



# SnapBrite S204-12W-12E

## AC LED MODULE

12 Watt 792lm 12V AC

LOW VOLTAGE MULTI-LED DIMMABLE LINEAR MODULE

Technical Data Sheet





## Direct Connect AC LED lighting technology

# SnapBrite™ S204-12W-12E

## Description

SnapBrite low voltage AC LED modules are fast, easy and reliable LED light sources for lighting OEMs in need of dimmable LED solutions that offer direct low voltage connectivity with a 12V AC electronic transformer. Best performance is achieved with a Lynk Labs BriteDriver transformer.

Lynk's patented AC LED technology eliminates the requirement for an expensive, bulky and failure prone AC – DC power supply or driver. Delivering efficiency, reliability and a high power factor, SnapBrite modules can be used by lighting manufacturers in many types of fixture as an effective replacement for energy hungry incandescent, Xenon or Halogen lamps. Additionally, the modules will dim with many popular leading and trailing edge phase cut dimmers designed for use with electronic transformers.

Look for the Lynk Labs name or this private label mark to ensure you are always backed by Lynk Labs high quality AC LED technology, IP, and reliability. Lynk Labs - Your AC LED Experts!



## Features

- Direct 12V AC connection
- Compatible with existing 12V electronic AC Power Supplies
- Reliable, Fast & Easy  
- Plug & Play
- Works with most existing AC Dimmers
- High Power Efficiency
- High Power Factor
- Significant Energy Savings
- Durable Light Source
- Long Operating life

## Applications

- Linear Lighting
- Cove Lighting
- Under Cabinet Lights
- Wall Sconce
- Step Lights
- Accent Lights
- Display Lights



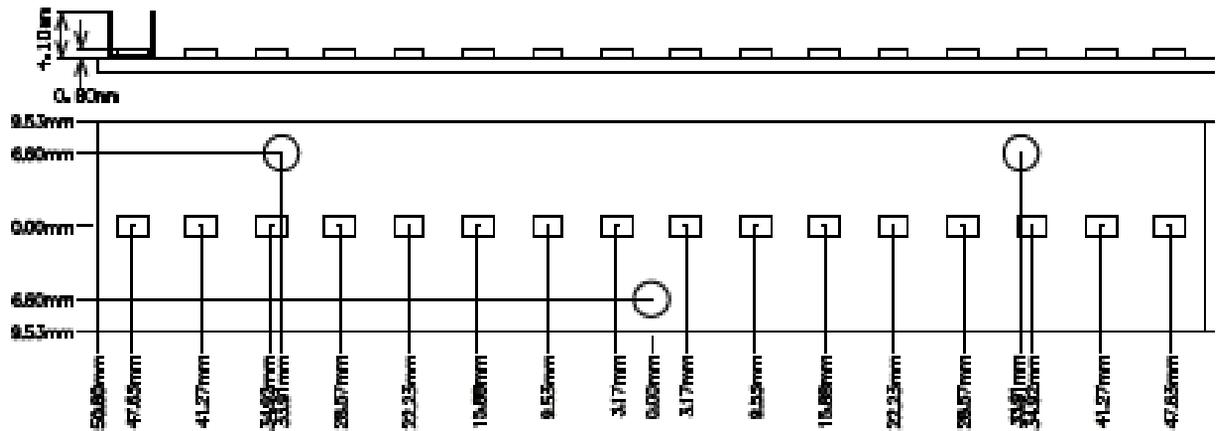
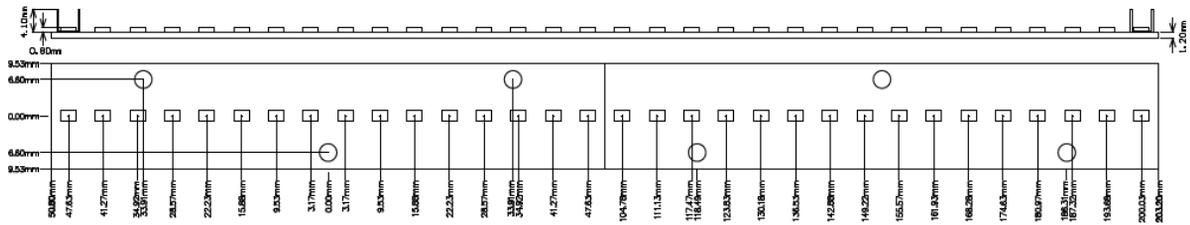
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### 3. Mechanical Dimensions Single LED Assembly

S204019EP2HT12W_KIH-12E	Length	Width	Height
Size in Millimeters	204 mm	19 mm	5.5 mm
Tolerance	+/- 0.254mm	+/- 0.254mm	+/- 10%



1. All dimensions are in millimeters.
2. Tolerance is  $\pm 0.05\text{mm}$  unless otherwise noted.



#### 4. Electrical & Optical Characteristics

ITEM	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Drive Voltage	V <sub>f</sub>	12V AC	V <sub>rms</sub>	7	12	13
Viewing Angle	2θ <sub>1/2</sub>		deg		120	
Thermal Resistance	R <sub>θj-c</sub>	I <sub>f</sub> =833mA <sub>rms</sub>	°C/W		tba	
Typical Operating Power	W <sub>T</sub>	I <sub>f</sub> =833 mA <sub>rms</sub>	W		12	
Luminous Flux (3000K CRI 90)	Φ	V <sub>f</sub> =12 V <sub>rms</sub>	lm		792	
Luminous Efficacy (3000K)	η <sub>v</sub>	V <sub>f</sub> =12 V <sub>rms</sub>	lm/w		66	

\*Measurement Uncertainty of the Luminous Flux: ± 10%

\*Values given are for specified drive current/voltage at 25°C ambient temperature and 25°C case temperature

MODEL NUMBER	CCT	CRI	VAC	POWER	LUMEN	lm/W
S204019EP2HT12W30KIH-12E	3000K	90	12	12	792	66
S204019EP2HT12W40KIH-12E	4000K	90	12	12	834	70

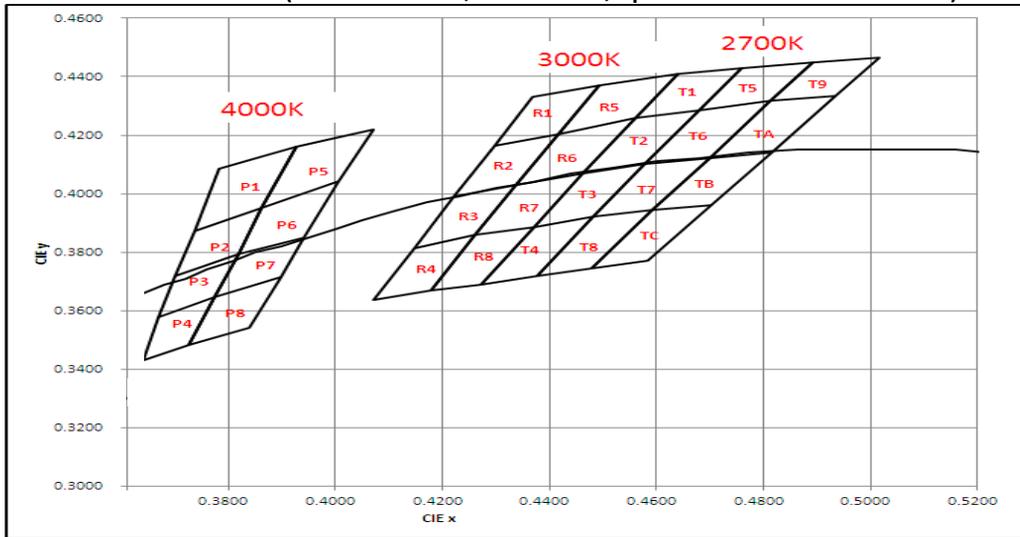
#### 5. Absolute Maximum Ratings (@ Ta=25°C)

ITEM	SYMBOL	ABSOLUTE MAXIMUM RATING	UNIT
Power Dissipation	P <sub>d</sub>	14	W
A.C. Current	I <sub>f</sub>	1333	mA <sub>rms</sub>
AC Voltage	V <sub>f</sub>	13	V
Operating Temperature	T <sub>o</sub>	-25 ~ +100	°C
Storage Temperature	T <sub>s</sub>	-40 ~ +100	°C
Soldering Temperature(Hand)	T <sub>sl</sub>	370	°C



## 6. C.I.E. Chromaticity Coordinates

(VF=12Vrms, Ta=25°C, pulsed measurement)



Energy star ANSI	Rank	x1	y1	x2	y2	x3	y3	x4	y4	Center CCT(K)
RY	R2	0.4299	0.4165	0.422	0.399	0.4338	0.403	0.4416	0.4205	3000K
	R3	0.422	0.399	0.4147	0.3814	0.4262	0.386	0.4338	0.403	
	R6	0.4416	0.4205	0.4338	0.403	0.4463	0.407	0.4562	0.426	
	R7	0.4338	0.403	0.4262	0.386	0.4371	0.3885	0.4463	0.407	
	R1	0.437	0.4332	0.4299	0.4165	0.4416	0.4205	0.4493	0.437	
	R4	0.4147	0.3814	0.407	0.3636	0.4178	0.367	0.4262	0.386	
	R5	0.4493	0.437	0.4416	0.4205	0.4562	0.426	0.464	0.441	
	R8	0.4262	0.386	0.4178	0.367	0.4273	0.369	0.4371	0.3885	
PY	P2	0.374	0.3888	0.37	0.372	0.3818	0.3795	0.3863	0.395	4000K
	P3	0.37	0.372	0.367	0.3568	0.377	0.363	0.3818	0.3795	
	P6	0.3863	0.395	0.3818	0.3795	0.3941	0.385	0.3996	0.4015	
	P7	0.3818	0.3795	0.377	0.363	0.3889	0.369	0.3941	0.385	
	P1	0.3783	0.4085	0.374	0.3888	0.3863	0.395	0.3926	0.416	
	P4	0.367	0.3568	0.364	0.343	0.3727	0.3482	0.377	0.363	
	P5	0.3926	0.416	0.3863	0.395	0.3996	0.4015	0.407	0.422	
	P8	0.377	0.363	0.3727	0.3482	0.384	0.354	0.3889	0.369	

\* tester tolerance of  $\pm 0.01$  on x, y color coordinates.

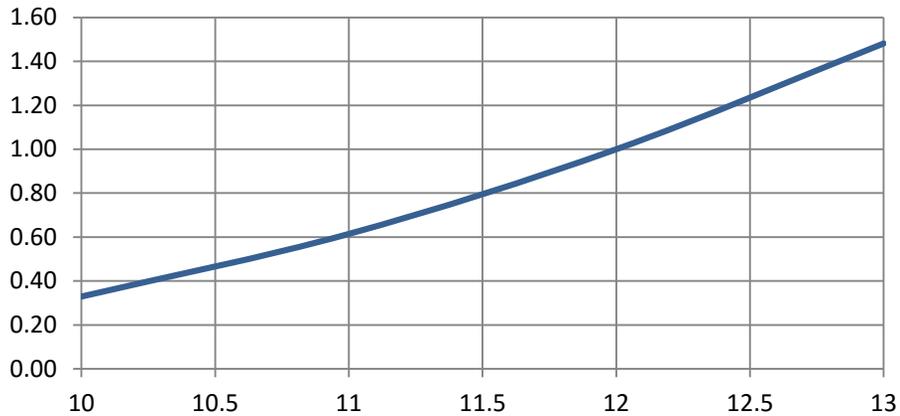


Emitting Color	Center CCT(K)	Flux Code	MIN.	MAX.	Model Name
Warm white	3000	F28	45	50	S.....30KS-12
		F29	50	55	
		F30	55	60	
		F31	60	68	
		F32	68	75	
		F33	75	85	
		F34	85	95	
Neutral white	4000	F29	50	55	S.....40KS-12
		F30	55	60	
		F31	60	68	
		F32	68	75	
		F33	75	85	
		F34	85	95	
		F35	95	110	

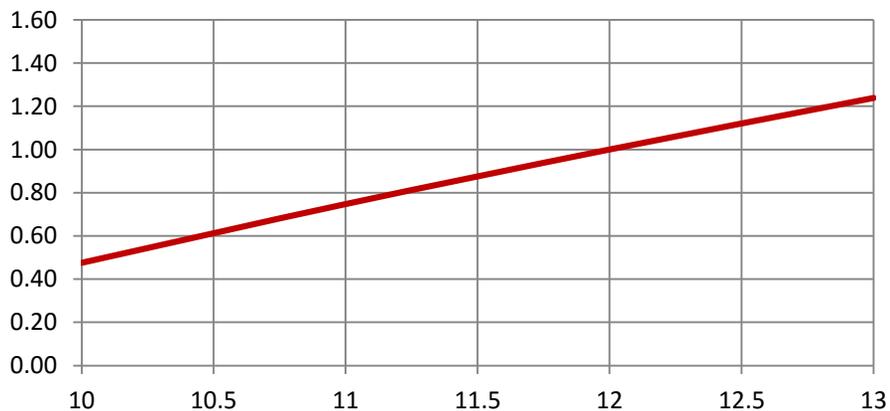


## 7. Typical Electrical & Optical Characteristic Curves

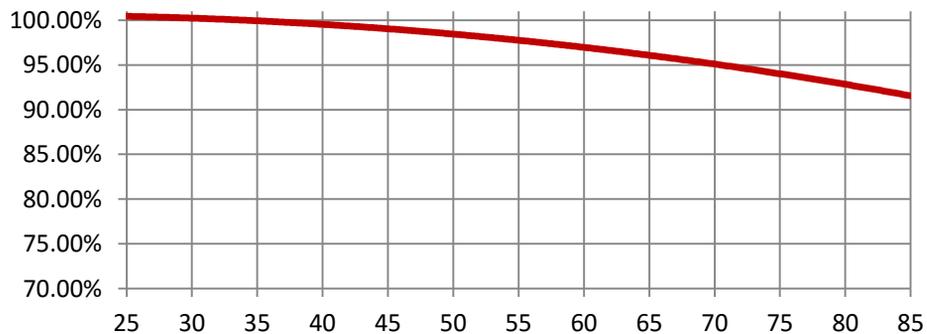
### Relative Power vs Voltage



### Relative Luminous Flux vs. Voltage



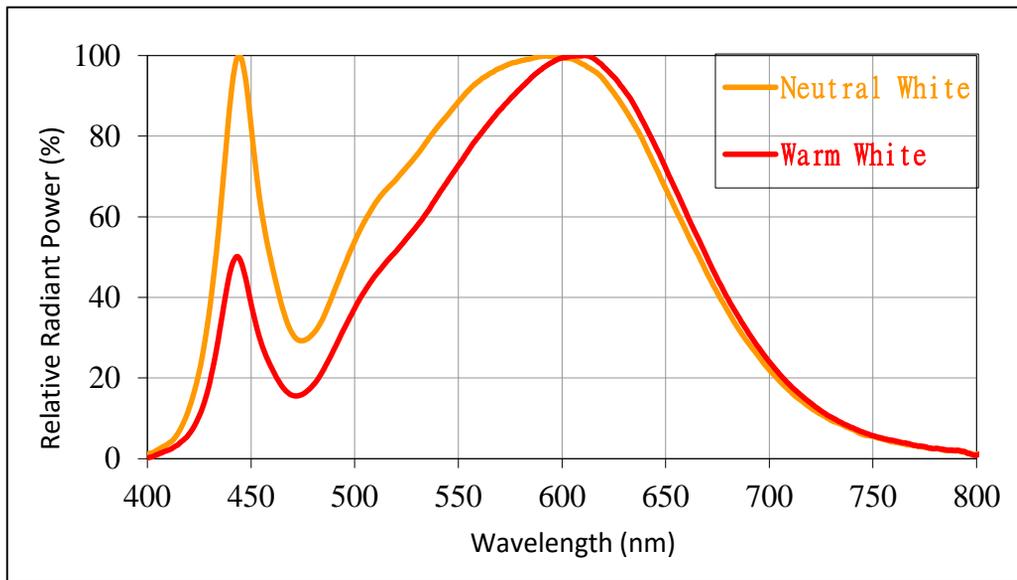
### Lumen Thermal De-rating Curve



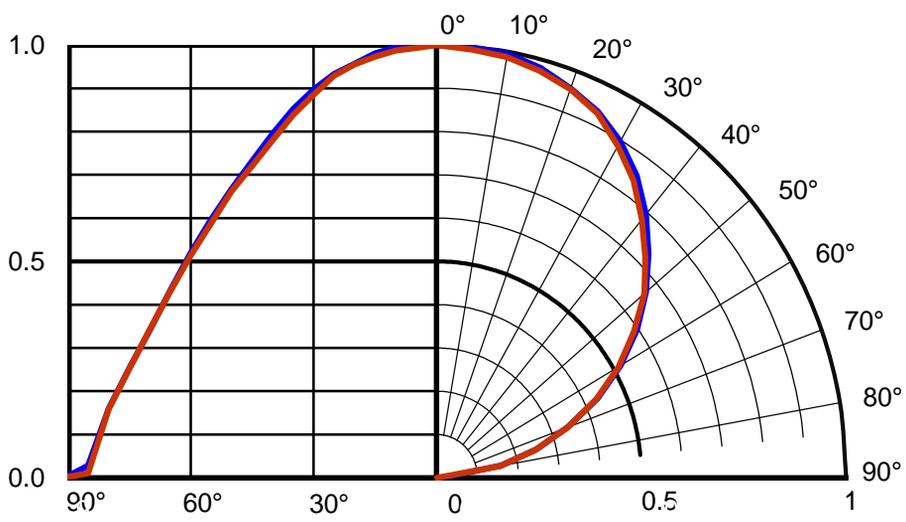


### Typical Electrical & Optical Characteristic Curves

**Spectrum** (VF=12Vrms, Ta=25 °C, pulsed measurement)



**Radiant Angle & Pattern** (VF=12Vrms, Ta=25 °C, pulsed measurement)





## 8. Part Number Identification

Product Code	Shape	Dimension/Diameter (mm)	Internal Codes	Module Power	aTHD	CCT (XXX) Warm on Dim (XYWD)	Connection Type	CRI	Input Voltage	Miscellaneous	Revision Level
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S 2 0 4 0 1 9 E P 2 H T 1 2 W S 3 0 K I H 1 2 E

Model Number											
Product Code	Shape	Dimension/Diameter	LED Indicator	Module Power	aTHD	CCT (XXX) Warm on Dim (XYWD)	Connection Type	CRI	Input Voltage	Miscellaneous	

S 2 0 4 1 2 W S 3 0 K I H 1 2 E

Product Code	
S	= SnapBrite™
T	= Tesla™
G	= GeoLite™
B	= BriteDriver®

Shape	
R	= Round
S	= Square
T	= Star
L	= Linear

Dimension/Diameter			
L	=	X	X X
W	=	Y	Y Y
D	=	Z	Z Z

Module Power	
Q	= 0.25W
H	= 0.5W
T	= 0.75W
R	= Decimal Point

aTHD	
L	= < 20%
S	= ≥ 20%

Miscellaneous	
Customer Code	
Special Design	
Special Silk Scn	
TBA	

CCT/WOD			
2	2	K	= 2200K
2	7	K	= 2700K
3	0	K	= 3000K
3	5	K	= 3500K
4	0	K	= 4000K
5	0	K	= 5000K
5	7	K	= 5700K
3	2	W	D = ~ 2700K To 2200K Warm on Dim
4	2	W	D = ~ 3000K To 2200K Warm on Dim
5	2	W	D = ~ 3500K To 2200K Warm on Dim

Connection Type	
C	= Poke-In Connector
I	= Insulation Displacement Connector
O	= Connector + Solder Pads
W	= Wire "Pigtail"
X	= Solder Pads

CRI	
L	= < 80 CRI
S	= ≥ 80 CRI
H	= ≥ 90 CRI

Revision Level	
P1 to 9	Prelim
R1 to ∞	Rls
TBA	

Input Voltage	
12V	= 12 VAC, Magnetic or Electronic Transformer Source
12E	= 12 VAC, Electronic Transformer Source Only
120V	= 120 VAC
120R	= Rectified 120 VAC
230V	= 230 VAC

LED Indicator	
P	ProLite
E	EverLite
D	Interlight
C	Citizen
S	SemiLeds
N	Nichia
...	TBA



## 9. Packaging

LED Modules will be packaged in trays for primary protection.

According to the total delivery amount, cardboard boxes will be used to protect the Trays of LED Modules from mechanical shocks during transportation.

The boxes are not water resistant and therefore must be kept away from water and moisture.

## 10. Reliability and Average Lumen Maintenance

Before releasing new products the manufacturer puts a representative product sample set through an entire suite of qualification tests, including the most stressful test for high power LEDs, the Wet High-Temperature Operating Life (WHTOL) test at 85°C/85%RH for 1000 hours at the specified operating current.

LED lifetime has been extrapolated based on the accumulated operating and accelerated aging data. Based on this data, the manufacturer projects that the LED products will deliver, on average, 70% lumen maintenance at 50,000 hours of operation at the specified operating current, provided that the case temperature is maintained at or below 80°C.

## 11. Design Considerations/Specifications

### 11.1 Thermal Management Requirements

- a. Heat Sink Required (22 square cm/watt surface area)
- b. Thermal epoxy – No mechanical mounting required
- c. Thermal tape – No mechanical mounting required
- d. Thermal grease – Mechanical mounting required

### 11.2. Mechanical Mounting

- a. Use nylon washers for all mounting holes when using screws.
- b. Do not put force on LEDs.
- c. Do not bend PCB.

### 11.3. Electrical Interface

Solder Pads

### 11.4. Moisture Sensitivity

The module can operate for up to 1000hrs at 85 °C and 65% Relative Humidity.

It is not designed for operation in wet conditions without an additional conformal coating which must be approved and supplied by the manufacturer during the module build process or warranty will be voided.