

# Renesas Starter Kit for RL78/L12

## CPU Board Schematics

REV	REF	DATE	DRAWN BY
B1	Prototype	12.12.2011	YOI
B2	Prototype	15.12.2011	YOI
B3	Prototype	28.12.2011	YOI
C1	Prototype TRAC#2895	24.10.2012	YOI
C2	Prototype	13.12.2012	YOI
1.00	Release TRAC#22242	05.02.2013	YOI

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### Note:

**R** : Fixed Resistor  
**RV** : Potentiometer  
**U** : Integrated Circuit  
**X** : Crystal  
**RES** : Reset Switch  
**SW** : Switch  
**LED** : Light Emitting Diode  
**PWR** : Power Jack  
**J** : Connector, Jumper

\* "DNF" marking means that component does not fit by default.

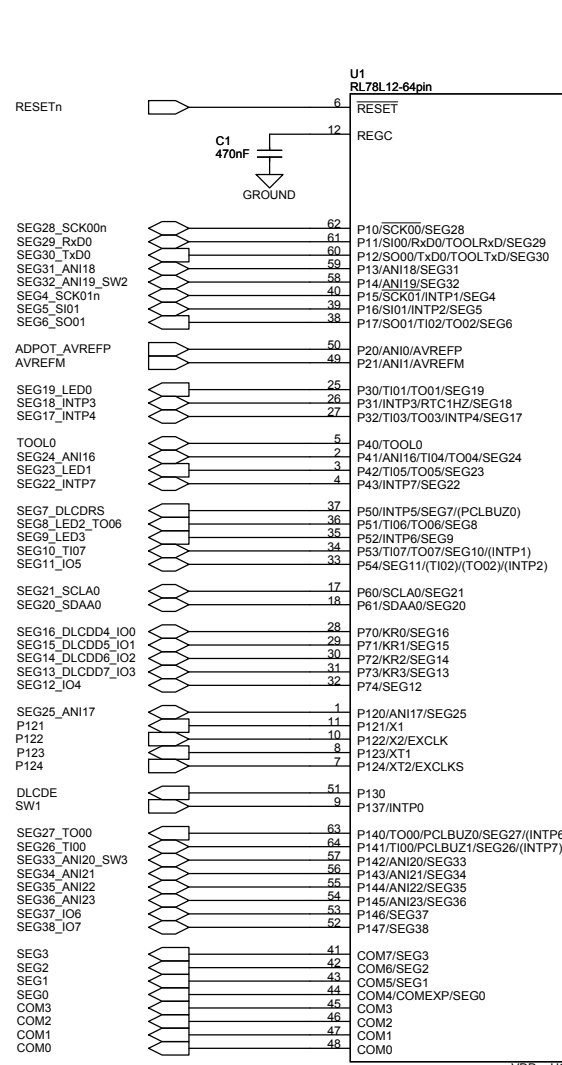
### Board Variation:

**R0K5010RLC000BR** : 1st Prototype Board (Schema Ref: Rev.B3)  
**R0K5010RLC010BR** : 1st Prototype Board with IC Socket (Schema Ref: Rev.B3)  
**R0K5010RLC001BR** : 2nd Prototype Board (Schema Ref: Rev.C2)  
**R0K5010RLC000BE** : WS/MP Product

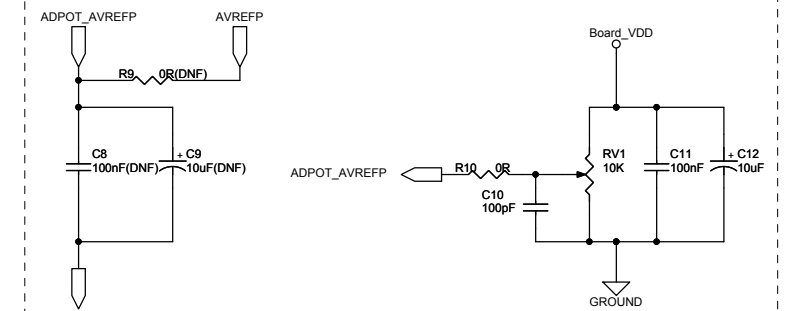
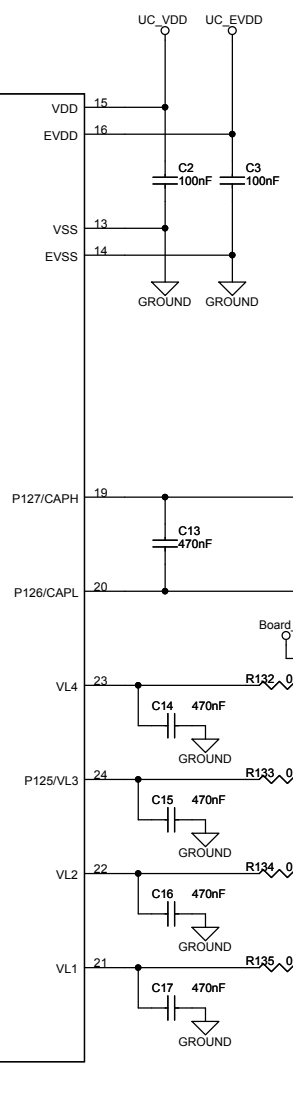
REEL Drawing No. D010952\_04

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**RL78/L12(64LQFP, 10x10) Microcontroller**

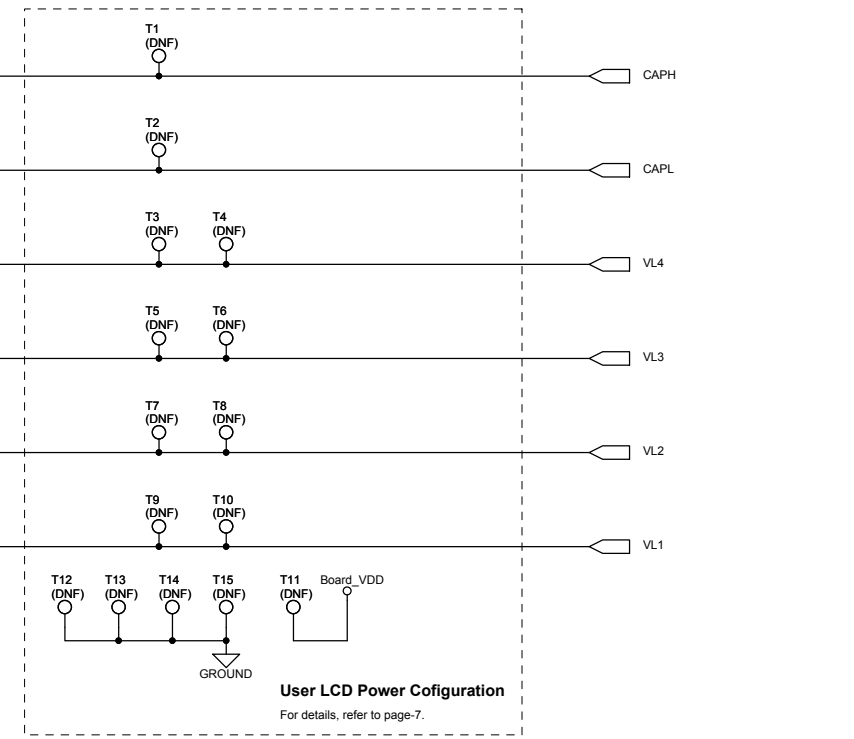


VDD = UC\_VDD  
EVDD = UC\_EVDD  
VSS = GROUND  
EVSS = GROUND



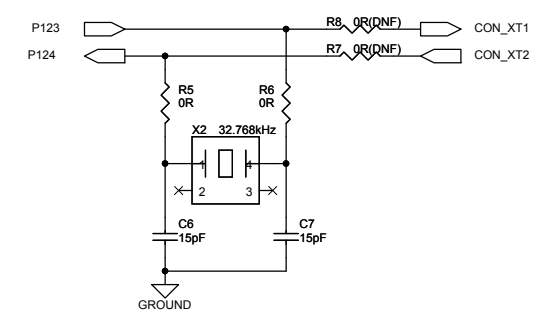
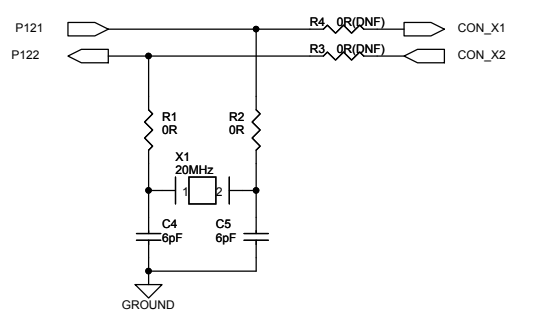
**Analog Configuration**

Enables RV1	R9 Remove	R10 Fit	C8, C9 Remove
Enables AVREF	Fit	Remove	Don't care



**User LCD Power Configuration**

For details, refer to page-7.



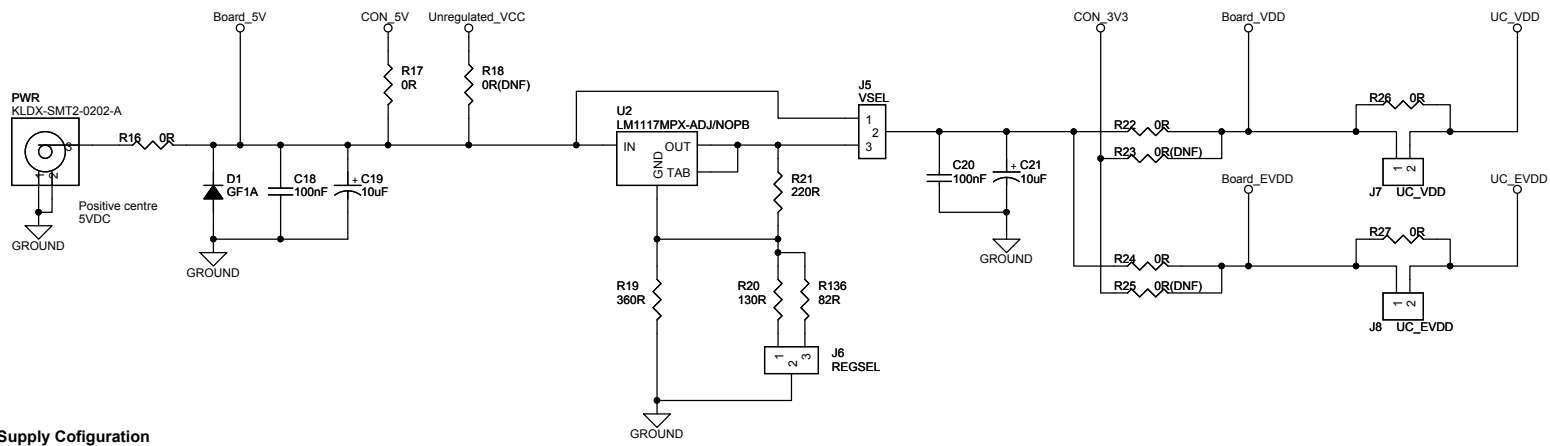
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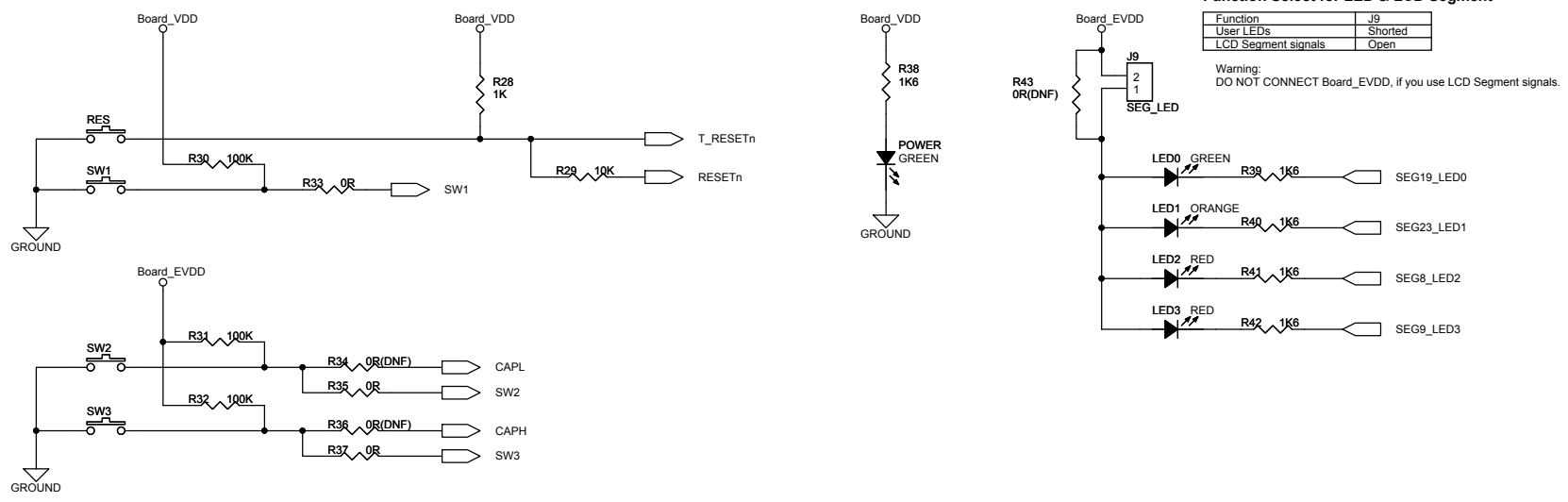
## Power Supply Unit



### Power Supply Configuration

J5	J6	5V Supply Source	3V3 Supply Source	Board 5V	Board_VDD & Board_EVDD
Pin1-2 shorted	Don't care	E1(5V)/PWR Connector/CON_5V	Not Connected	5V	5V
Pin2-3 shorted	All open	PWR Connector/CON_5V	Not Connected	5V	3V3
Pin2-3 shorted	Pin1-2 shorted	PWR Connector/CON_5V	Not Connected	5V	1V8
Pin2-3 shorted	Pin2-3 shorted	PWR Connector/CON_5V	Not Connected	5V	1V6
All open	Don't care	PWR Connector/CON_5V	E1(3V3)/CON_3V3	5V	3V3
All open	Don't care	Not Connected	E1(3V3)/CON_3V3	0V	3V3

## Switches, Reset, LEDs



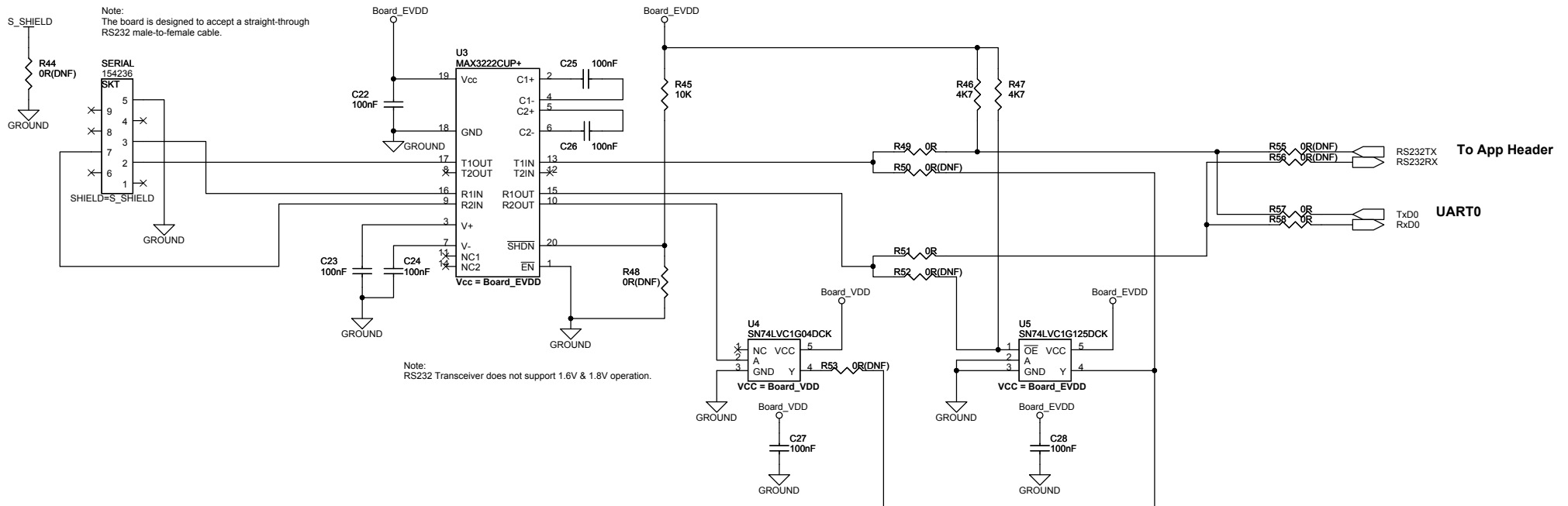
### Function Select for LED & LCD Segment

Function	J9
User LEDs	Shorted
LCD Segment signals	Open

Warning:  
DO NOT CONNECT Board\_EVDD, if you use LCD Segment signals.

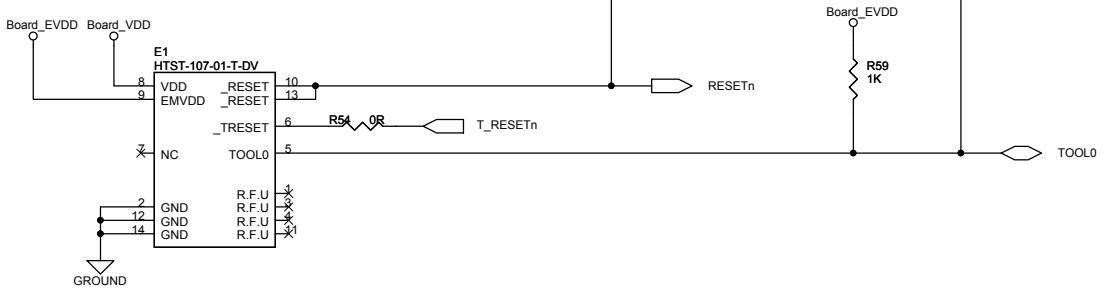
**Serial Port**

Note:  
The board is designed to accept a straight-through RS232 male-to-female cable.



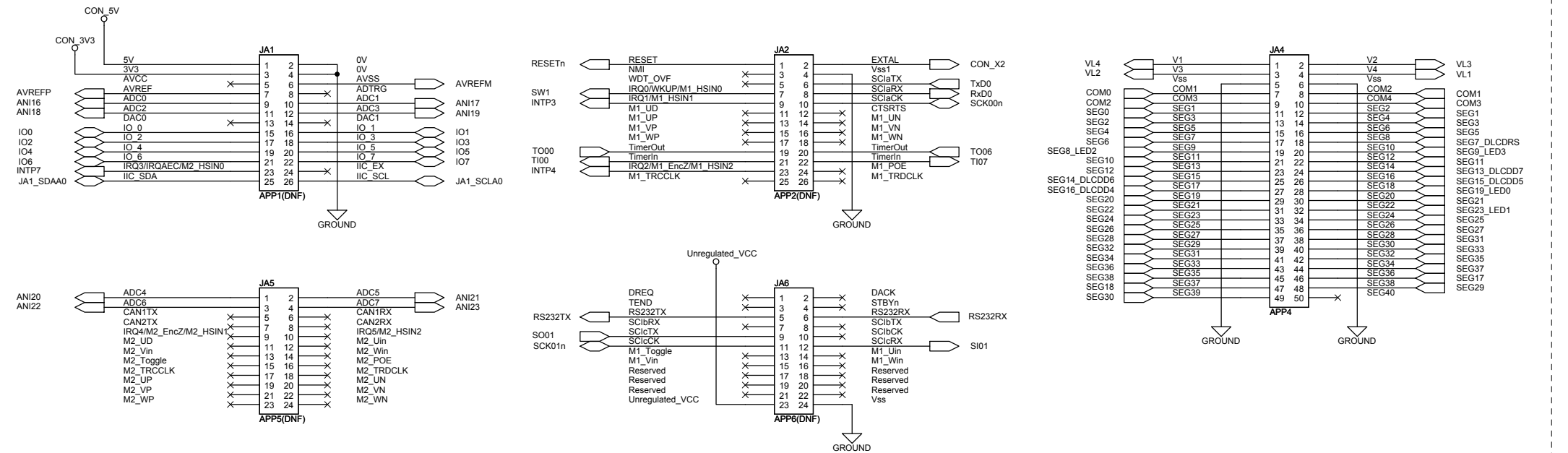
Note:  
RS232 Transceiver does not support 1.6V & 1.8V operation.

**E1 Emulator Interface**

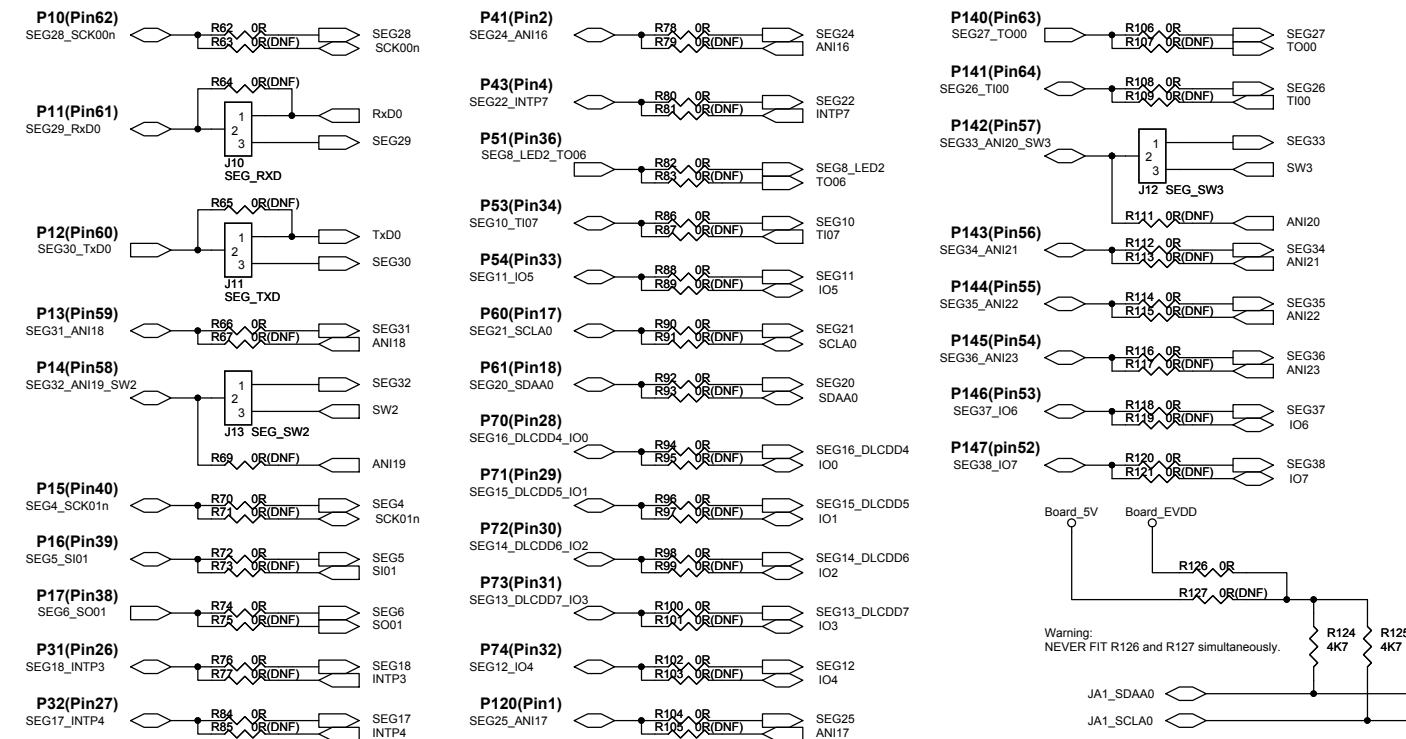


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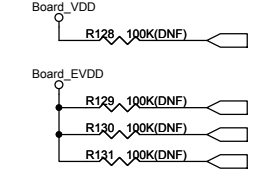
# Application Headers



# MCU Pin Function Select

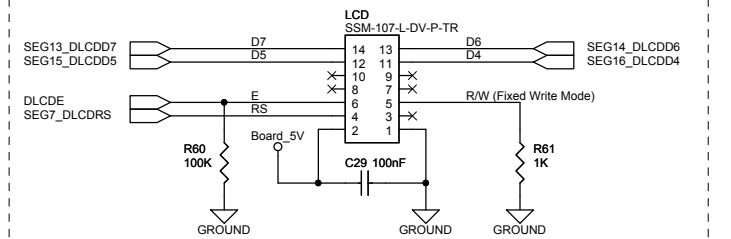


# Option pull-up resistor



# Debug LCD

Warning: DO NOT CONNECT LCD Module, if you use LCD Segment signals.

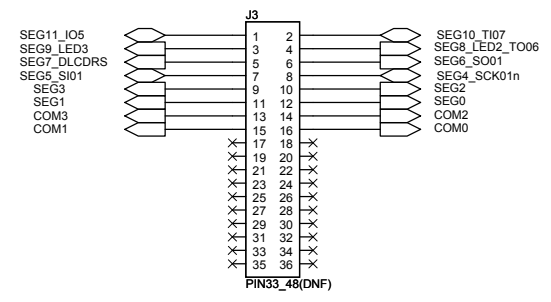
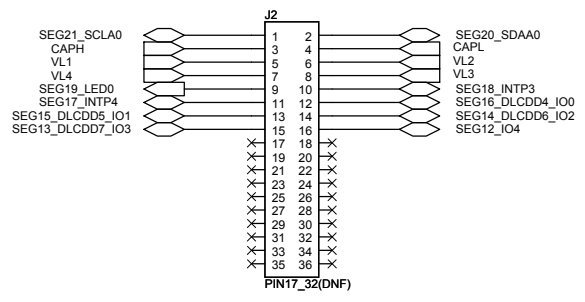
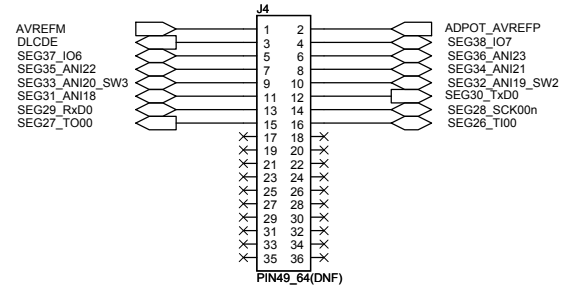
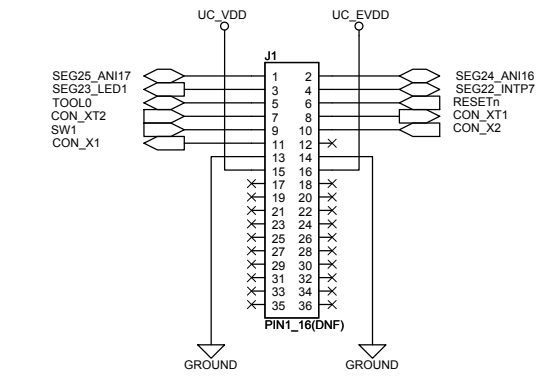


Warning: NEVER FIT R126 and R127 simultaneously.

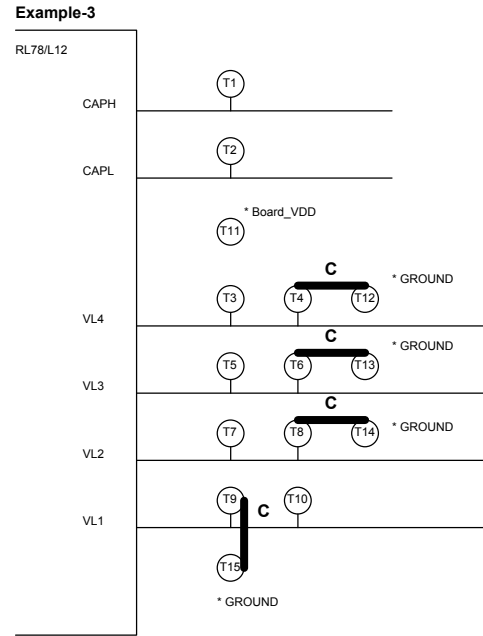
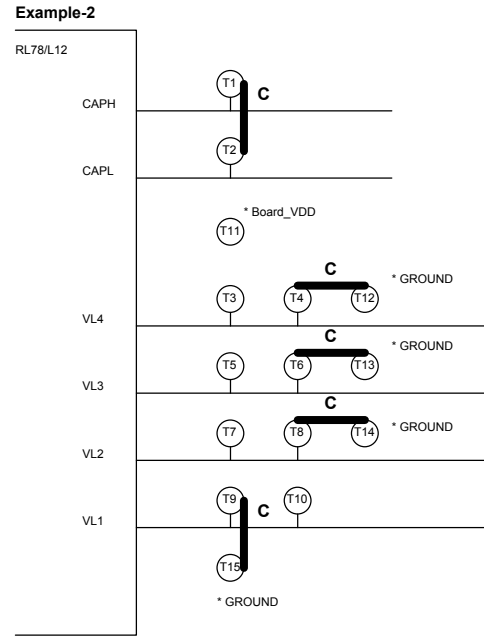
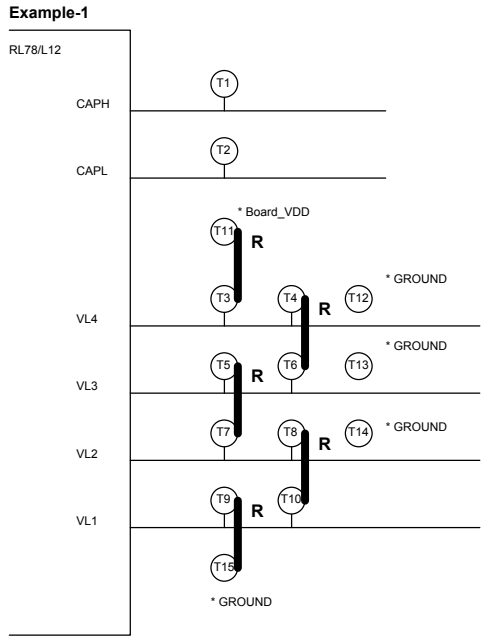


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Microcontroller Pin Headers



Appendix (User LCD Power Configurations)



# Revision History

REV	DATE	PAGE	DESCRIPTION
B1	12.12.2011	---	1st edition.
B2	16.12.2011	2	RV2 was removed and R11(OR) was added. Following component value was changed. C13 - C17 : TBD -> 470nF R12 - R15 : 10K -> 100K R132 to R135 were added.
		3	1.6V regulator output was added. R136 : added. J6 : 2pin -> 3pin
B3	28.12.2011	2	Following component fit condition was changed. R11 - R15 : Fit -> DNF
C1	24.10.2012	2	U1.Pin9 : INTP0 -> SW1 U1.Pin57 : SEG33_ANI20 -> SEG33_ANI20_SW3 U1.Pin58 : SEG32_ANI19 -> SEG32_ANI19_SW2
		3	SW1 connection : "SW1 - R33 - INTP0" -> "SW1 - R33 - SW1". SW2 connection : "SW2 - R35 - INTP3" -> "SW2 - R35 - SW2". SW3 connection : "SW3 - R37 - INTP4" -> "SW3 - R37 - SW3".
		5	JAZ.Pin7 : INTP0 -> SW1 P14 Function Select : SEG32_ANI19 -> SEG32_ANI19_SW2. (R69 removed, J13 added). P31 Function Select : R76 DNF -> Fit, R77 Fit -> DNF. P32 Function Select : R84 DNF -> Fit, R85 Fit -> DNF. P142 Function Select : SEG33_ANI20 -> SEG33_ANI20_SW3. (R110 removed, J12 added).
		6	J1.Pin9 : INTP0 -> SW1. J4.Pin9 : SEG33_ANI20 -> SEG33_ANI20_SW3. J4.Pin10 : SEG32_ANI19 -> SEG32_ANI19_SW2.
C2	13.12.2012	5	R128 connection was fixed. "Board_VDD - R128 - INTP0" -> "Board_VDD R128 - SW1"
1.00	05.02.2013	5	Corrected comment text for SEG38_IO7. P146(Pin53) -> P147(pin52). Corrected a spelling mistake of I2C warning comment. simultaneous -> simultaneous.

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