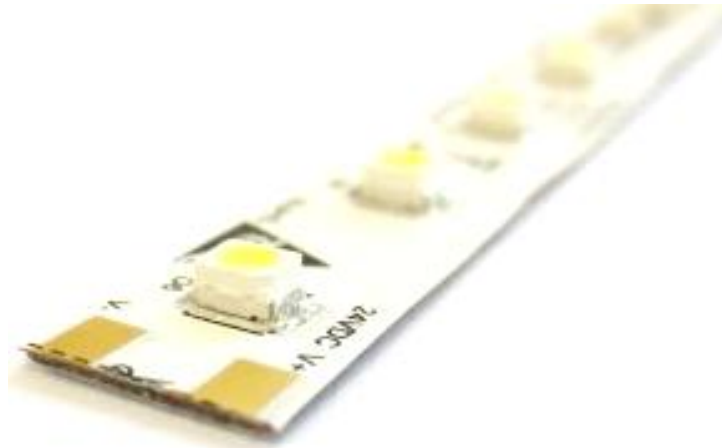


# Connection Technology for flexible LED stripes



Lukas Muth

# Connecting LED modules



# Flexible LED strips in lighting applications



from a DIY product  
to a  
highly efficient lighting platform  
for  
professional user

# Flexible LED strips in lighting applications



we see that the performance  
of the strips is getting better

*but*

the development for connection  
technology moves with a  
lower speed

# Working with flexible LED strips



the strips arrive on site packed in reels,

mostly 5 m long or even longer.

They are easy to cut to the length required

# Working with flexible LED strips



- spool out from the reel
- cut off the strip
- tear off the tape from the backside
- position the strip in the application
- make the connection!

# Soldering of the LED strips



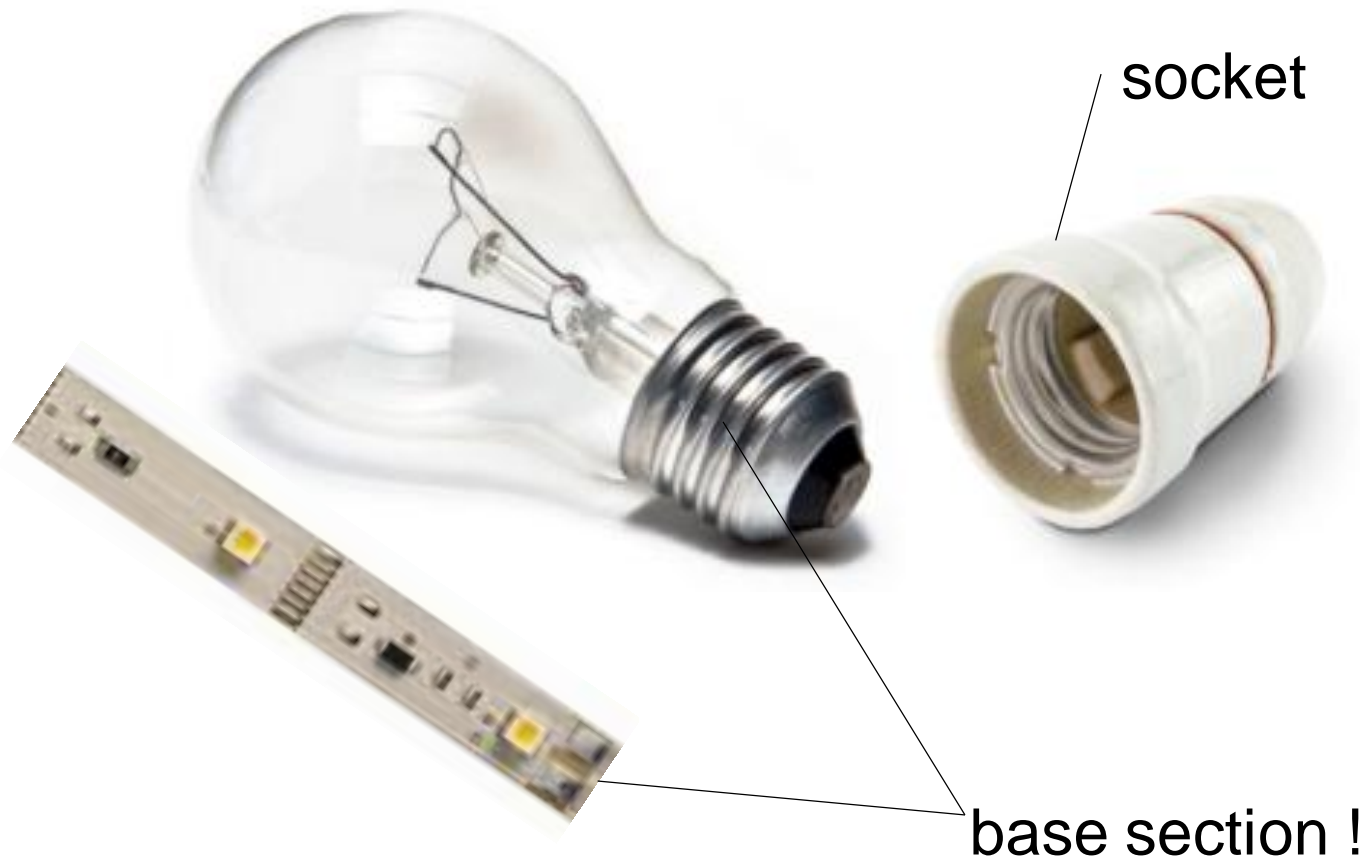
- be aware of ESD failure
- keep to the specified temp.
- keep to the specified duration
- only well trained staff
- takes some time

# The easy way is a base / socket connection

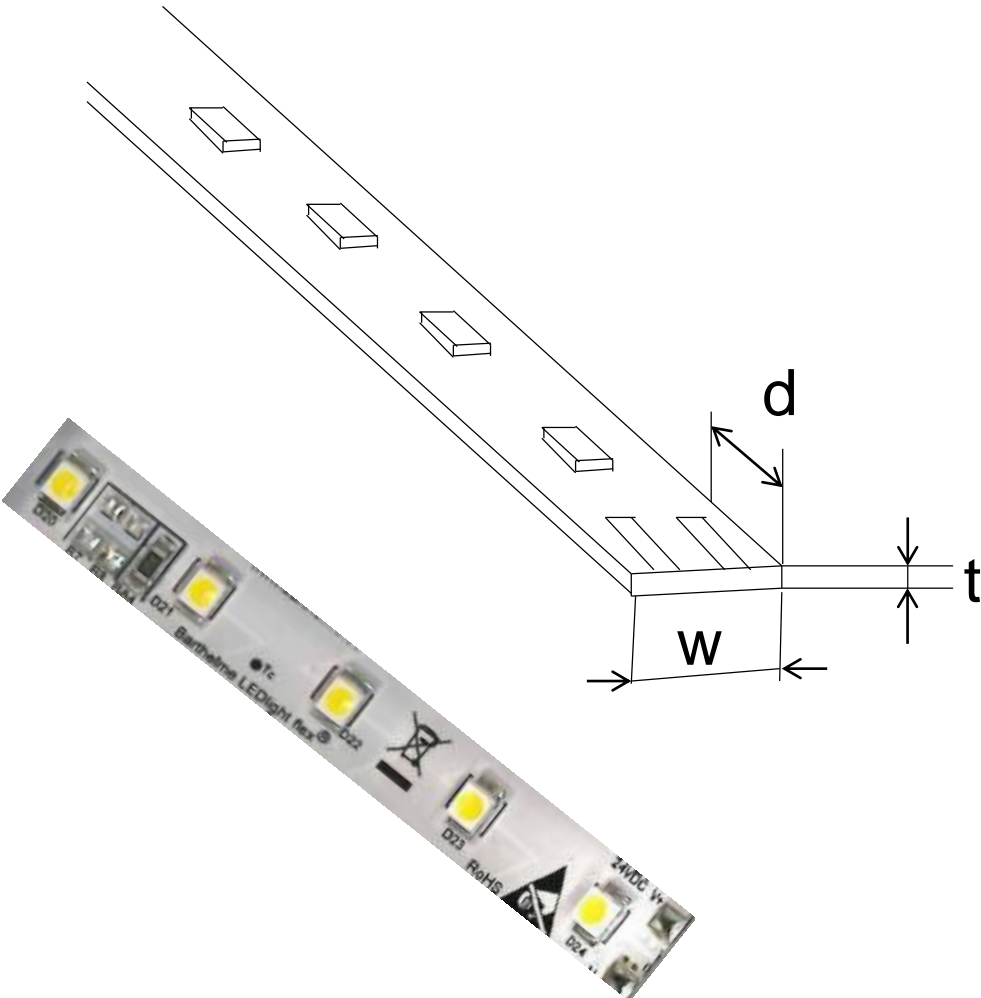




# Applying this principle to the flex LED



# Base section for flex strips



Considerations:

$t$ : thickness of pcb

$w$ : width

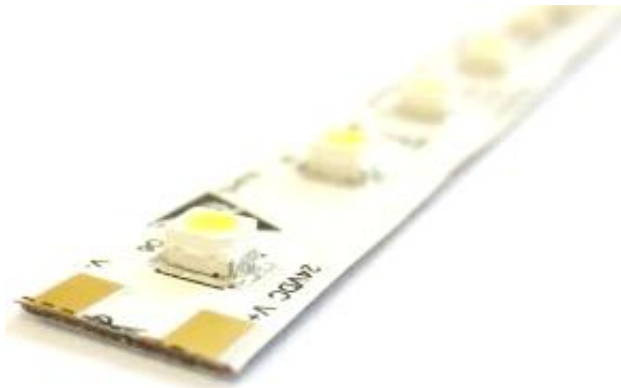
$d$ : depth of connection area

-surface,

-pad geometry

electrical: current/voltage

# Thickness of flex pcb's (base section)



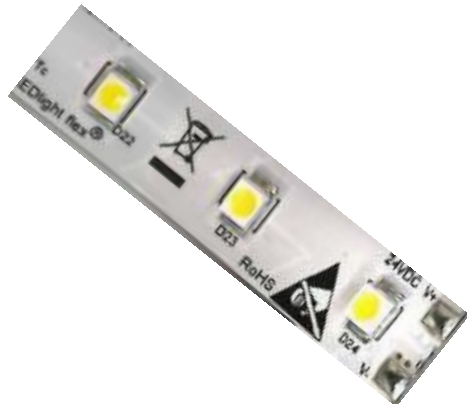
single  
layer



multi  
layer



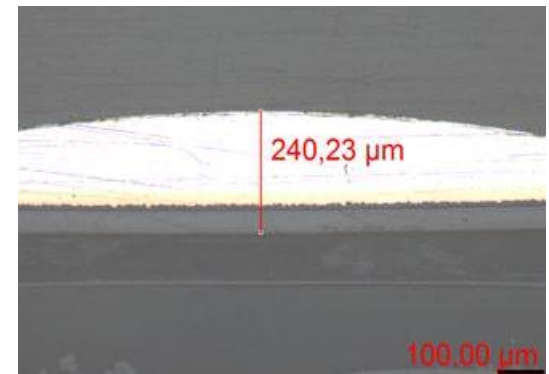
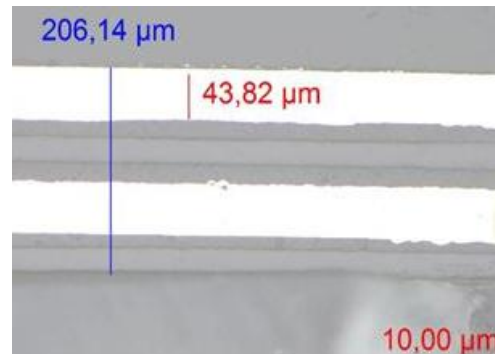
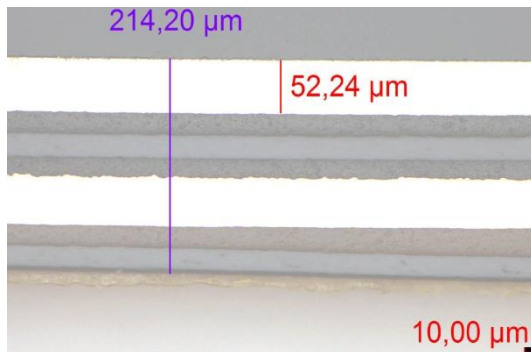
# Thickness of flex pcb's (base section)



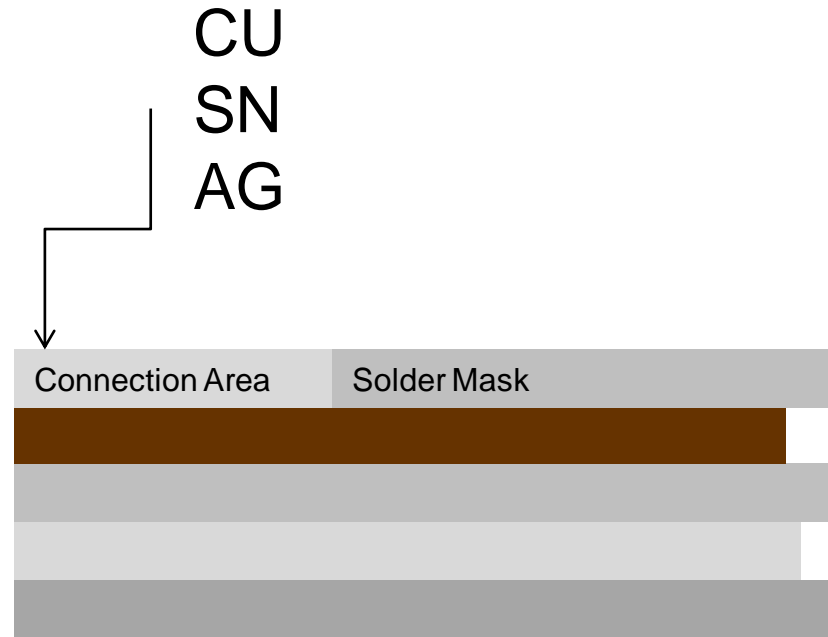
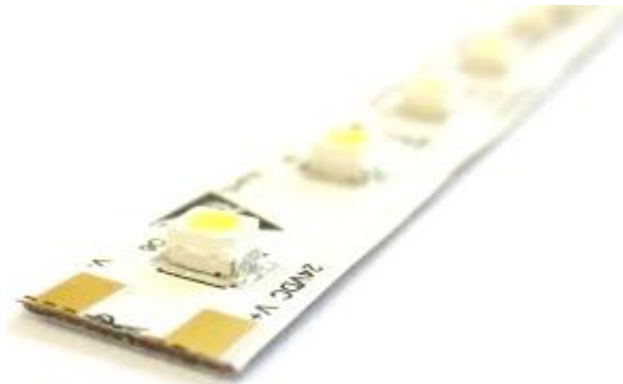
Over all thickness

Connection Area

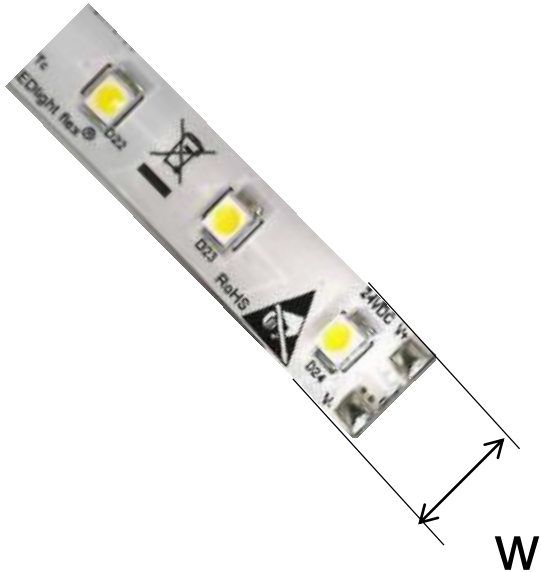
Solder Mask



# Surface of flex pcb's (base section)



# Width of flex pcb's (base section)

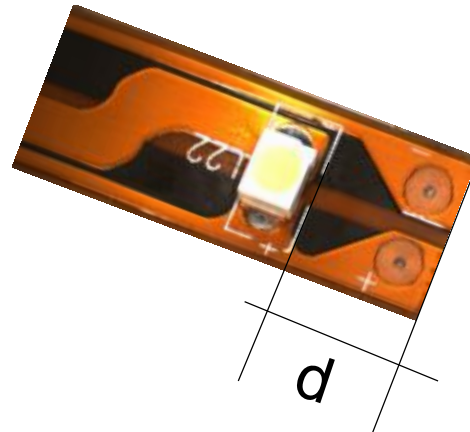
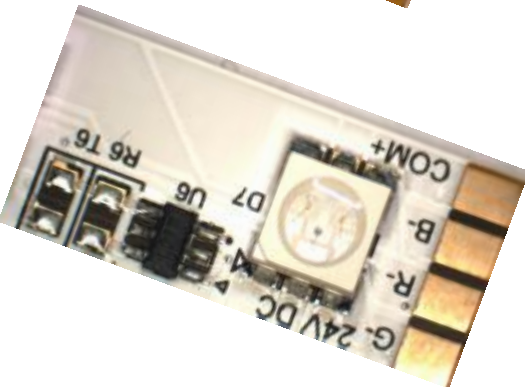
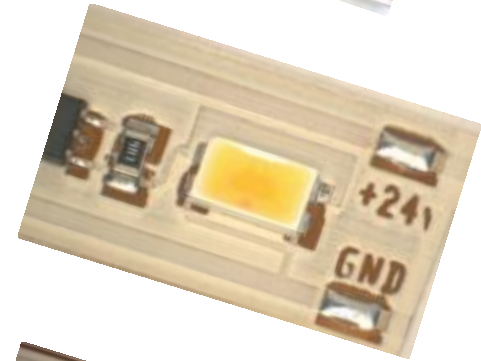
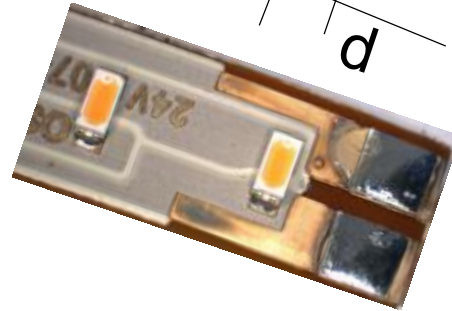
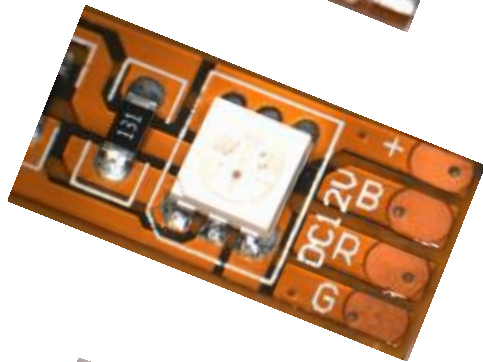
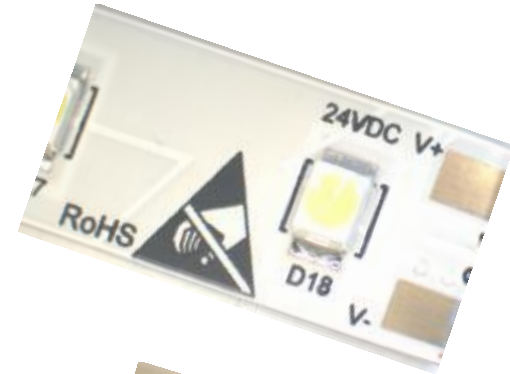
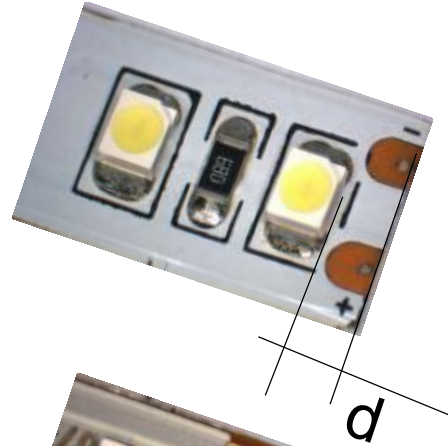
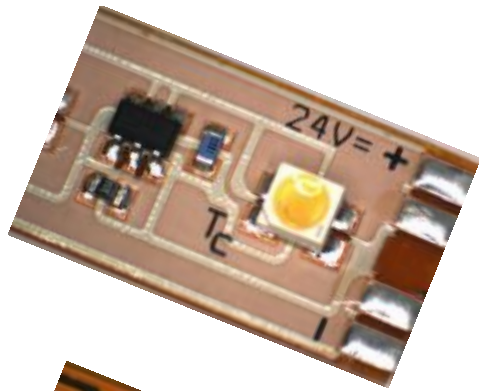


Depending on used LED type, thermal designs; the width for the LED-strips is determined.

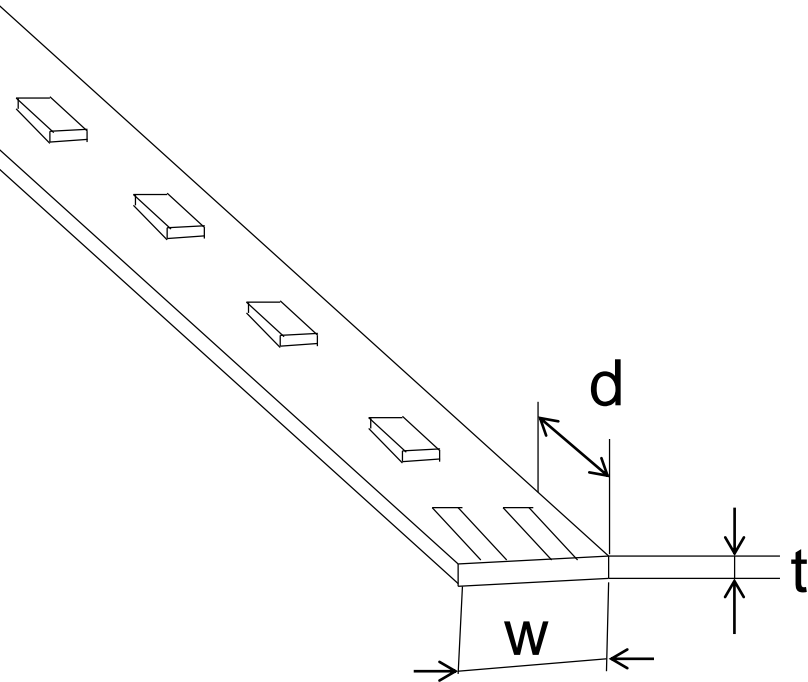
In the market we find strips within a range from 5-12 mm.

Special forms: e.g double strips are easy up to 32 mm wide

# Connection areas flex pcb's (base section)



# Base section for flex strips (wrap up)



t: thickness (no built up defined)

w: width (5-12mm)

d: depth (the shorter- the better)

-surface, tin, copper, silver

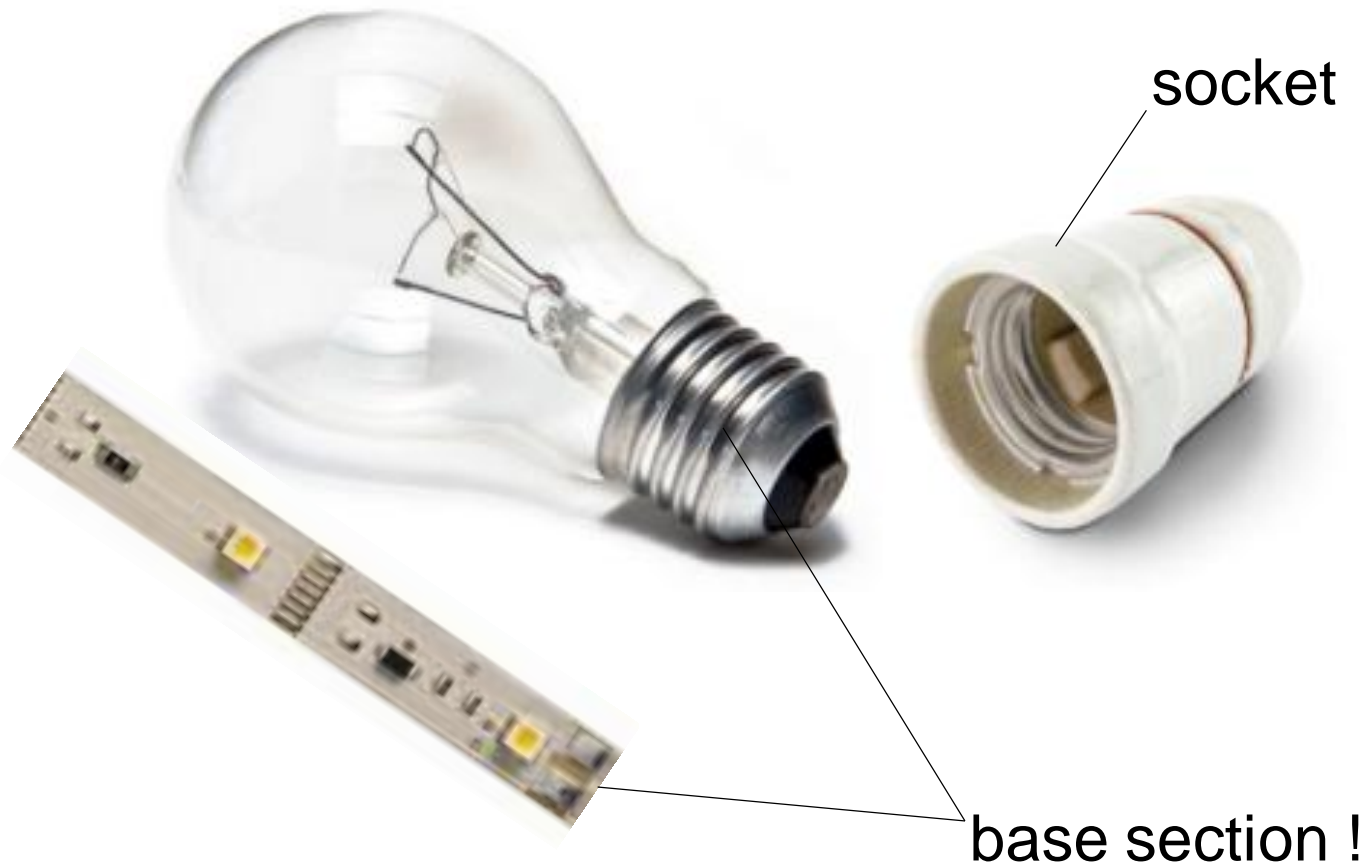
-pads (2,4 poles)

electrical:

current/voltage 24V



# Considerations for the socket side



# Considerations for the socket side

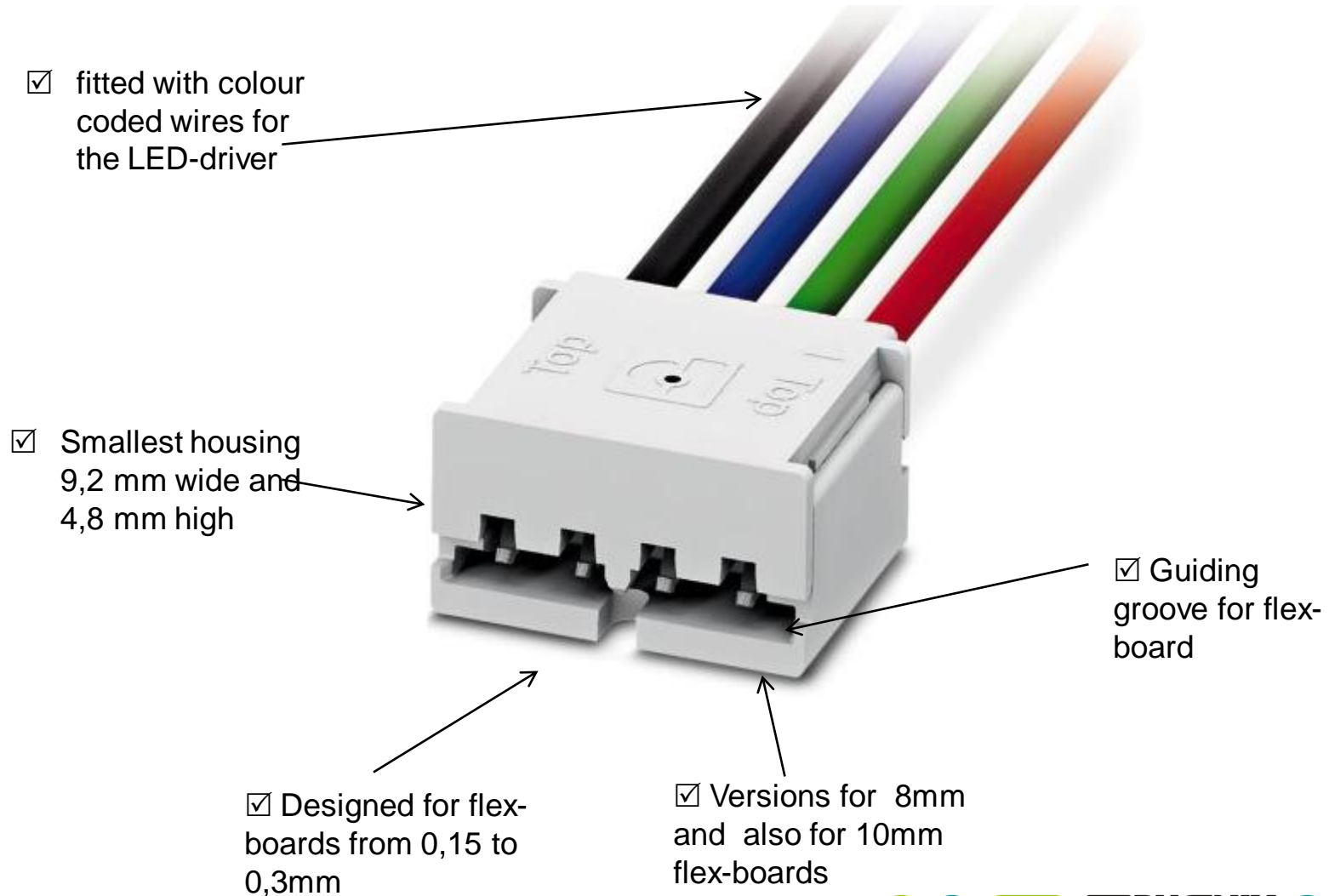


- small
- easy to operate
- long term connection
- in line with regulations
- must cope with a range of LED strips

# Solution for the socket side

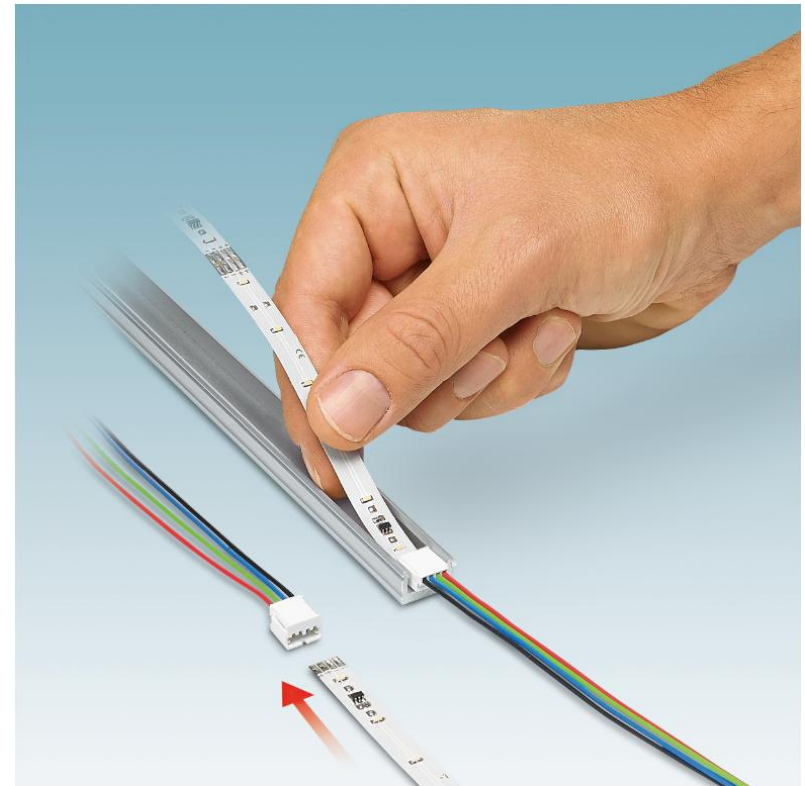
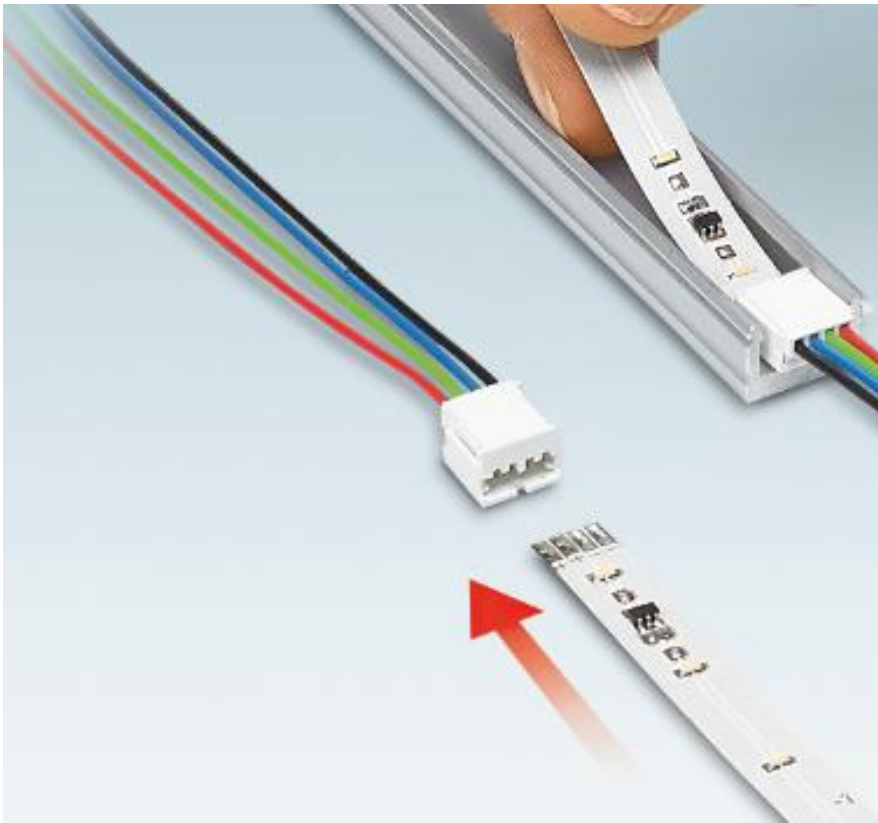


# Solution for the socket side in Detail

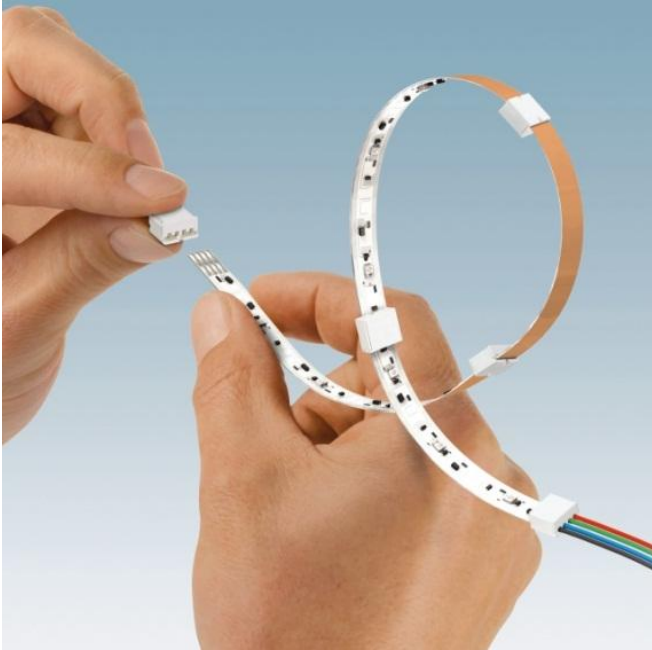


# Easy operation with base and socket

- 1) Slide in the strip into the connector
- 2) Press down the cap
- 3) Position in your application



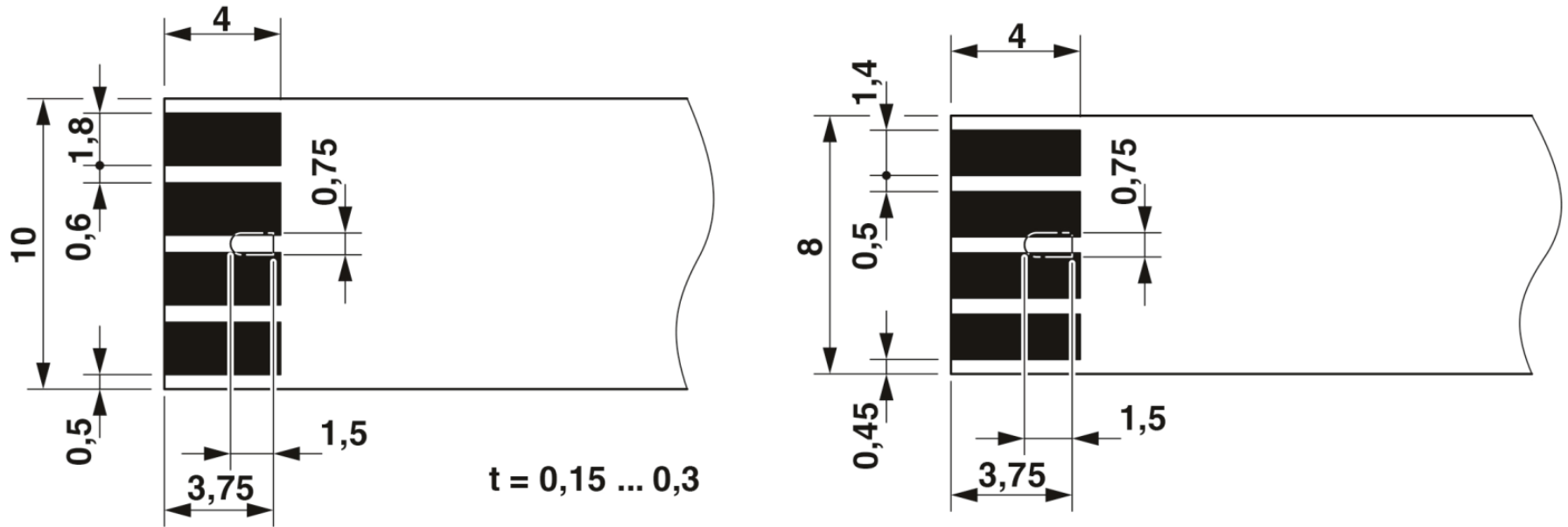
# Parameters for the socket side



## Main parameters

- Voltage: up to 24 V
- 10 Amps/connector
- Versions for 8 und 10-mm wide LED-strips
- Feeder and jumper available
- According to IEC and UL

# Suitable form factors for the socket side



Connection areas for 10mm and 8mm wide flex LED strips

# Overview on existing sockets so far

*RGB*

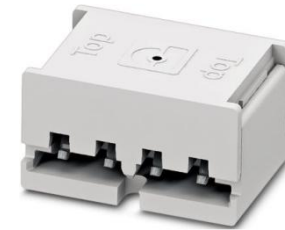


Feeder 4-pole

*white*



Feeder 2-pole



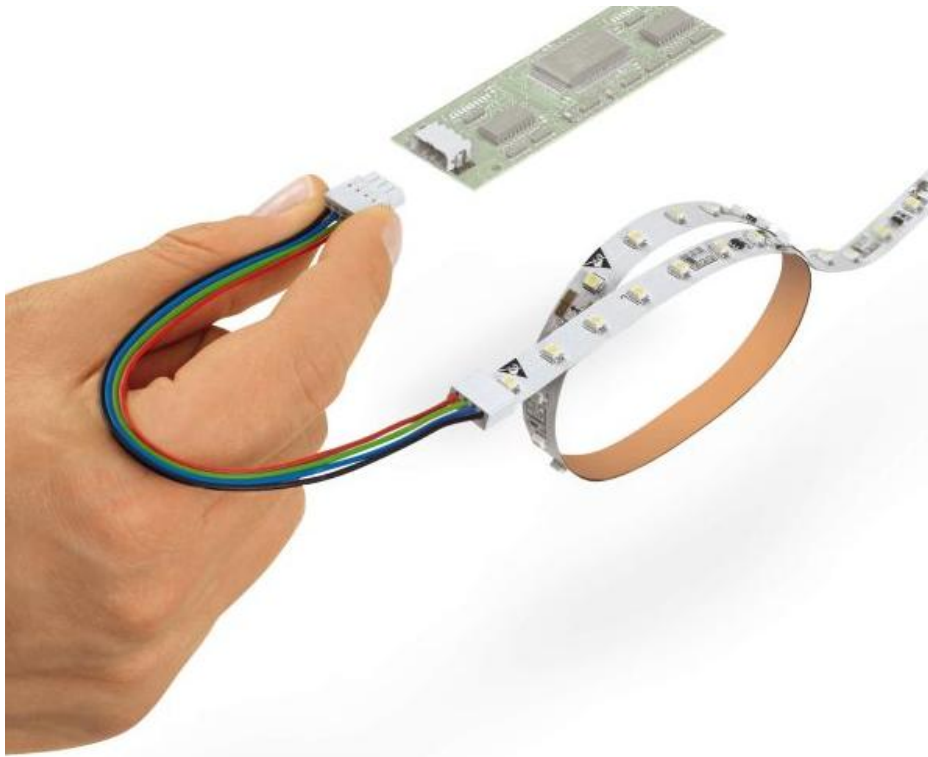
Jumper 4-pole

Versions for **8,0** and **10,0** mm wide LED strips available



# Connecting the socket to the LED-Driver

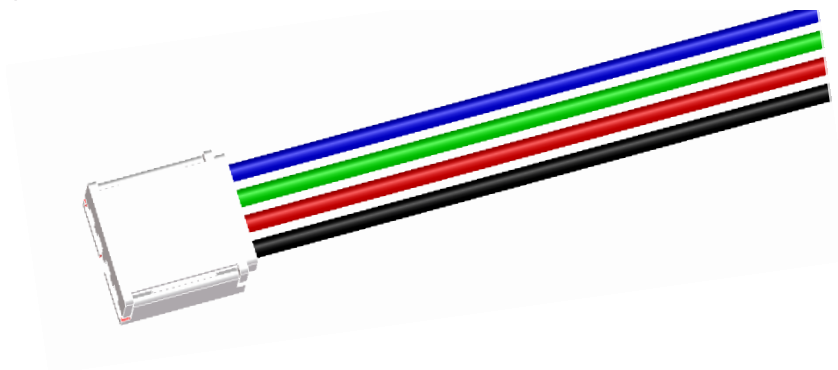
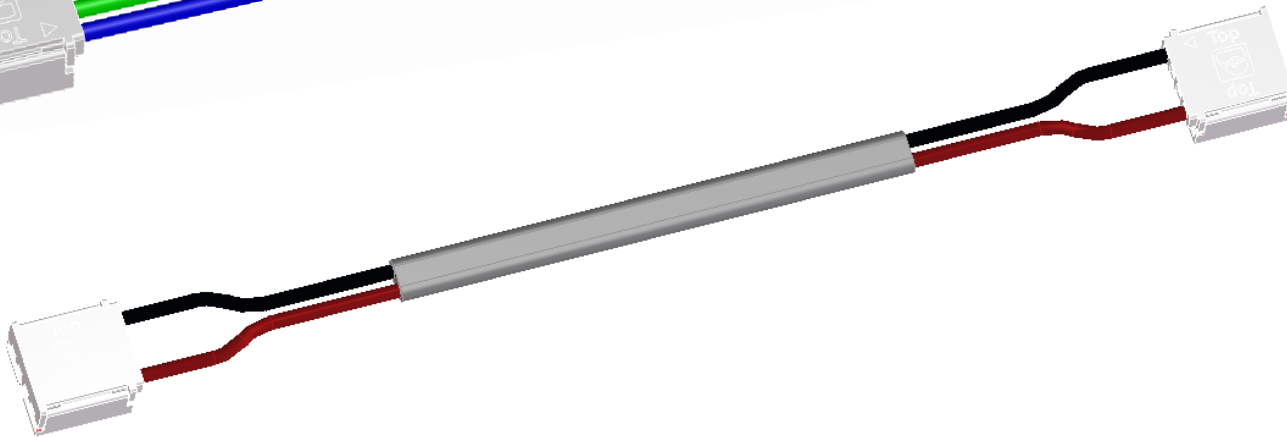
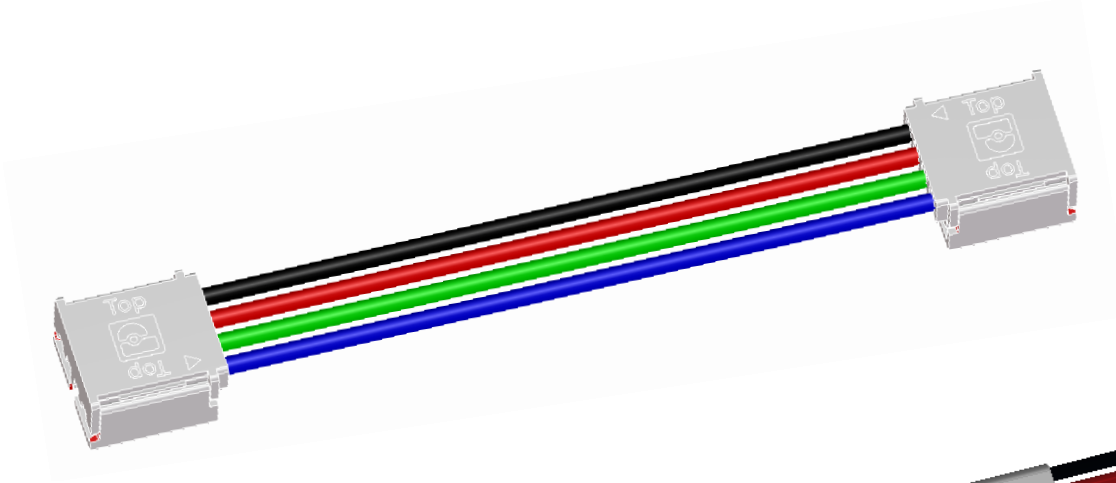
i.e. plug solution



i.e. semi strip



# Variations for special LED applications



# Summary

- Connectors are a fast, easy and safe way to wire up flexible LED strips
- Base section of flex pcb needs to be in line with the connector system
- Please consider the connection area (base section) of your flex pcb if you want to use connectors

**Thankyou  
very much  
for  
your  
attention**