EVERVISION VGG107607-A

Application

This specification is applied to the 15.0 inch XGA supported TFT-LCD module, and can display true 16.7M colors(8 bit/ color). The module is designed for OA, Car TV application and other electronic products which require flat panel display of digital signal interface. This module is composed of a 15.0" TFT-LCD panel, a driver circuit and backlight unit and used as the input devices for general electric appliances via both finger and Capacitive stylus pen.

Features

- XGA (1024×768 pixels) resolution.
- 6 bit & 8 bit LVDS Interface
- DE(Data Enable) only mode
- Projected Capacitive Touch
  - USB Interface
  - Multi Touch (Five points)
  - 4096 x 4096 resolution

General Specifications

Item	Specifications	Unit
Screen Size	15.0 (Diagonal)	inch
Display Format	1024RGB(H)×768(V)	dot
Active Area	304.1(H)×228.1(V)	mm
PIXEL Pitch	0.297(H)×0.297(V)	mm
Pixel Configuration	RGB Vertical Stripe	-
Display Mode	VA Type / Transmissive Mode / Normally Black	-
Surface Treatment	Clear(7H)	-
Viewing Direction	Full view angle	-
Outline Dimension	326.5(W)×253.5(H)×11.8(D)	mm
Weight	（1422）	g
RoHS Compliance	Eversion certifies this product to be in compliance with European Union Directive 2015/863/EU on the restriction of certain hazardous substances in electrical and electronic equipment.	-

Absolute Maximum Ratings

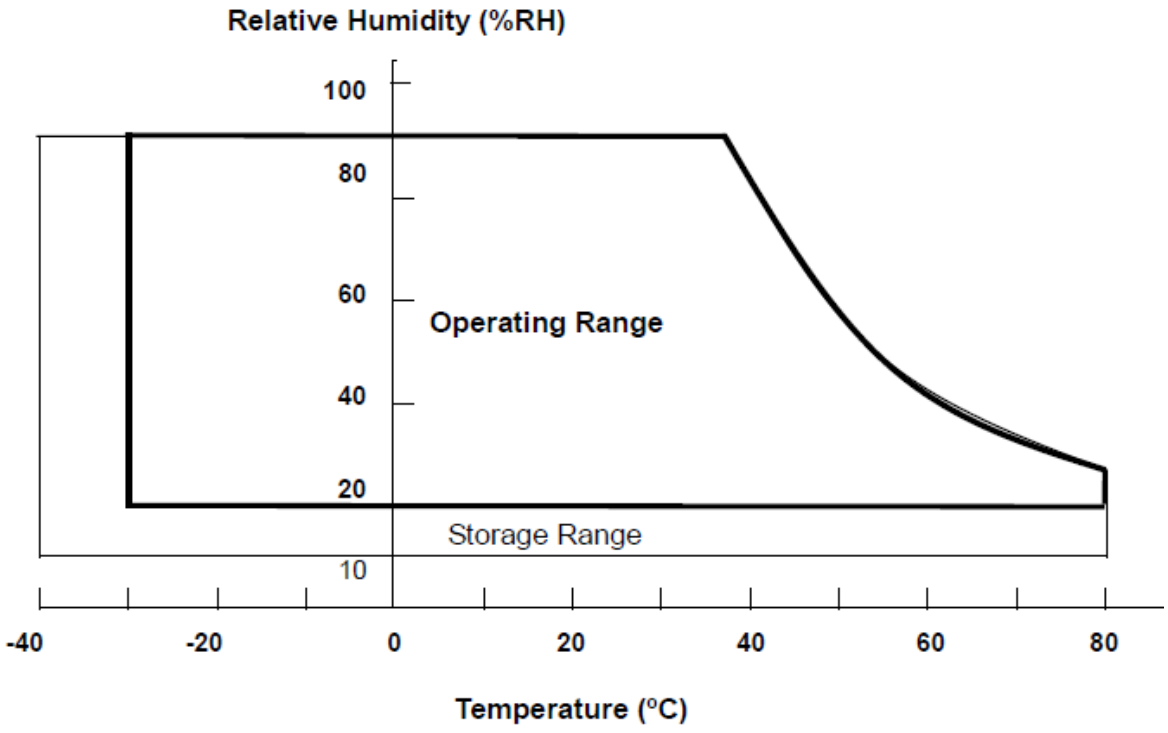
Absolute Ratings of Environment

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Operating Ambient Temperature	T_{OP}	-30	+80	℃	(1)(2)(3)
Storage Temperature	T_{ST}	-40	+80	℃	(1)(2)(3)

Note (1) Temperature and relative humidity range is shown in the figure below.

(2) 90 %RH Max. (Ta < 40℃).

(3) Wet-bulb temperature should be 39℃ Max.



Electrical Absolute Ratings

TFT-LCD Module

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	VCC	-0.3	4	V	(1)

BACKLIGHT UNIT

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Converter Voltage	V_i	-0.3	18	V	(1) , (2)
Enable Voltage	EN	---	5.5	V	
Backlight Adjust	Dimming	---	5.5	V	

Note (1) Permanent damage to the device may occur if maximum values are exceeded. Function operation should be restricted to the conditions described under Normal Operating Conditions.

Note (2) Specified values are for lamp (Refer to 3.2 for further information).

Projected Capacitive Touch

(Ta=25±2°C, GND=0V)

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Digital Power Supply Voltage	VDD	-0.3	5.3	V	-

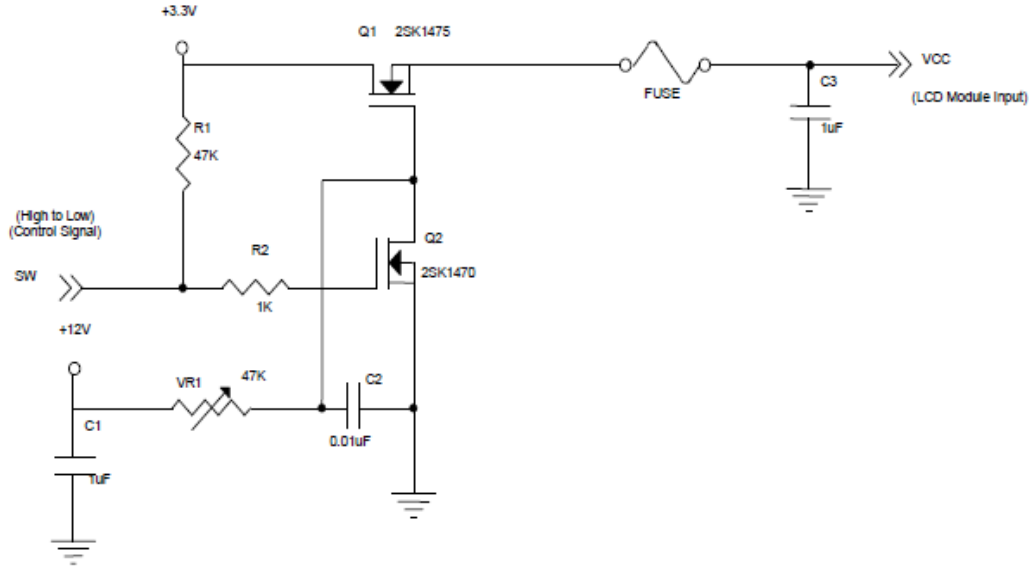
Electrical Characteristics

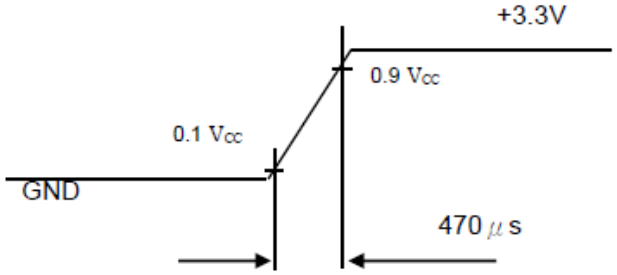
TFT-LCD Module

Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Power Supply Voltage		V_{CC}	3.0	3.3	3.6	V	-
Ripple Voltage		V_{RP}	-	-	100	mVp-p	
Rush Current		I_{RUSH}	-	-	2.0	A	(2)
Power Supply Current	White	Icc	-	800	960	mA	(3)a
	Black		-	670	800	mA	(3)b
LVDS differential input voltage		Vid	200	-	600	mV	
LVDS common input voltage		Vic	1.0	1.2	1.4	V	
Differential Input Voltage for LVDS Receiver Threshold	"H" Level	V_{IH}	-	-	100	mV	-
	"L" Level	V_{IL}	-100	-	-	mV	-
Terminating Resistor		R_T	-	100	-	Ohm	-

Note (1) The module should be always operated within above ranges.

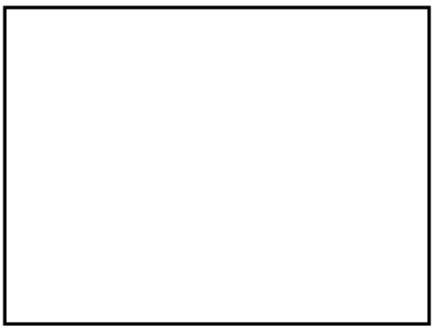
Note (2) Measurement Conditions:





Note (3) The specified power supply current is under the conditions at V_{DD} =3.3V, Ta = 25 ± 2 ℃, DC Current and f_v = 60 Hz, whereas a power dissipation check pattern below is displayed.

a. White Pattern



Active Area

b. Black Pattern

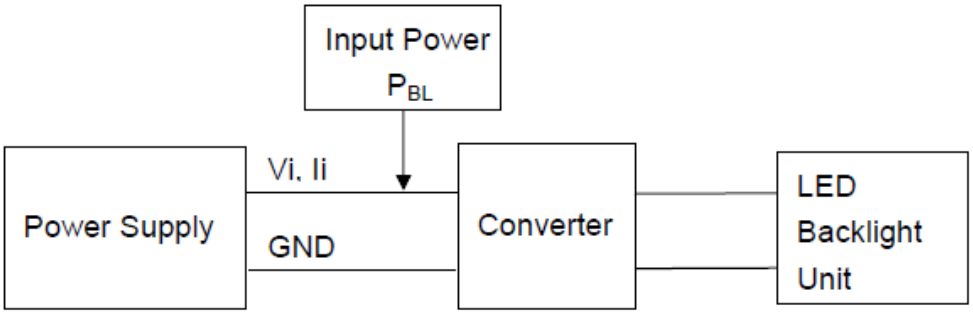
Active Area

Backlight Unit

(Ta=25±2°C)

Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Converter Power Supply Voltage		V_i	10.8	12.0	13.2	V	
Converter Power Supply Current		I_i	0.5	0.65	0.8	A	@ Vi = 12V (Duty 100%)
Backlight Power Consumption		P_{BL}	-	7.8	9.6	W	@ Vi = 12V (Duty 100%)
EN Control Level	Backlight on	-	2.0	3.3	5.0	V	
	Backlight off		0	---	0.8	V	
PWM Dimming Control Level	PWM High Level	-	2.0	3.3	5.0	V	
	PWM Low Level		0	-	0.15	V	
PWM Dimming Control Duty Ratio		-	1	-	100	%	@200Hz
PWM Dimming Control Frequency		f_{PWM}	190	200	20k	Hz	(2)
LED Life Time		L_L	50,000	70,000	-	Hrs	(3)

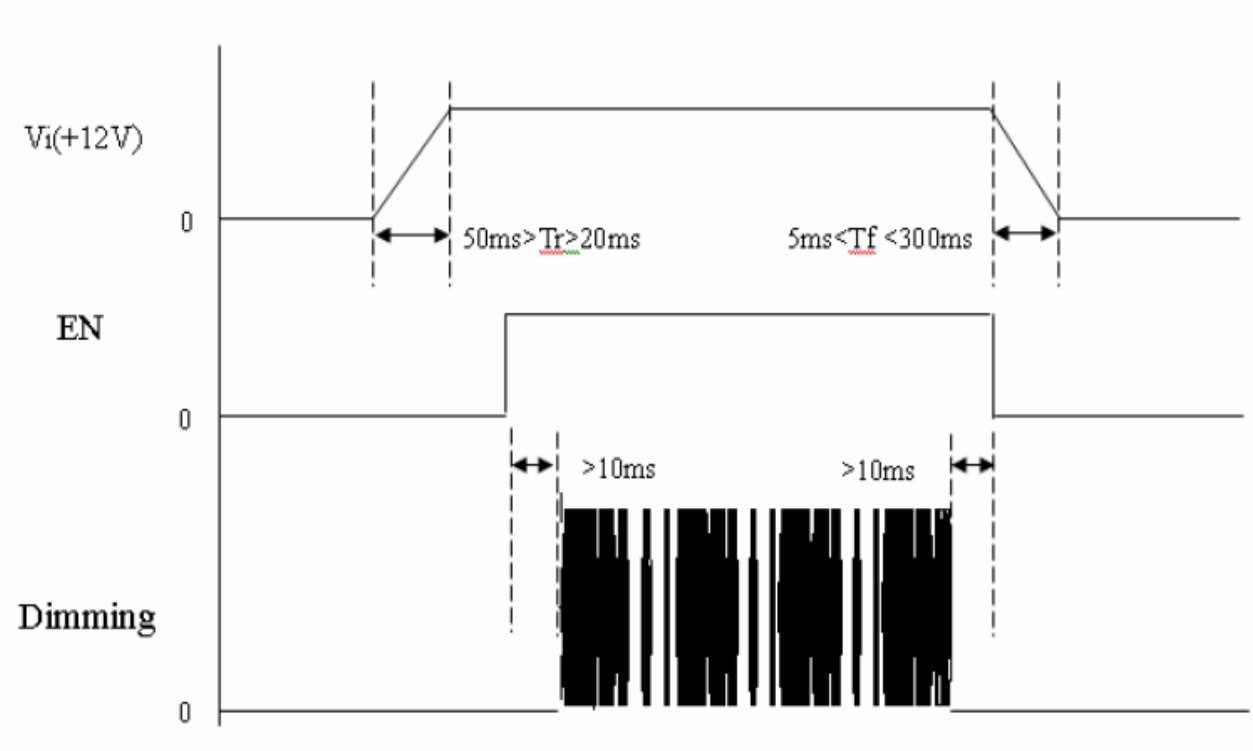
Note (1) LED current is measured by utilizing a high frequency current meter as shown below:



Note (2) At 20k Hz PWM control frequency，duty ratio range is restricted from 20% to 100%.

Note (3) The lifetime of LED is estimated data and defined as the time when it continues to operate under the conditions at Ta = 25 ±2 ℃ and Duty 100% until the brightness becomes ≦ 50% of its original value. Operating LED under high temperature environment will reduce life time and lead to color shift.

Power sequence and control signal timing are shown in the following figure

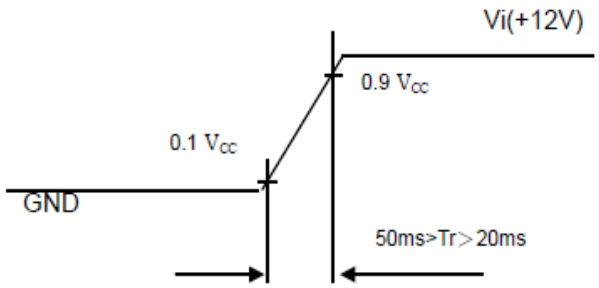


Note： While system is turned ON or OFF, the power sequences must follow as below descriptions

Turn ON sequence: Vi(+12V) → EN → Dimming

Turn OFF sequence: Dimming → EN → Vi(+12V)

Note (4)



Projected Capacitive Touch

(Ta=25±2°C)

Item	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Power Supply Voltage	VDD	4.8	5.0	5.2	V	-
Power Supply Current	IDD	-	34.5	48.3	mA	(1)
Output High Threshold Voltage	V_{OH}	2.8	-	-	V	-
Output Low Threshold Voltage	V_{OL}	-	-	0.8	V	-
Differential Input Sensitivity |(D+)-(D-)|	V_{DI}	0.2	-	-	V	-
Differential Input Common Mode Range	V_{CM}	0.8	-	2.5	V	
Power Consumption	P_L	-	172.5	241.5	mW	@5.0V
Report Rate	R_R	-	60	-	Hz	-
Interface		USB			-	
Function		Multi Touch			-	

Note (1) This test condition is touched with 5 points.

Input / Output Terminals Pin Assignment

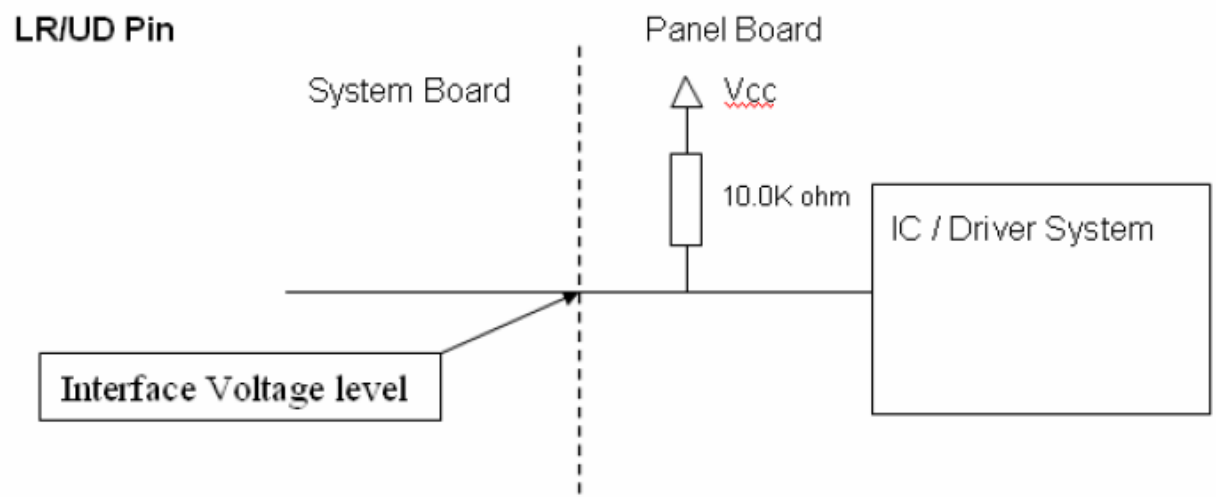
TFT-LCD Module

Pin No.	Symbol	Function	Polarity	Note
1	VCC	Power Supply +3.3V(typical)		
2	VCC	Power Supply +3.3V(typical)		
3	NC	No Conncetion (Reserve for INX test)		
4	LR/UD	Reverse Scan Control H or NC = Normal Mode. L = Horizonta/ Vertical Reverse Scan.		
5	RX0-	LVDS Differential Data Input	Negative	
6	RX0+	LVDS Differential Data Input	Positive	
7	GND	Ground		
8	RX1-	LVDS Differential Data Input	Negative	
9	RX1+	LVDS Differential Data Input	Positive	
10	NC	No Conncetion (Reserve for INX test)		
11	RX2-	LVDS Differential Data Input	Negative	
12	RX2+	LVDS Differential Data Input	Positive	
13	GND	Ground		
14	RXCLK-	LVDS Differential Data Input	Negative	
15	RXCLK+	LVDS Differential Data Input	Positive	
16	GND	Ground		
17	RX3-	LVDS Differential Data Input	Negative	
18	RX3+	LVDS Differential Data Input	Positive	
19	NC	No Conncetion (Reserve for INX test)		
20	SEL68	LVDS 6/8 bit select function control, High → 6bit Input Mode Low or NC → 8bit Input Mode		Note (3)

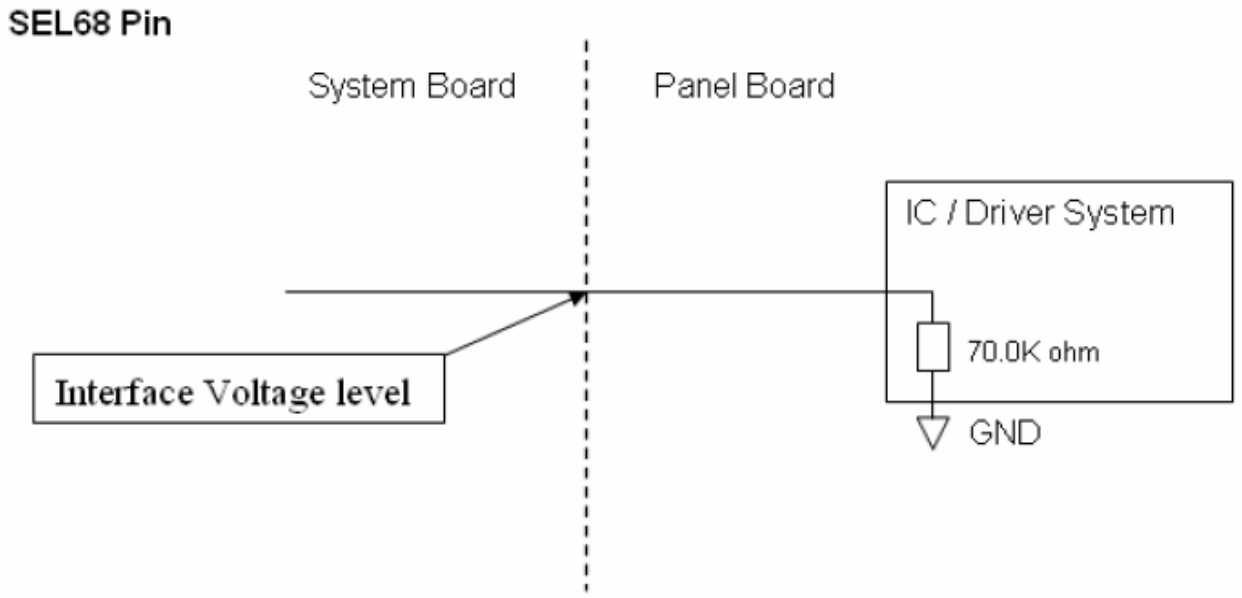
Note (1) Connector Part No.: Cvilux CID520D1HR0-NH or equivalent.

Note (2) User's connector Part No.: Hirose DF14-20S-1.25C or equivalent.

Note (3) "Low" stands for 0V. "High" stands for 3.3V. "NC" stands for "No Connection".



SEL68 Pin



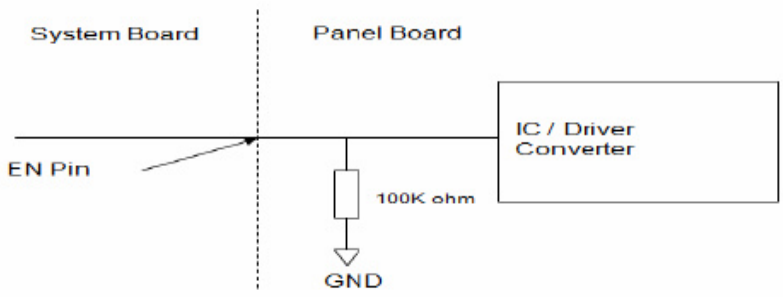
Backlight

Pin	Symbol	Description	Remark
1	V_i	Converter input voltage	12V
2	V_{GND}	Converter ground	Ground
3	EN	Enable pin	3.3V
4	Dimming	Backlight Adjust	PWM Dimming (Hi: 3.3V_{DC}, Lo: 0V_{DC})
5	NC	Not Connect	

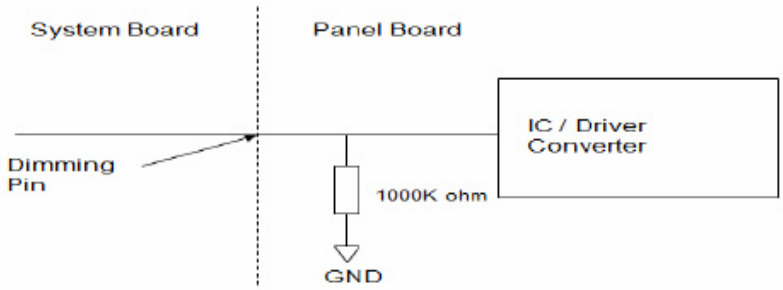
Note (1) Connector Part No.: CI4205M2HRP-NH (Cvilux) or equivalent.

Note (2) User's connector Part No.: MOLEX 51146-0500 or equivalent.

EN Pin



Dimming Pin



Projected Capacitive Touch

Connector: CI0105M1HR0-NH

Pin No.	Symbol	I/O	Description
1	VDD	I	+5.0V power supply.
2	D-	I/O	USB D-
3	D+	I/O	USB D+
4	GND	I	System ground.
5	GND	I	System ground.

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Outline Drawing