

## Data Sheet

Linear LED Module

BLX-LN-280-24-H2-650

BLX-LN-560-24-H2-1300



### Product Description

- 280/560mm x 24mm linear LED module
- Nominal 650/1300lm @ 250mA, Tc=65°C
- Module efficacy up to 147lm/W
- High CRI of 80+
- High quality of Lambertian white light
- Re-workable push-in connector for easy wiring
- Suitable for robot wiring
- Simple installation with M4 screws (Built-in LED module)
- Long lifetime of 50,000hr

### Order Information

Type	Part number
BLX-LN-280-24-H2-650-830	71154024
BLX-LN-280-24-H2-650-840	71154026
BLX-LN-560-24-H2-1300-830	71154064
BLX-LN-560-24-H2-1300-840	71154066

### Key Performance Data

Type	Typ lm flux	Nominal CCT	Typ Vf	Typ power consumption	Efficacy of module	CRI
BLX-LN-280-24-H2-650-830	620lm	3000K	17.6V	4.4W	141lm/W	80+
BLX-LN-280-24-H2-650-840	650lm	4000K	17.6V	4.4W	147lm/W	80+
BLX-LN-560-24-H2-1300-830	1240lm	3000K	35.2V	8.8W	141lm/W	80+
BLX-LN-560-24-H2-1300-840	1290lm	4000K	35.2V	8.8W	147lm/W	80+

Note) Performance @ If=250mA, Tc=65°C

## Photometric Characteristics

Parameter	Type	Min	Typ	Max	Unit	Remark
Luminous flux	BLX-LN-280-24-H2-650-830	570	620	680	lm	
	BLX-LN-280-24-H2-650-840	600	650	710	lm	
	BLX-LN-560-24-H2-1300-830	1150	1240	1360	lm	
	BLX-LN-560-24-H2-1300-840	1200	1290	1420	lm	
Module efficacy	830		141		lm/W	
	840		147		lm/W	
CCT	830		3000		K	
	840		4000		K	
CIE	830		(0.434, 0.396)		-	
	840		(0.382, 0.373)		-	
Color consistency	-	3.5			SDCM	
CRI	-	80			-	
Radiation angle	-		115		deg	Lambertian

Note) Performance @ If=250mA, Tc=65°C

Measurement tolerance: Luminous flux ±7%, CIE ±0.007

Color measurement indicates integrated color over the module. Color consistency of 3.5 SDCM is therefore module-to-module consistency. LED-to-LED color consistency in a module could be up to 7 SDCM. We recommend that users design systems to provide enough mixing of the lights from individual LEDs (for example with diffuser placed with large enough distance from the module).

## Electrical Characteristics

Parameter	Type	Min	Typ	Max	Unit	Remark
Forward voltage	BLX-LN-280-24-H2-650	16.7	17.6	18.5	V	
	BLX-LN-560-24-H2-1300	33.4	35.2	37.0	V	
Power consumption	BLX-LN-280-24-H2-650	4.2	4.4	4.6	W	
	BLX-LN-560-24-H2-1300	8.4	8.8	9.3	W	

Note) Performance @ If=250mA, Tc=65°C

Measurement tolerance: Forward voltage ±4%

Max range of Vf considering entire operating temperature range (-25 to 85°C) is 16.5V to 20.5V for BLX-LN-280-24-H2-650 and 33.1V to 40.9V for BLX-LN-560-24-H2-1300. Please choose a driver with proper Vf range for your operating condition. If you plan to dim the module, check the Vf range of the module at minimum dimming level using Performance Graphs in this data sheet and choose a driver with proper Vf range.

## Vf Bins

When connecting multiple modules in parallel, please be aware that it can cause difference in brightness among modules. To minimize such brightness difference in parallel modulation, please use modules with the same Vf bin in one chain.

There are 5 Vf bins ( Z0 < Z+ < A0 < A+ < B0 in increasing order ) which all lie within the specification range. The Vf bin is marked on the bar code label as shown below.

### Bar code label example showing Vf bin

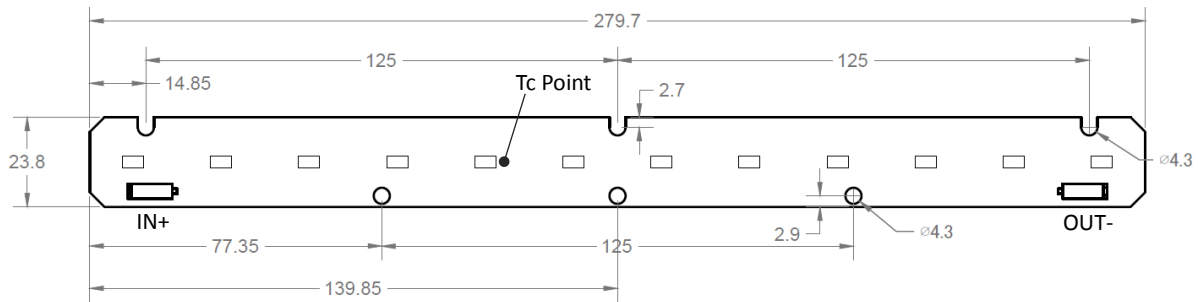


Serial modulation does not cause such brightness difference among modules with different Vf bins. Therefore it does not require Vf bin matching.

## Mechanical Characteristics

### BLX-LN-280-24-H2-650

#### Dimension



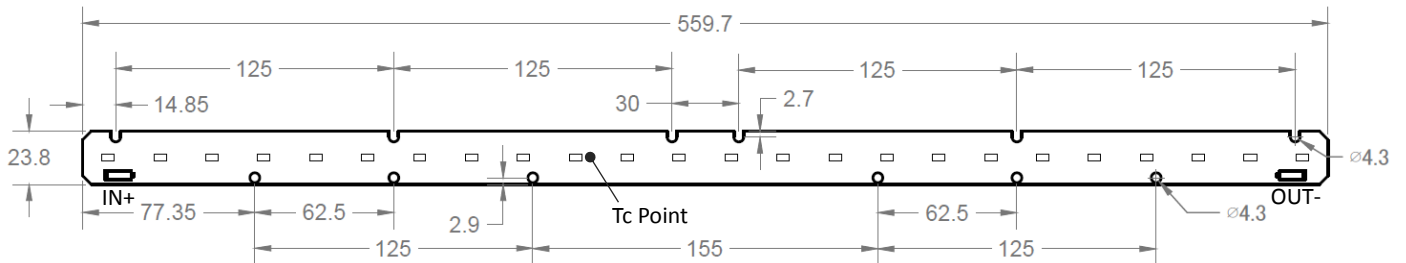
- Length: 279.7mm, Width: 23.8mm
- Height: 6.0mm (including connector), 1.6mm (PCB only, in area without copper layer underneath)

#### Module Image



### BLX-LN-560-24-H2-1300

#### Dimension



- Length: 559.7mm, Width: 23.8mm
- Height: 6.0mm (including connector), 1.6mm (PCB only, in area without copper layer underneath)

#### Module Image



#### Fixing Screws

- Use M4 screws and plastic washers. (8mm diameter metal screw head provides creepage distance for RMS working voltage of 50V when mounted without plastic washers.)
- Max torque: 1.0 N·m
- Do not use metal washers as it becomes difficult to maintain proper creepage distance.



This module is designed for RMS working voltage not exceeding 250V when mounted with plastic washers.

## Wiring

Item	Min	Typ	Max	Unit	Remark
Wire cross section	18		24	AWG	Use solid wire
	0.2		0.8	mm <sup>2</sup>	
Insulation diameter			2.1	mm	
Strip length	7.5	8.0	8.5	mm	

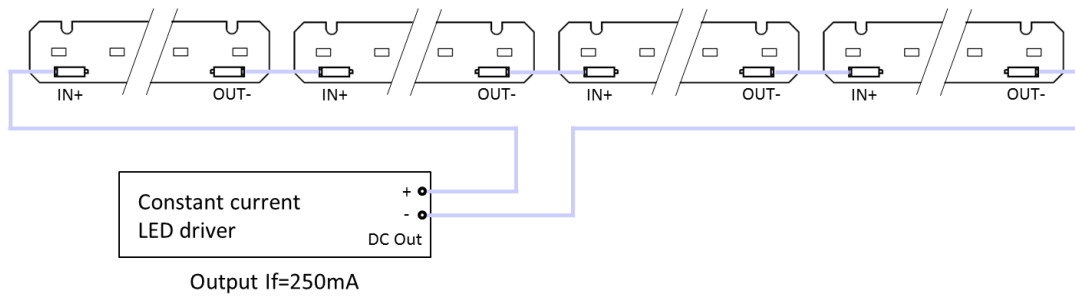
To release wire, gently press down the button on top of connector with fingers or tools, and pull the wire.

For stranded wires, use AWG 20 - 22 and apply pre-soldering to bond the strands together before inserting the wire into the connector.

Conductor diameter must be less than 1.1mm after pre-soldering.

**!** There is no reverse polarity protection. Please use caution and do not drive the module in reverse polarity. It can damage the module.

## Wiring Example



**!** This module is designed for RMS working voltage not exceeding 250V when mounted with plastic washers.

## Lifetime

### Lumen Maintenance

Drive current	Tc	L70B50	L80B50	L90B50
300mA	55°C	> 60,000hr	> 60,000hr	51,000hr
	65°C	> 60,000hr	53,000hr	35,000hr
	75°C	45,000hr	34,000hr	22,000hr

Note) The above values are derived from LM80 test and represent statistical values. Individual modules may exhibit variations.

### Color Maintenance

- $\Delta u'v' < 0.005$  @ 6,000hr (For  $I_f < 300\text{mA}$ ,  $T_c < 65^\circ\text{C}$ )

### Temperature at Tc Point

- Note that the lifetime of module is strongly dependent upon the temperature at Tc point.
- Please check the temperature at Tc point in your luminaire and make sure that it is below the values in the following table.

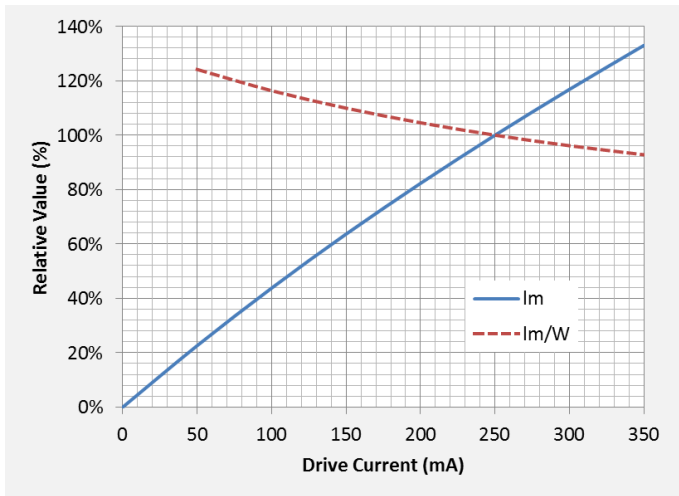
Category	Temperature at Tc point	Drive current per channel	Remark
Nominal	65°C	250mA	Nominal value at which performance is specified
Life	65°C	300mA	Value at which 50,000hr L70B50 lifetime is specified
Max	85°C	350mA	Max value for safety

## Absolute Max Ratings

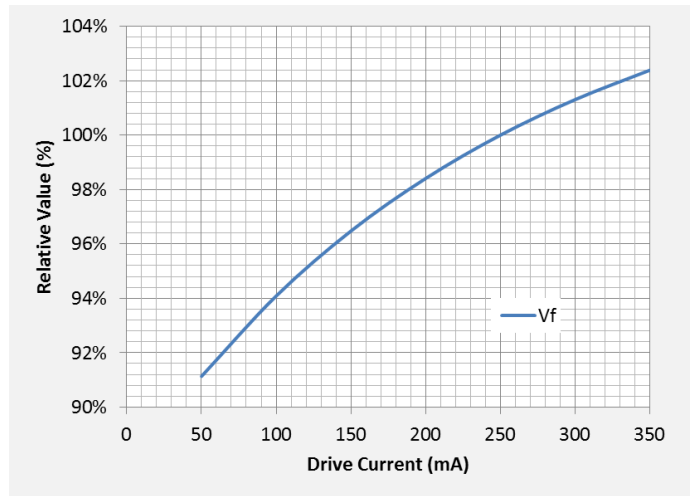
Parameter	Min	Typ	Max	Unit	Remark
Drive current			350	mA	
Tc	-25		85	°C	@ Tc Point
ESD			5	kV	Human body model
Ambient Temperature	-25		85	°C	

## Performance Graphs

Luminous flux and module efficacy vs. Drive current \*

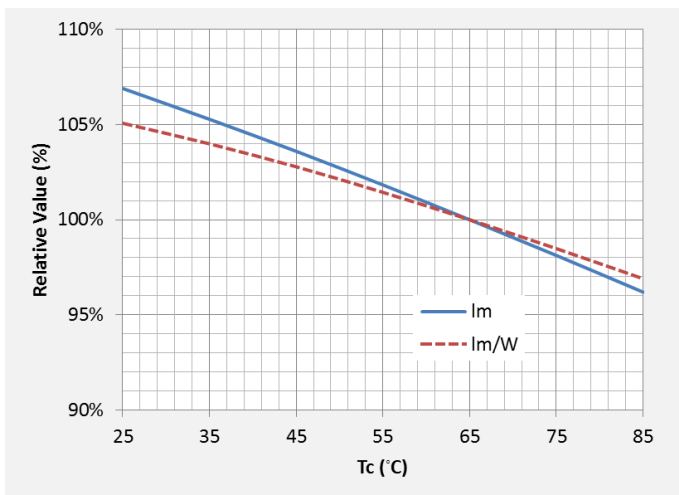


Forward voltage vs. Drive current \*

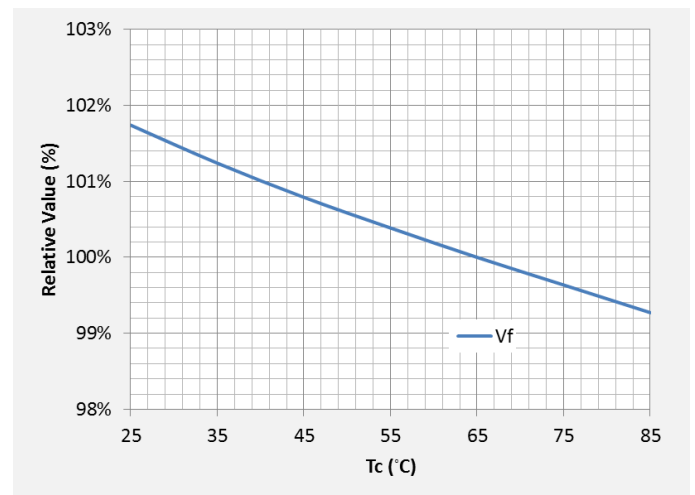


\*) These two graphs are at fixed Tc of 65°C.

Luminous flux and module efficacy vs. Temperature at Tc point



Forward voltage vs. Temperature at Tc point



Note) The above graphs show representative values. Each module can have different values.

## Precautions for Use

### Chemical Substances

Certain chemical substances listed below may harm LED modules by causing corrosions which result in reduced luminous flux, color shift, and no light output in the worst case. Please use caution when storing LED modules and designing the luminaire system so that LED modules are not exposed to such chemical substances.

- Examples of harmful chemical substances: Sulfur, chlorine, phthalate, halogen, VOCs (volatile organic compound)
- Example sources of harmful chemical substances: Organic rubber, corrugated paper, lead solder paste, epoxy

When designing a sealed luminaire, one must use silicone based sealing instead of rubber based ones and make sure that there is no source of harmful chemical in the luminaire.

Do not store LED modules with corrugated paper or rubber. It is recommended that LED modules be stored in aluminum moisture barrier bag or PE (Polyethylene) bag together with silica gel.

### ESD

This LED module is sensitive to electrostatic discharge. Please handle the module in an environment with appropriate ESD protection measures.

### DC Polarity

There is no reverse polarity protection. Please use caution and do not drive the module in reverse polarity. It can damage the module.

### Constant Current

This LED module must be driven by constant current LED drivers. Constant voltage driver may damage the module.

### LED Handling

LED is a delicate component. Do not touch or apply pressure on the yellow light emitting window of LEDs. This may damage the LED causing no light output.

This product is manufactured in ISO certified facility with strict quality control.

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