

**CYG WAYON**

Let's make electronics safer!

Leading Circuit Protection Solutions and Products

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**CYG Wayon Circuit protection Co., Ltd.**

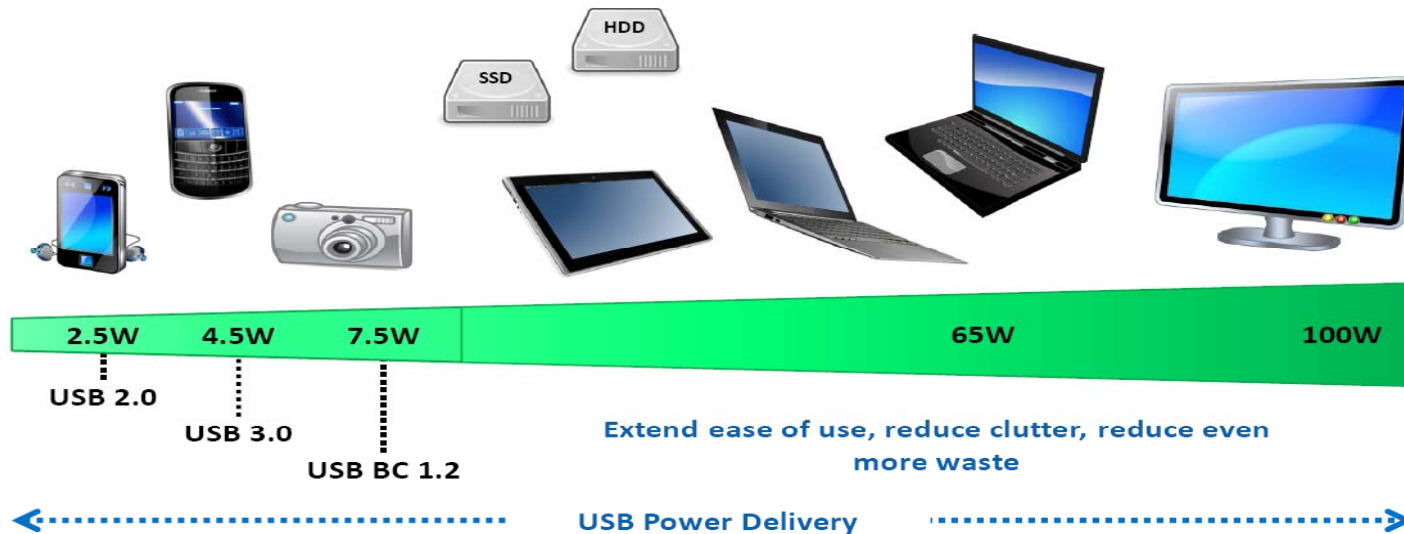
## **CYG WAYON Protection Solution for USB Application**

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[www.way-on.com](http://www.way-on.com)

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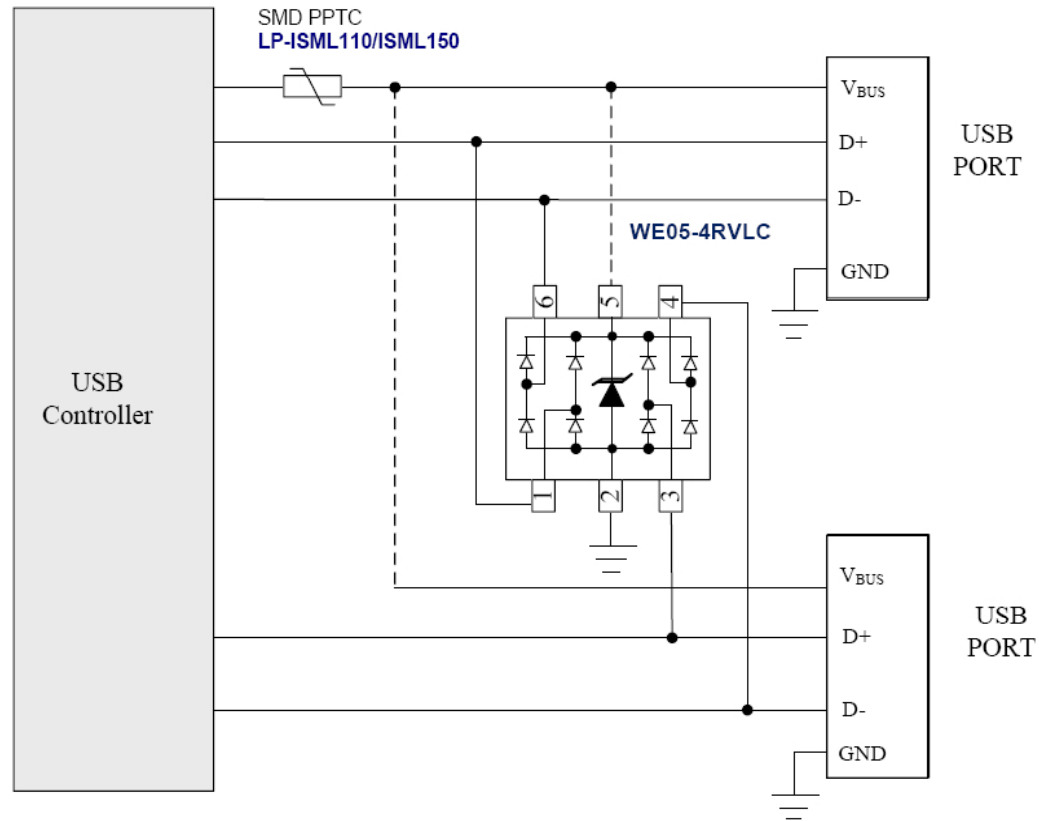
# USB Development Tendency



- USB2.0→USB3.0 Standard: Output current from 0.5A increase to 0.9A
- USB BC Standard: Maximum Current: 1.5A
- USB PD Standard: Voltage from 5V increase to 20V, Current from 1.5A to 5A

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## USB2.0 Solution



### Application:

Data rate : 480Mbps

Signal lines : 2/Port

Power bus: 1/Port, 5V

Over voltage: ESD

Over current: Max 500mA /port

### Solution:

TVS P/N: WE05-4RVLC

Peak Pulse Power : 120W @ 8/20  $\mu$ s

Max Line-Line cap.: 0.5 pF

Package: SOT23-6L (3.0x 3.0x1.2);

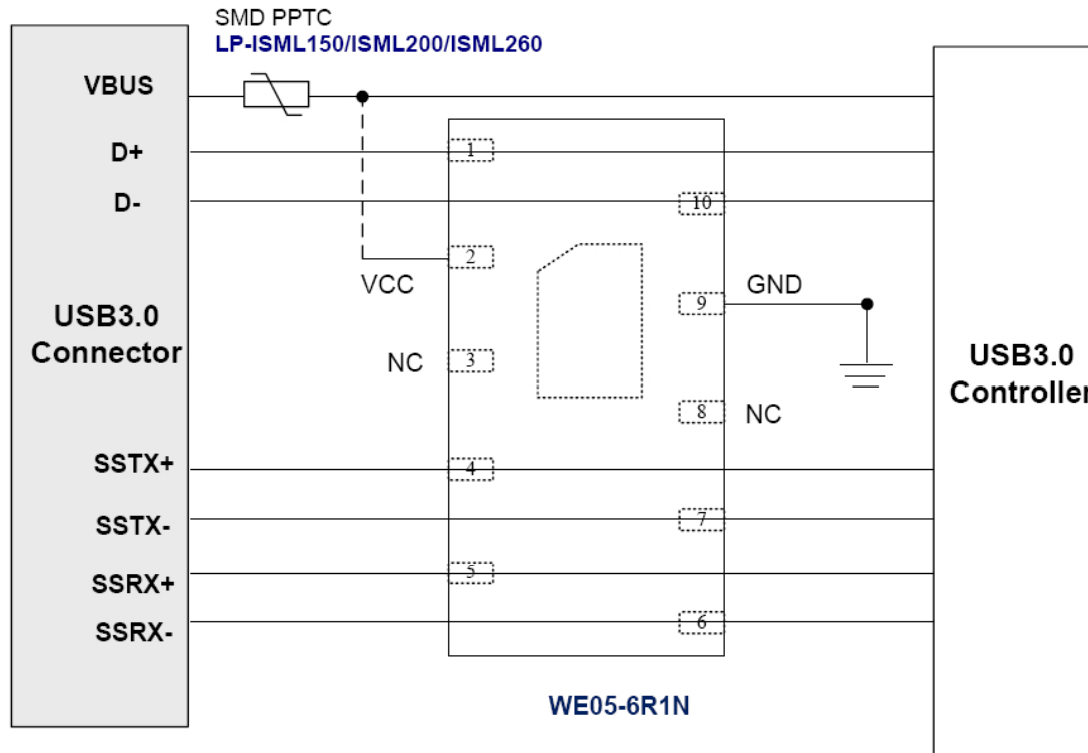
PPTC P/N:LP-ISML110/ISML150

Hold current: 1.1A/1.5A

V<sub>max</sub>: 8V

Package: SMD 0805 Size

## USB3.0 Solution



### Application:

Data rate : 4800 Mbps  
 Signal lines : 6/Port  
 Power bus: 1/Port, 5V  
 Over voltage: ESD  
 Over Current: Max 900mA

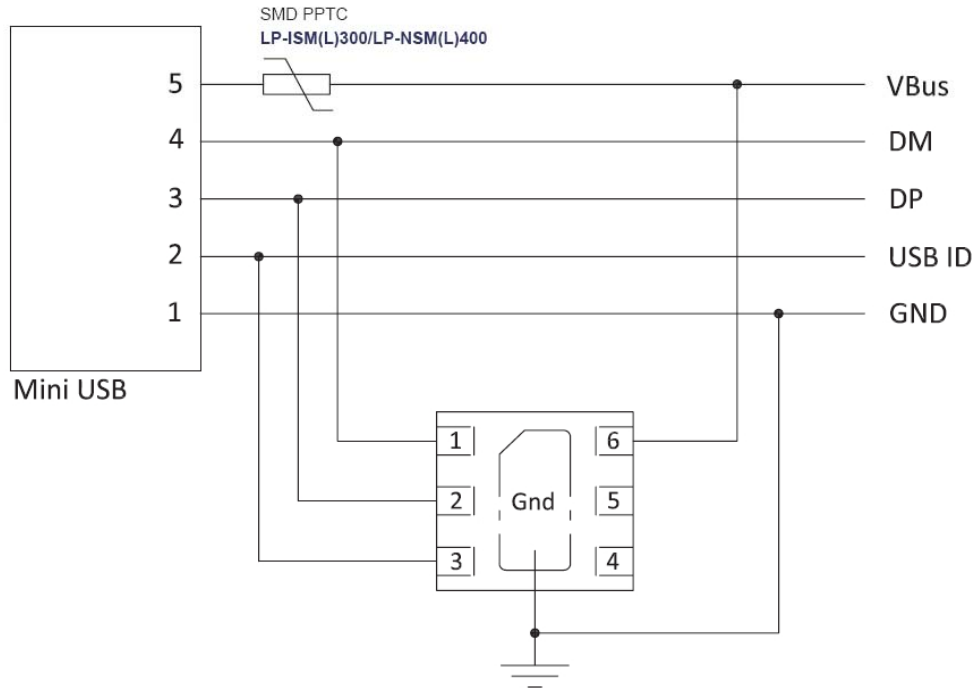
### Solution:

TVS P/N: WE05-6R1N  
 Peak Pulse Power : 100W @ 8/20  $\mu$ s  
 Max Line-Line cap.: 0.3 pF  
 Package: DFN4.1x2-10L(4.1x2.0x0.6);

PPTC P/N:LP-ISML150/ISML200  
 /ISML260

Hold current: 1.5A/2.0A/2.6A  
 Vmax: 8V  
 Package: SMD 0805 Size

## USB PD Solution 18W/36W



### Application:

Data rate : 480 Mbps  
Signal lines : 2 /Port  
Power bus: 1 /Port, 12V  
Over voltage: ESD  
Over Current: Max 1.5A/3A

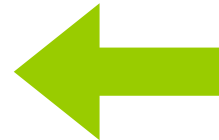
### Solution:

TVS P/N: WS0512-4RP  
Peak Pulse Power : 120W@ 8/20  $\mu$ s  
Max Line-Line cap.: 0.5 pF  
Package:DFN6L;

PPTC P/N:LP-ISML300/NSML400  
Hold current: 3A/4A (@60degrc)  
Vmax: 12V  
Package: SMD 0805 Size (For 18W)  
SMD1206 Size (For 36W)

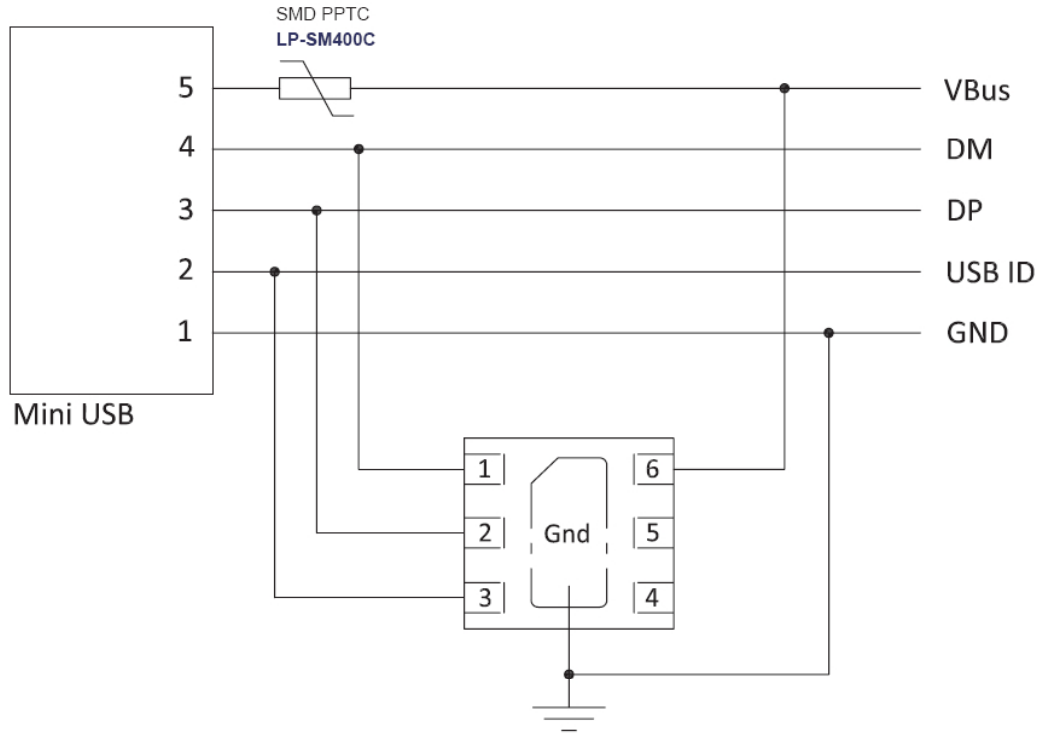
**Development Objective!**

**For 36W USB PD:  
LP-ISML400!  
(SMB 0805 Size, 12V)**



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## USB PD Solution 60W/100W



### Application:

Data rate : 480 Mbps

Signal lines : 2/Port

Power bus: 1 /Port, 20V

Over voltage: ESD

Over Current: Max 3A/5A

### Solution:

TVS P/N: WS0520-4RP

Peak Pulse Power : 120W @ 8/20  $\mu$ s

Max Line-Line cap.: 0.5 pF

Package:DFN6L;

PPTC P/N:LP-SM400C

Hold current: 4A (@60degrc)

Vmax: 20V

Package: SMD 2920 Size (For 60W)

**Development Objective!**

**For 60W/100W USB PD:**

**LP-NSM400/LP-NSM500!  
(SMB 1206 Size, 20V)**



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