LED Strip - Frequently Asked Questions

LED

What is LM-80?

LM-80 refers to a method for measuring the lumen depreciation of solid-state lighting sources, such as LED packages, modules and arrays. LM-80 was created by members of IES including Philips Lumileds.

What is TM21?

The TM-21 standard picks up where LM-80 leaves off. Since LED sources are capable of lifetimes well beyond 6,000 hours, TM-21 establishes a standard way to use LM-80 data to make consistent lifetime projections beyond the testing period. TM-21 dictates which values can be used in the calculation based on the sample size, number of hours and intervals tested, and test suite temperature.

What is L90B10@10,000hours?

L defines the percentage of lumen compared with the initial lumens; B value means the failure data at the L data. So LB value indicate the real lifetime at a certain hour.

Like L90B10@10,000 hours means the LEDs keeping 90% lumen from the initial lumen and only 10% of LEDs failed to reach 90% lumen.

How small bin can we supply?

1 Bin will be the smallest we can source, but normally there will be 2-3 bins used inside the products if there is no specified.

How small Mac Adam Ellipse can we supply?

The minimum is 2.5 steps, standard is around 4-5 steps, economic will be at 6 steps.

How small color temperature ranges can we supply?

CCT	2700K	3000K	4000K	5000K	6000K
Minimum ranges	2650-2750K	2925-3075K	4000-4200K	5000-5300K	6000-6300K
Typical ranges	2600-2800K	2800-3200K	4000-4500K	5000-5500K	6000-6500K

PCB color:

We mostly do the strips with white PCB.

If you need other colors, we can also make the PCB color with yellow and black.

Waterproof Grade:

We can do different waterproofing for the LED strips for variable use:

IP20: Non-waterproof;

IP54 PU: PU glue on the surface.

IP54 SI: Silicone glue on the surface.

IP54 SP: Spray Silicone Glue on the surface.

IP65 ST: Silicone tube on both sides.

IP65 HT: Heat Shrink tube on both sides.

IP65 Nano: Nano Coating on the surface.

IP67 HI: Hollow Integrated Silicone glue.

IP68 SI: Solid Integrated Silicone glue.

What is the difference between PU and Silicone glue?

A) Cold and high temperature resistance, PU (polyurethane) has a good low temperature resistance, but not resistant to high temperature; while silicone glue with good heat resistance and good low temperature resistance.

B) UV resistance

In the presence of UV light, an organic material (Polyurethane) will eventually revert to its natural state, thus changing properties and

deteriorating over time, an inorganic(silicone) will not.

C) Yellow degeneration

The PU glue has a little yellow degeneration as time goes, while silicone glue has no yellow degeneration.

D) Lifespan

Chemically, the organic material (polyurethane) will break down when expose to high temperature or UV, so the lifetime is shorter than silicone glue.

How is heat Shrink Pipe works in led strips?

Working condition at -55 to 125 degree, 3 minutes shrinking at 200 degree according to UL224 standard. Color at transparent with options at Black, Red, Blue, Yellow at customization. Heat shrink Pipe was made of PET, Anti-Electric below 600V, Anti-Fire Ratio at VW-1.

What is CCT shifting? and how to control it?

All of the color temperatures will shift by any cover in front of the LEDs, different glue will have different influence on the whole temperature of LED strips, the shifting curve can be referred by detailed.

What is the max width of the PCB for heat shrink pipe?

When using heat shrink pipe on the LED strips, the max width is 13.5mm. For 15mm or above, the pipe will make the LED strips out of their shape.

What does CRI mean and why is CRI important in LED lighting?

Can't tell the difference between the black and navy colored socks in your walk-in closet? Could be that your current lighting source has a very low CRI! Not all light is made equal; some light renders colors better than others. Color Rendering Index (CRI) is the measurement of how colors look under a light source when compared with sunlight. The index is measured from 0-100, with a perfect 100 indicating that colors under the light source appear the same as they would under natural sunlight.

Full range of our LED strips are with CRI >95, presenting the true color for you.

What is the difference between CRI and Ra?

The calibration R1 - R15 color sample is the R1 - R15 color rendering when a light source compared with reference standard light source, the index value is 100%.

The general color rendering index (Ra) is just calibrated R1-R8.

What is the Flip Chip

One way to encapsulate the LED Chips into the Pad of SMD, advantage will be better heat emitting and less failure ratio of LEDs.

Can I solder the LED Strips?

Yes, you can solder wire to any of the copper ports to connect strips together.

Can I use a battery to power the light strips?

Yes, you can power our strip lights with any 5v/12v/24v power source.

What is the maximum length of LED Strip that can be powered?

We sell strips in spools of 16.4 Ft (5 meters).

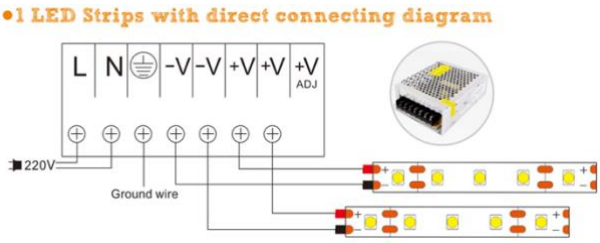
If you want to use them in more than 5M length,

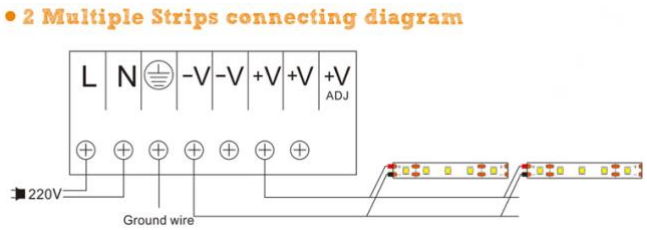
we recommend the following instruction:

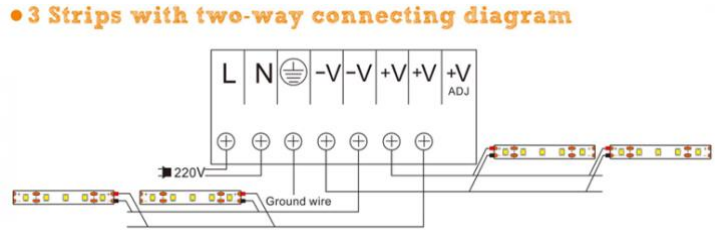
1.Direct connecting

2.Multiple connecting

3.Two-way connecting







Can I cut my LED Strip Lights?

Yes. You can cut the strips with a regular, household scissor at any of the marked cut lines. These lines are designated on the strip by a solid line with the image of a scissor right next to it.

If I connect the strip backwards (+) to (-) and (-) to (+) will that ruin the strip?

No. LEDs are diodes so they only let power through in one direction. Simply reverse the wires and the strip will work fine.

Can the strips be used in high temperature areas?

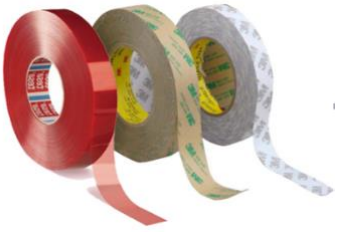
No. While LEDs are quite durable and will work great in most any environment, heat is the main cause for shortened LED lifespan. Therefore, the cooler you can keep the LEDs, the longer they will last (if you can keep them below 80°C you should get the rated life out of them). With this in mind, leaving them on for extended periods of time while on the reel or bunched up in a confined space will shorten their lifespan.

Can LED strip and LED Strips be dimmed?

Yes, but this should be done by using one of our dimmers between the LED Strip and the output of the Power Supply. It should not be dimmed from a standard wall dimmer.

What tape do you used in the LED strips?

We have yellow and white 3M tape for the strips and also, the Tesa tape to get a strong viscous when paste inside the aluminum profile.



What is the series of the 3M/Tesa tape used in the led strips?

Normally, we use 3M 300MP, Tesa 4965 in our led strips. However, 3M 200MP and VHB also available.

Which tape has the strongest stickiness?

Usually, the stickiness ranks as: 3M VHB>Tesa 4965> 3M 300MP.

What is the Voltage Dropping?

Voltage is always dropping by transmitting of current decided by the transmitting material and the size of material, Copper is the best options to transmit current up till now.

How to decrease the voltage dropping?

a. Increase the thickness of Copper Layer to make the current transmit quicker or bigger to improve the voltage dropping.

b. Using the electric way to boost the voltage at each section or boost the current at each section, we are using constant current Triode and constant current IC to improve the voltage dropping or make the beginning and end of strips at the same brightness output.

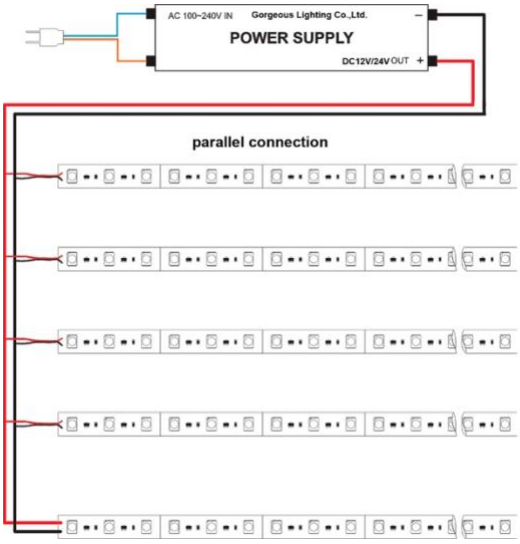
c. Recommend the higher voltage input version instead of lower voltage input version. 24VDC LED strips will definitely better than the 12VDC strips at 5 meters run.

	Beginning of 5 Meters	End of 5 Meters	Voltage Dropping Ratio
24VDC 2 Ounce Copper Layer	24VDC	22.3VDC	7%
12VDC 2 Ounce Copper Layer	12VDC	10.4VDC	13%

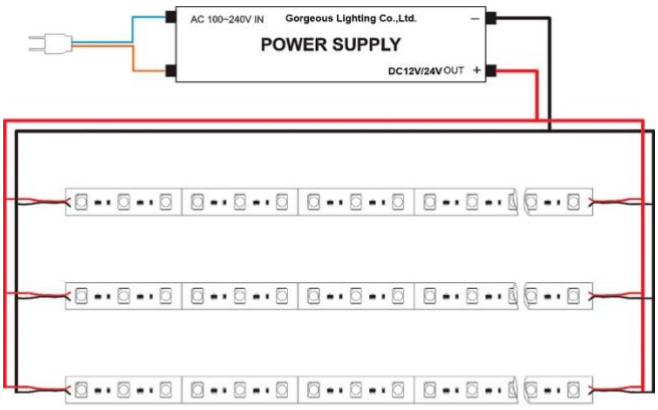
Tips on how to reduce Voltage Dropping in LED strip installation:

One is connecting the led strips in parallel, the other one is power the led strips at both sides. Below connection drawing for your reference:

1)To connect the led strip lights in parallel



2) Two side power in put in parallel



parallel connection and
also connect the both ends of led strip lights to the power supply

Can the led strips be powered by 12/24VAC?

Most of the LED Strips we are manufacturing are working at DC version, DC shorts for Direct Current, AC shorts for Alternative Current; There is will be AC to DC converter or rectifier required if the existing power source is AC output.

Special Improvement

If need special improvement on part of the parameters, like CRI or Lumens, we customized the products to meet your need.

Width of PCB

For 3528 and 2835 strip, the range is 5/8/15mm.For 5050 strips, the range is 10/20mm.For 5630 strips, the rang is 10/12/13.5mm

For 333 and 3014, the range is 8/10mm.

Why the rated watts different to actual watts ?

We are always using the rated watts on the label if our customer does not specify that, which occur the confusion and misunderstanding that customer complain the rated watts is not matching with actual watts with too much difference.

The Rated watts are theoretical values calculated under ideal circumstance. During the lighting fixtures are working, every component of these fixtures has resistors, the resistors leads to voltage dropping. We know P=U*I, when the voltage goes down, the power goes down to.

Example: 2835 SMD 60 LEDs rated with 14.4 watts/M, when they are driven by power supply at one ends, it will achieve 11-12 watts only, but after 30 minutes lighted up, the current will increase after the whole strip temperature raised up, results to achieve more than 12 watts, and if the LED strips are lighted up with both ends (to make the voltage dropping less), it will reach the final watts at 13 watts/M, which is less than 10% difference to rated watts is allowed.

Also, we will reduce the current on some conditions, like when the strip is glued, the heat dissipation is not good as naked, so we would reduce the power to make sure the fixture do no generate much heat during operation. Much heat will shorten the life of the LEDs.

Grow Light

What is the best Ratio for Blue and Red?

Blue (wavelength: 455-465nm): is good for photosynthesis; and help to induce Chlorophyll and Carotenoid, which are necessary for healthy leaves.

Red (wavelength:660-665nm): is the peak wavelength for photosynthesis and photoperiodism. Red light is best for blooming and fruits.

What is difference between double sided PCB and single sided PCB of led strip?

LED Strip PCB is also the key to high quality but LED. Best double-sided PCB can bear large current, very good heat dissipation and has high stable quality.

Here are our experience and basic led strip knowledge sharing with you.

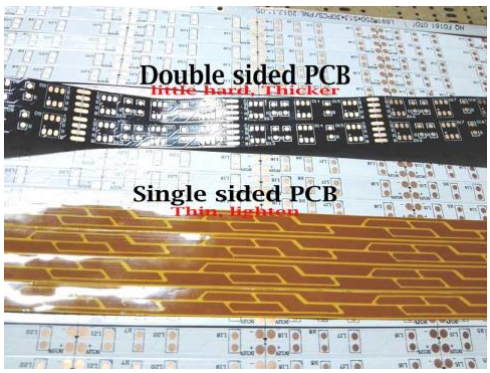
1. Flexible LED Strip PCB Thickness

Double sided PCB and single sided PCB thickness mainly is cooper thickness.

single sided PCB thickness is < 1-ounce thickness.

Best Double-sided PCB thickness is 2-ounce cooper thickness

In the market, there are also 1-ounce double sided PCB thickness



2. Hand Feeling

Without 3M Tape, you need to judge the led strip PCB quality by hands.

The double side PCB feel a little thick and hard and heavier than single sided led strip; it feels very good quality

The single sided PCB feel thin, no weight, very soft. it is easy to be blown by wind

3. Circuit at Backside

double sided PCB of high quality led strip must have circuit on front sided and backside;

single side PCB don't have any circuit on the backside

Different PCB thickness

The LED Strip Printed Circuit Board (PCB) is what electronically connects electronic components. The quality and thickness of the copper is of very important.

1. The thickness of the cooper PCB.

the thicker the copper, the more current can flow and the more efficient the strip is. currently in the market, it has 1 ounce, 2ounce, 4ounce thick PCB.

2. The pureness of the copper

the purer, the copper is the better. Higher quality copper means less resistance and a stronger current.

3. Double sided and one-sided copper

Copper PCB has double sided and one-sided copper difference. double sided cooper PCB is best.

4. Heat dissipation systems design of PCB

Only high-quality LED Strip PCB has such design. High quality Printed circuit Board will have a thin film at each side. it will improve the heat dissipation of LED Strips. in the market, many factories reduce the cost and use the one-sided film.

You'll want to take each one of these factors into consideration when selecting the provider of your Flexible LED Strip lights. Choosing the wrong solution could end up costing you more than you might imagine.

What is the max current PCB can undertake?

1oz Copper Line on PCB can take 1.6-2A at 1mm Width of Printed Circuit line on PCB.

2oz Copper Line on PCB can take 2-2.3A at 1mm Width of Printed Circuit line on PCB.

3oz Copper Line on PCB can take 3.2-4A at 1mm Width of Printed Circuit line on PCB.

Normal Drawing will use around 4 mm for Single color at Plus or Minus, Normal Drawing will use at least 2mm for Common on RGB or RGBW strip.

What is the TC Point?

Temperature Check Point that was used for the engineers to monitor the temperature of PCB Easier.

Now let us show you the data on the led strips

	Economy LED Strip	Normal LED Strip	Highest quality led strips
	60×5050	**60×5050**	**60×5050**
Evaluation price:	US$1.2/m	US$2.1/m	US$4.5/m
warranty	One of year	2 years warranty	5 years warranty
Brightness	600-720lm	1080-1200lm	1320-1440Lm
Light decay grade	very fast	slow	very slow
Working life	< 30000 hours	>50000 hours	>50000 hours
Price per year	US$1.2 @ 1 year	US$1.05/m@1 year	US$0.9@1 year
How many purchasing times within 5 years	5 times	2 times	1 time
extra cost	labor cost, maintenance cost and installation cost, and time cost	installation time and maintenance cost	NO
total cost	> USD6/m + Extra cost	US$5.25/m+ extra cost	US$4.5/m
conclusion	The most expensive strip		The cheapest strip