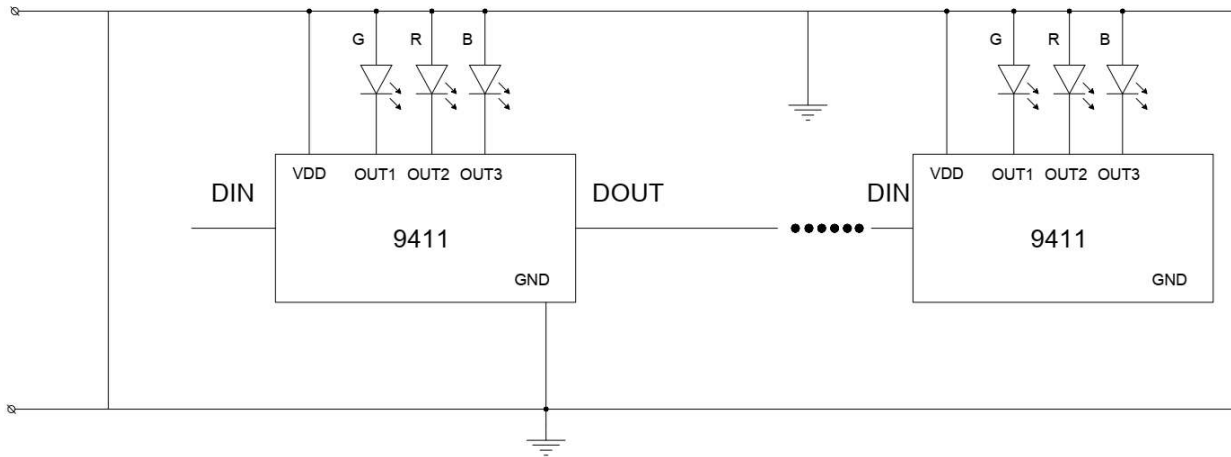


AB-FF Coating:



Schematic Diagram:

DC 5V:



⁴ Silicon tube: durometer, shore A 60~65 or equivalent. Color: White/Clear

Characteristics:

Table 1. Configurations for AB-FYVVVIZ Addressable Flexible Light Series.

OPERATING VOLTAGE (V)	CURRENT (A/m)	POWER (W/m)	LENGTH ⁵ m (inch)	LED COUNT/m
5	AB-FY005I4: 5.4	21.5	2.4 (96)	120
	AB-FH005I4: 2.64	16.5	3 (118)	90

Table 2. Product performance of AB-FYVVVI4 Addressable Flexible Light Series at T=25 degree C.

PART NUMBER	CCT/ WAVELENGTH	LUMINOUS FLUX ⁶ (lm/m)	LUMINOUS EFFICACY (lm/W)
AB-FA005I4-19712-XA1	RD: Red 620-630nm	70	/
	GR: Green 520-530nm	130	/
	BL: Blue 465-475nm	32	/
AB-FC005I4-19712-XA1	RD: Red 620-630nm	70	/
	GR: Green 520-530nm	130	/
	BL: Blue 465-475nm	32	/
AB-FD005I4-19712-XA1	RD: Red 620-630nm	70	/
	GR: Green 520-530nm	130	/
	BL: Blue 465-475nm	32	/
AB-FF005I4-19712-XA1	RD: Red 620-630nm	56	/
	GR: Green 520-530nm	104	/
	BL: Blue 465-475nm	25	/
AB-FH005I4-19712-XA5	RD: Red 620-630nm	56	/
	GR: Green 520-530nm	104	/
	BL: Blue 465-475nm	25	/

⁵ Standard unit length: 5m or 10m/roll, for custom length, please contact aboc@americanbrightled.com.

⁶ Luminous flux $\pm 10\%$ is allowed.



Technical Specs for the LED with built-in driver:

The P9411 device is an easy-to-use, 3-channel LED driver. Each channel has an individually-adjustable, 8-bit (256-step), pulse-width modulation (PWM) grayscale (GS) brightness control. GS data are input through a serial single wire interface port. The single-wire, 800-kbps serial interface provides a solution for minimizing wiring cost.

Features:

- Control circuit and RGB chip in SMD 3528 or 5050 packages
- Single-Wire Interface for line data transmission
- Grayscale (GS) Control With PWM: 8-Bit per channel (256 brightness steps)
- Data Transfer Maximum Rate: Bits per Second (bps): up to 800 kbps, when the refresh rate of 30 frames per second, a cascade of not less than 1024

Absolute maximum ratings:

Table 3. Absolute Max Ratings at Ta=25°C

Parameter	Symbol	Value	Unit
Power Supply Voltage	VDD	3.3-5	V
LED Voltage	VLED	3.3-4	V
PWM frequency	PWM	1.6	KHZ
Max output current	Iomax	12	mA
Power dissipation	Pd	<350	mW
Reverse voltage	Vr	4	V
Operating temperature range	Top	-25~80	°C
Storage temperature range	Tstg	-40~100	°C

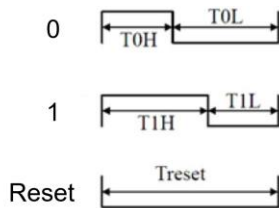
Electrical-optical characteristics:

Table 4. Electrical-optical characteristics at Ta = 25°C

Parameter	Test condition	Symbol	Value	Unit
Forward Voltage	If = 20mA	Vf	R 2 – 2.4	V
			G 3 – 3.4	
			B 3 – 3.4	
Luminous Intensity	If = 20mA	Vr	R 800 – 900	mcd
			G 1400 – 1600	
			B 300 – 450	
Wavelength	If = 20mA	Top	R 620 – 630	nm
			G 520 – 530	
			B 465 – 475	

Communication Protocol and Sequence:

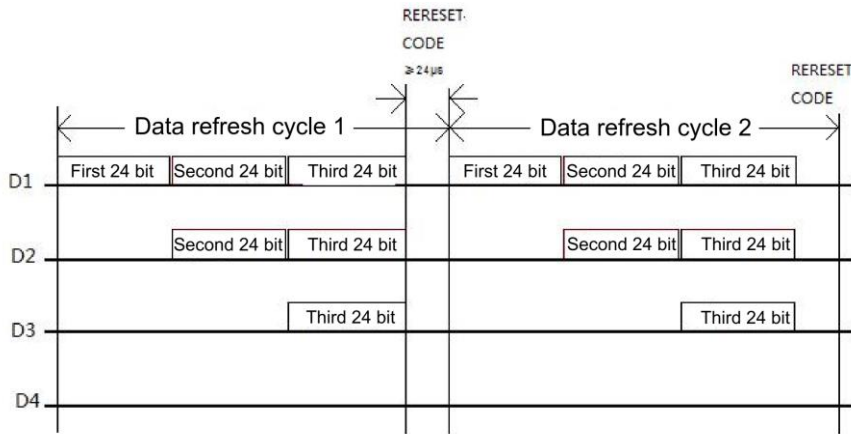
Input Code:



Data Transfer Time (TH+TL = 1.25 μs ± 300ns):

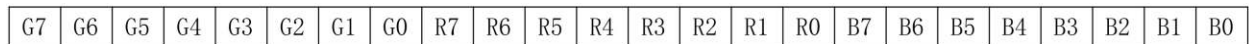
Symbol	Description	Typ	Tolerance
T0H	0 code, high level time	0.25μs	± 75ns
T1H	1 code, high level time	1μs	± 75ns
T0L	0 code, low level time	1μs	± 75ns
T1L	1 code, low level time	0.25μs	± 75ns
TRES	Reset code, low level time	50μs	

Data Transmission Mode:



Note: the D1 data is from MCU, and D2, D3, D4 is forwarded through automatic shaping cascade circuit.

24 bit Data Structure:

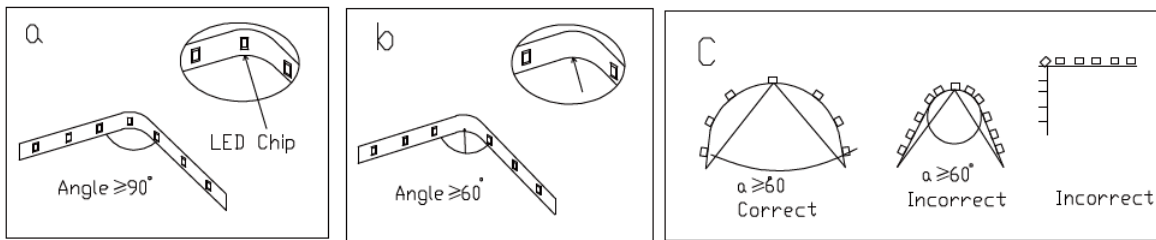


Note: Data transmission sequence GRB, higher bit is sent first.

Optional Mounting Accessories:

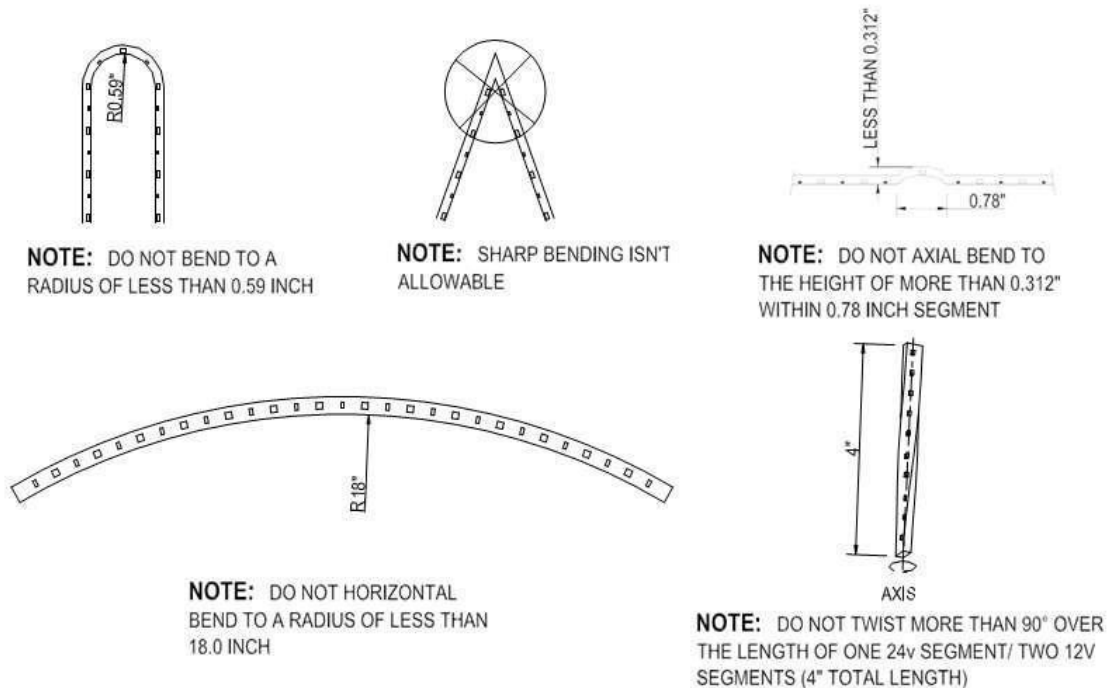
Please refer to spec "[Accessories For Flexible Light.](#)"

Installation Instructions:



- a: use an angle greater or equal to 90 degrees when there is an LED chip on the corner while placing, the strip in a concave position (Angle ≥ 90 degree)
- b: use an angle greater or equal to 60 degrees when there is an LED chip on the corner while placing, the strip in a concave position (Angle ≥ 60 degree)
- c: use an angle greater or equal to 60 degrees when there is an LED chip on the corner while placing the strip in a concave position (Angle ≥ 60 degree) In the convex position the angle should not reach,90 degrees. See above diagram.

Maximum flexibility precaution:



NOTE: DO NOT BEND TO A RADIUS OF LESS THAN 0.59 INCH

NOTE: SHARP BENDING ISN'T ALLOWABLE

NOTE: DO NOT AXIAL BEND TO THE HEIGHT OF MORE THAN 0.312" WITHIN 0.78 INCH SEGMENT

NOTE: DO NOT HORIZONTAL BEND TO A RADIUS OF LESS THAN 18.0 INCH

NOTE: DO NOT TWIST MORE THAN 90° OVER THE LENGTH OF ONE 24v SEGMENT/ TWO 12V SEGMENTS (4" TOTAL LENGTH)

Packaging:

Table 5. Packaging information

Model	QTY ⁷	Image
AB-FA series AB-FC series AB-FD series	1 roll/per ESD bag 10 bags/carton	
AB-FB series AB-FF series AB-FH series	1 roll/per tray 10 trays/carton	

⁷ Standard unit length: 5m or 10m/roll, 1 roll/bag. QTY/bag varies per different unit lengths.