



# EV589

## USB Mouse Controller

---

### 1. General Description

- ※ The EV589 is a Mouse Controller to control USB Optical Mouse device.
- ※ This Controller can supports four axes X,Y,Z,H and seven buttons L, M, R, wwwForward , wwwBack, Fire, DPI change. H axis only be supported under WinVista OS.
- ※ DPI can be selected high, medium or low by DPI change Key. And indicate the state by three LEDs.
- ※ X and Y Mirror Function can be set by Mirror Pin.
- ※ This Controller can selects sensors by two select pins.

Support sensor:

PAN3101,OM10A,OM10B,ADNS-5020,MCS-16085,ATA2180,or Compatible with it.

### 2. Features

- ※ Universal Serial Bus Specification Version 1.1
- ※ USB Device Class Definition for Human Interface Device(HID),Firmware specification Version 1.1
- ※ Low cost eliminate need external components
- ※ Run at 6MHz Frequency
- ※ Support HID Usage ID for USB
- ※ Support USB Sleep Mode And Wake up.
- ※ Low power CMOS device technology
- ※ Support Windows 95,98,ME,NT,2000,2003,Xp,Vista.
- ※ It can support the USB standard request as well as HID class request version 1.1 .

**VID: Hex 0749**

**PID: Hex 2000**

### 3. Applications

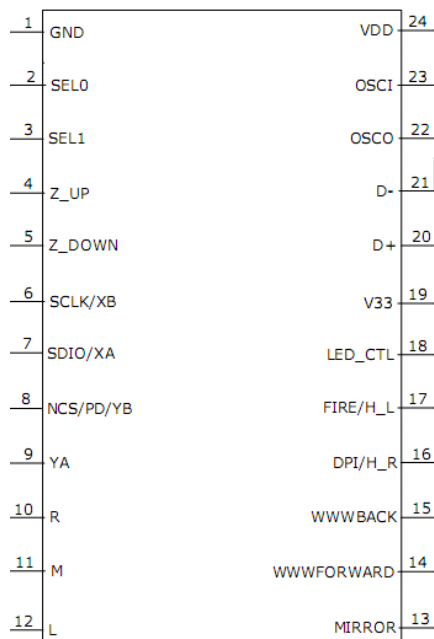
- ※ USB Optical Mouse only
- ※ 3D,3 Buttons USB Optical Mouse.
- ※ 3D,5 Buttons USB Optical Mouse.
- ※ 3D,7 Buttons USB Optical Mouse.
- ※ 4D,7 Buttons USB Optical Mouse. (WinVista OS)



# EV589

## USB Mouse Controller

### 4. Pin Configuration



### 5. Pin Description

Pin	Symbol	I/O	Function
1	VSS	-	GND
2	SELO	I	Sensor select input 0
3	SEL1	I	Sensor select input 1
4	Z1 (*Note2)	I	Z axis input1
5	Z2 (*Note2)	I	Z axis input2
6	SCLK/XB	I/O	Serial Clock/AX
7	SDIO/XA	I/O	Serial Data/BX
8	NCS/PD/YB	I/O	NCS for Avago/PD for OM10/AY
9	YA	I	BY
10	R	I	Right key input
11	M	I	Middle key input
12	L	I	Left key input
13	Mirror (*Note 1)	I	X and Y Move Direction Mirror
14	wwwForward	I	wwwForward
15	wwwBack	I	wwwBack
16	DPI/H_R	I	DPI change/H Roll Right



# EV589

## USB Mouse Controller

17	FIRE/H_L	I	Fire key/H Roll Left
18	LED_CTL	O	High DPI Indicate
19	V33	-	DC 3.3V Output
20	D+	I/O	USB D+
21	D-	I/O	USB D-
22	OSO	O	6MHz Xtal
23	OSI	I	6MHz Xtal
24	VDD	-	5V Power input

\*Note1: Mirror: 0->Normal 1->Mirror

\*Note2: SEL1,SEL0:

00-> PAN3101

01->OM10B

10->ADNS-5020/MCS-16085

11->ATA2180/OM10A

## 6. ABSOLUTE MAXIMUM RATINGS

Parameter	Sym.	Ratings
Supply Voltage	V <sub>CC</sub>	-0.5V to +6V
Input Voltage	V <sub>IN</sub>	-0.3V to +6V
Output Voltage	V <sub>OUT</sub>	-0.3V to +6V
Temperature under bias	T <sub>B</sub>	0°C to 70°C
Storage temperature	T <sub>S</sub>	-65°C to 150°C

## 7. DC ELECTRICAL CHARACTERISTICS

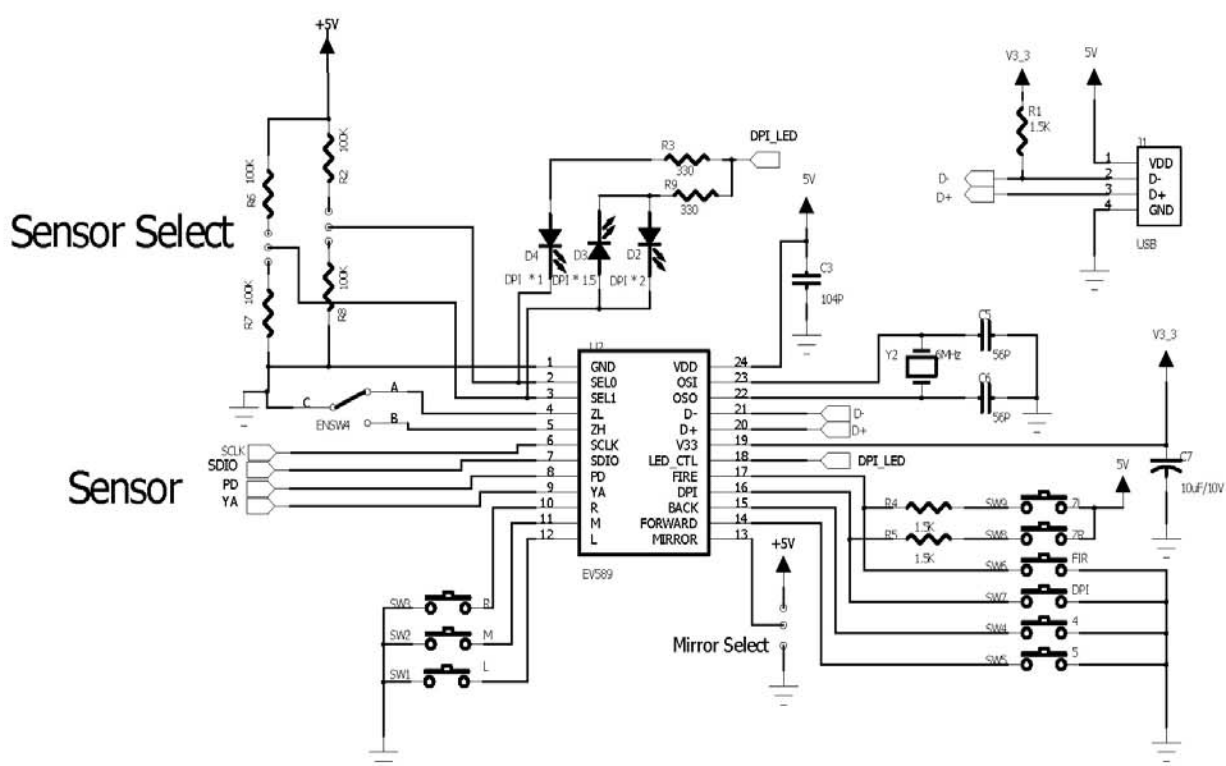
Parameter	Sym.	Min.	Typ.	Max.	Unit	Condition
Operating voltage	V <sub>CC</sub>	4.5	5	5.5	V	
Operating supply current	I <sub>CCI</sub>			10	Ma	Freq.=6MHz
Input leakage	I <sub>IN</sub>			±1	μA	V <sub>IN</sub> =V <sub>CC</sub> ,V <sub>SS</sub>
Input high voltage	V <sub>IH</sub>	2.0			V	
Input low voltage	V <sub>IL</sub>			0.8	V	
Output low voltage	V <sub>OL1</sub>		0.4		V	I <sub>OL1</sub> =10 mA



# EV589

## USB Mouse Controller

### 8. Application Circuit

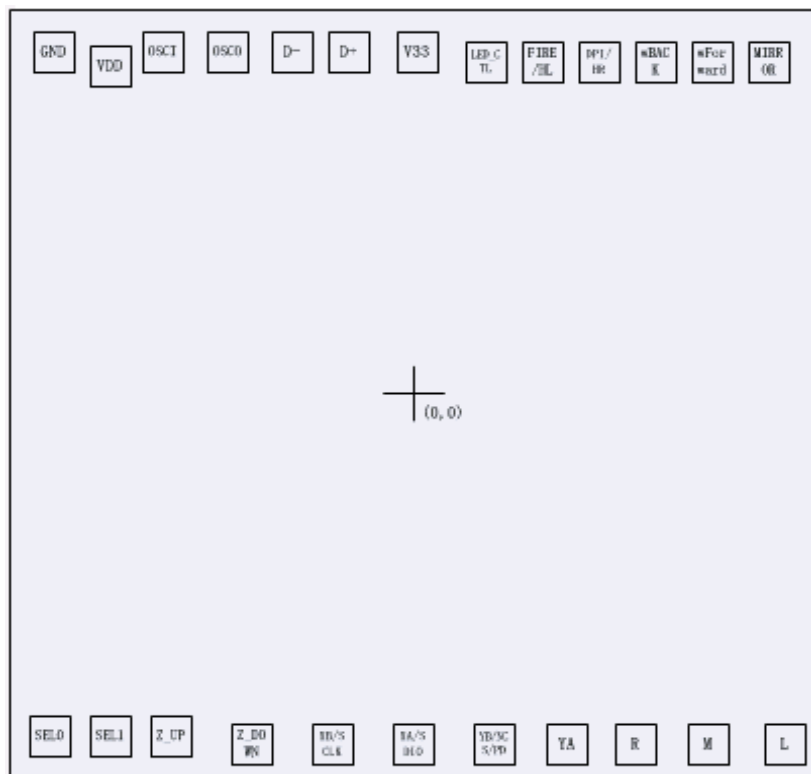




# EV589

## USB Mouse Controller

### 9.PAD DIAGRAM

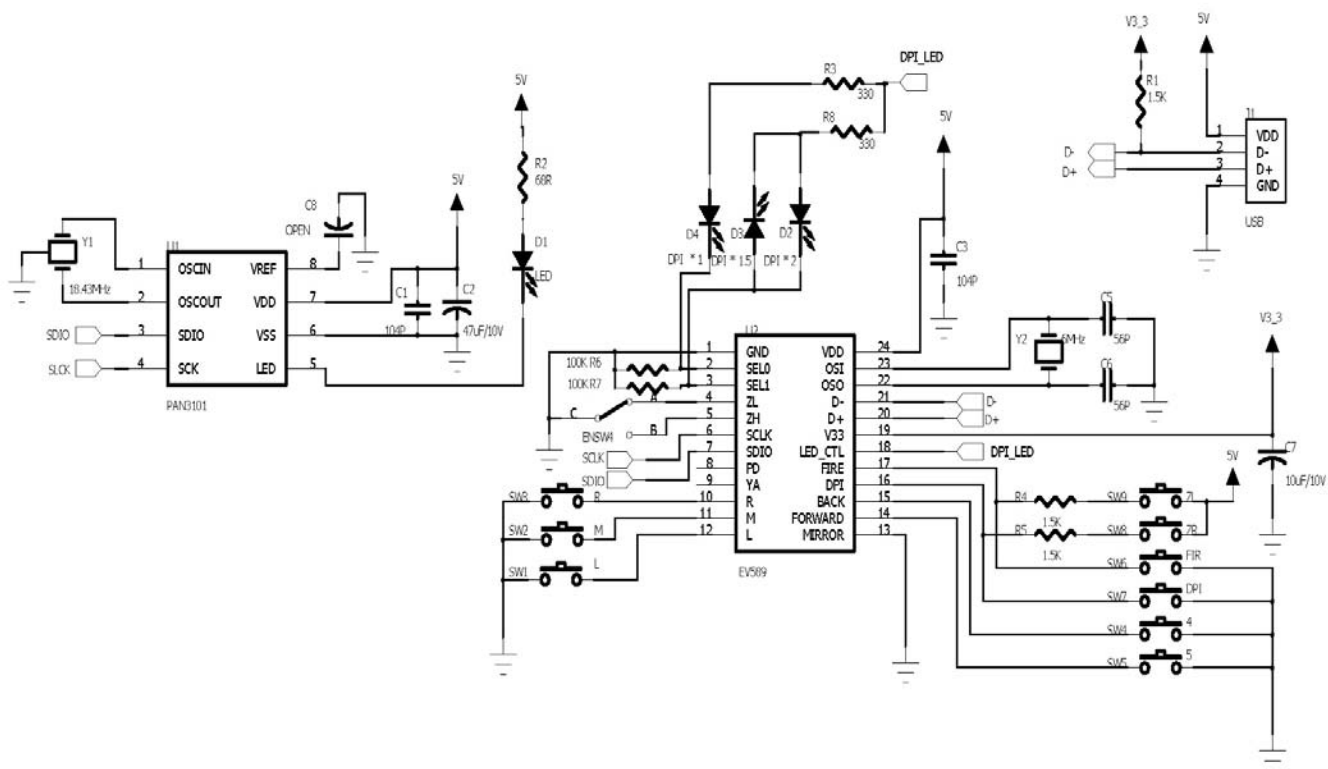


Project:ev589				Chip Size:1740x2120		DATE:2008.02.05	
Primary Cell:ev589							
Num.	Name	X,	Y	Num.	Name	X,	Y
1	GND	-801,	985	13	MIRROR	795,	962
2	SEL0	-801,	-971	14	wFORWAD	672,	962
3	SEL1	-680,	-971	15	wBACK	550,	962
4	ZUP	-562,	-971	16	DPI	428,	962
5	ZDOWN	-389,	-985	17	FIRE	308,	962
6	XB	-223,	-985	18	LED_CTL	184,	962
7	XA	-45,	-985	19	V33	36,	985
8	YB	121,	-985	20	D+	-136,	985
9	YA	286,	-985	21	D-	-247,	985
10	R	450,	-985	22	OSCO	-410,	985
11	M	618,	-985	23	OSCI	-577,	985
12	L	784,	-985	24	VDD	-688,	985



# EV589

## USB Mouse Controller

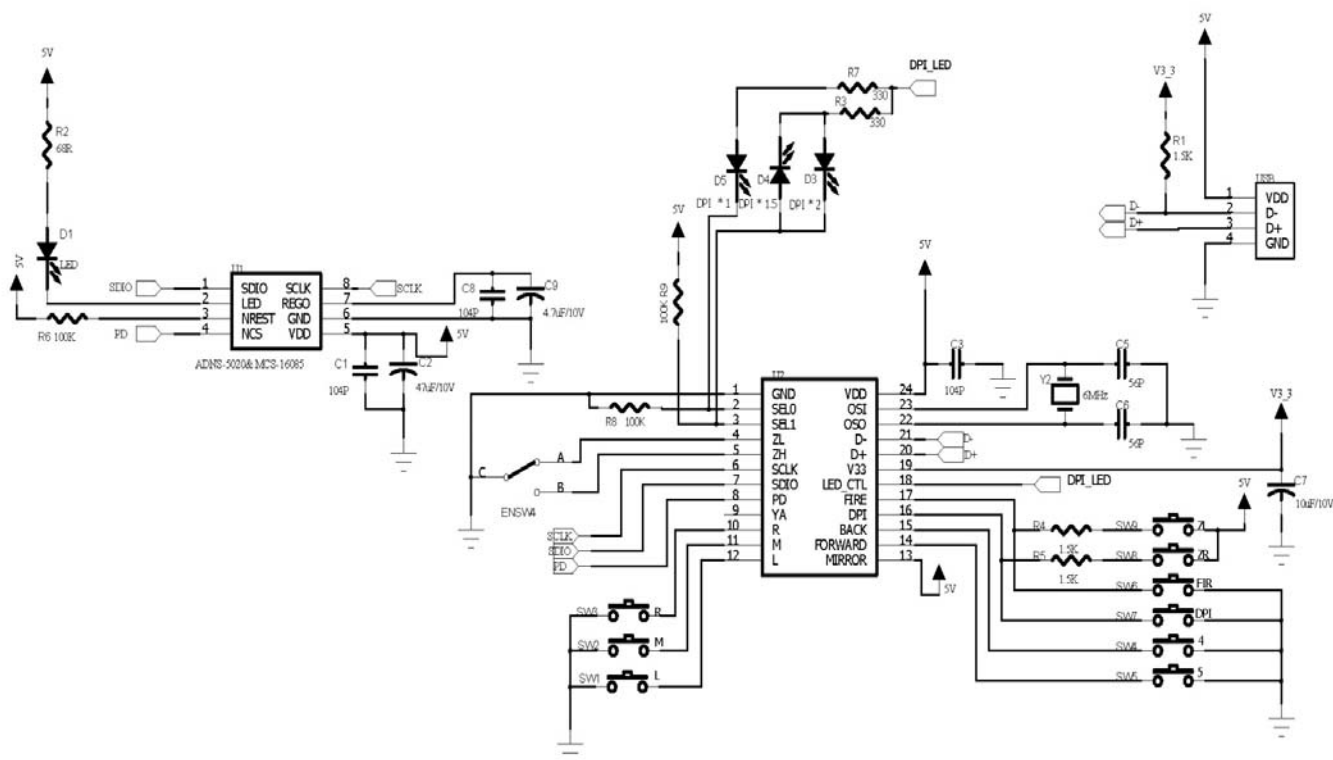


SENSOR: PAN3101( SEL0=0 SEL1=0)



# EV589

## USB Mouse Controller



SENSOR: ADNS-5020&MCS-16085( SEL0=0 SEL1=1)

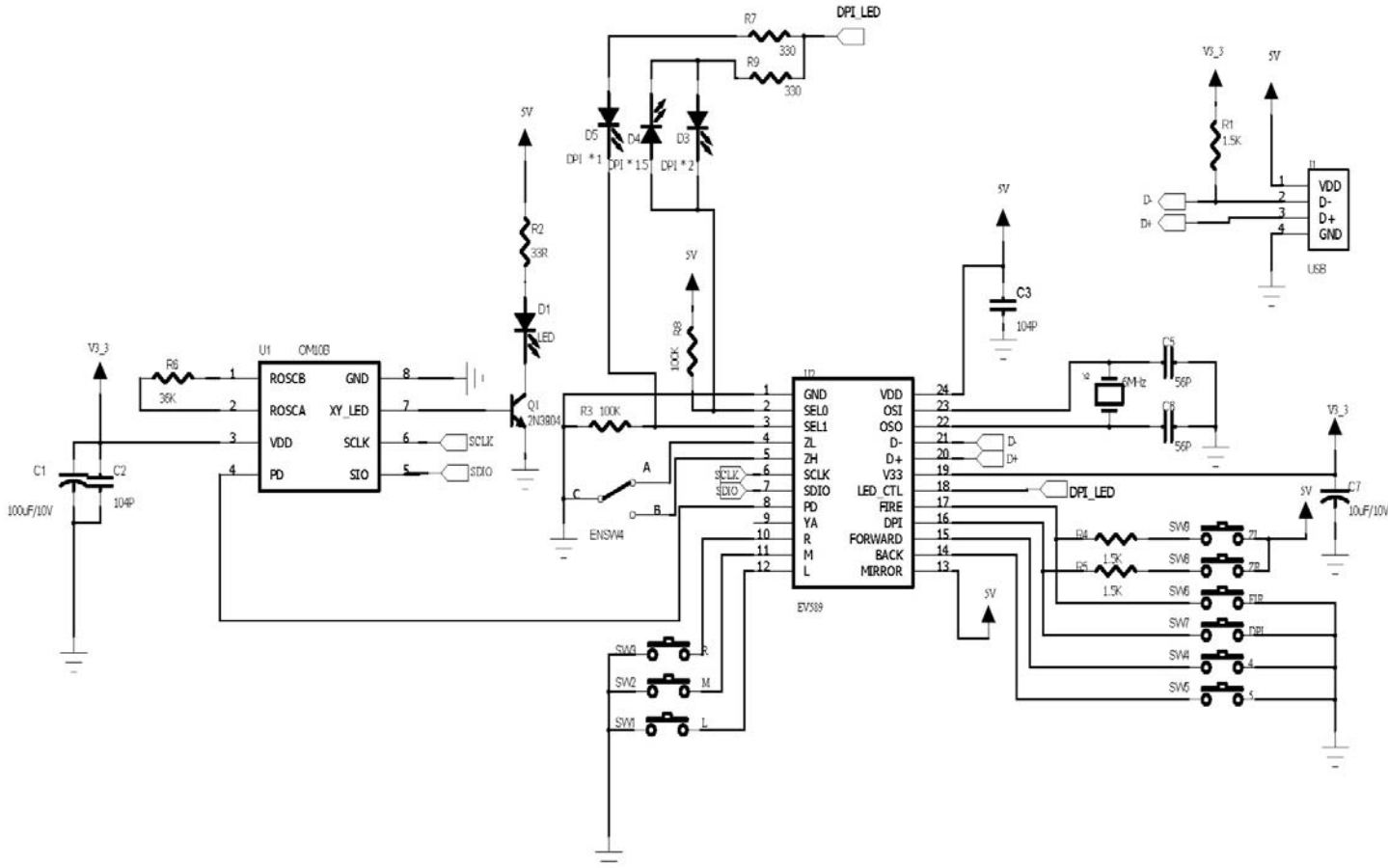




# EV589

## USB Mouse Controller

---



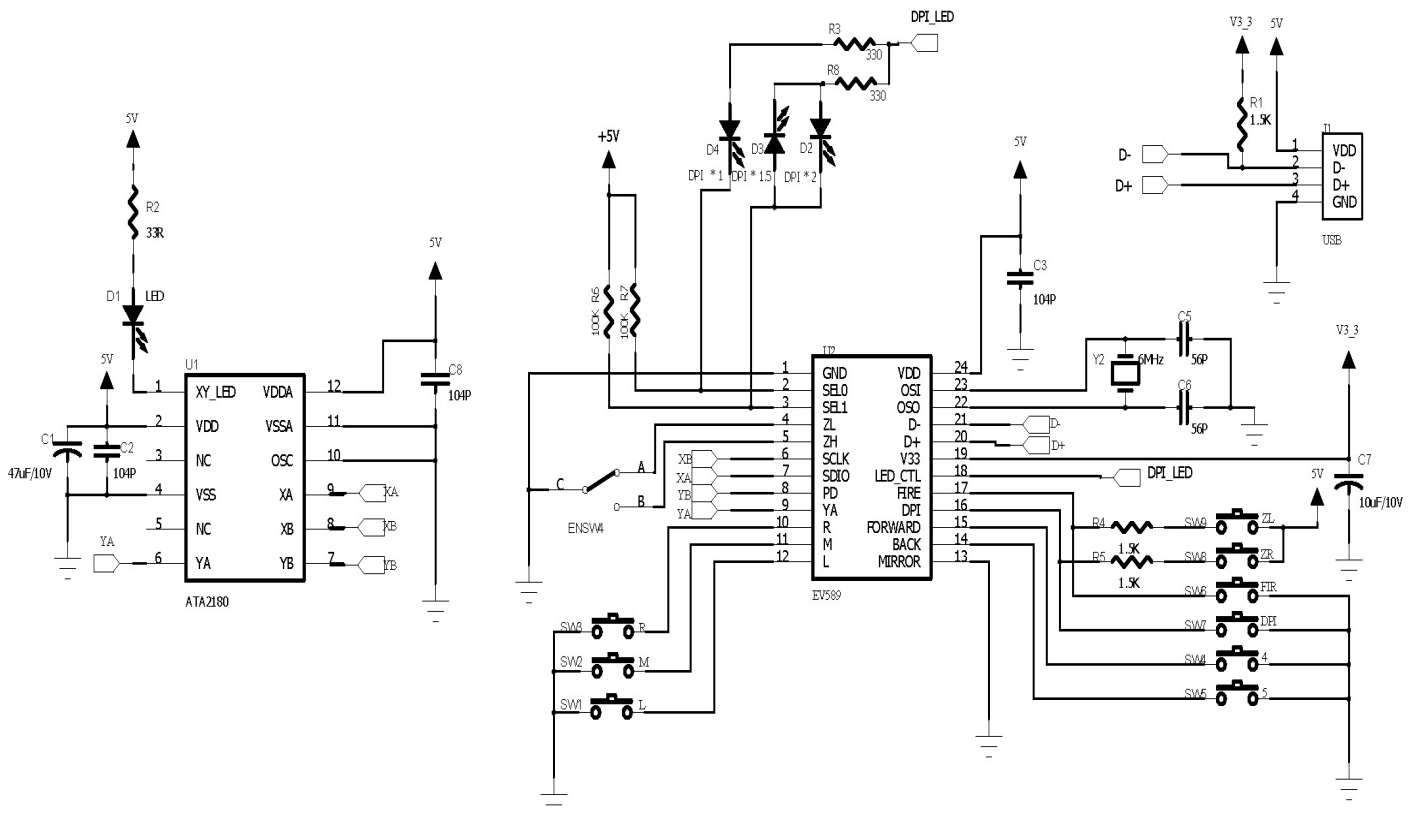
SENSOR:OM10B(SELO=1 SEL1=0)





# EV589

## USB Mouse Controller



SENSOR: ATA2180( SEL0=1 SEL1=1)