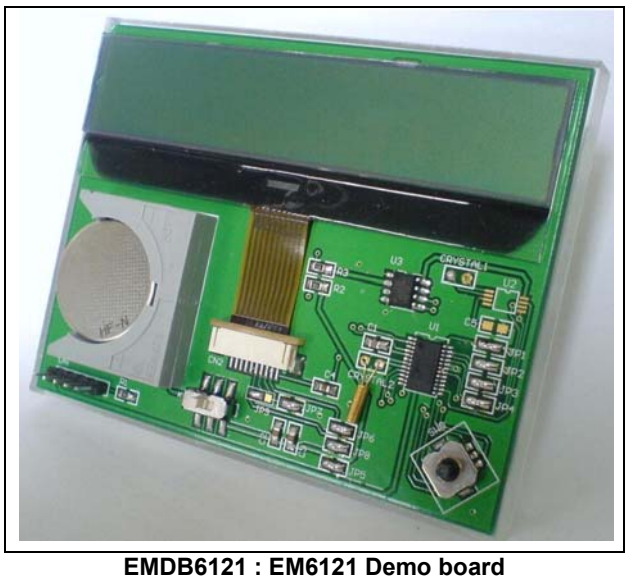
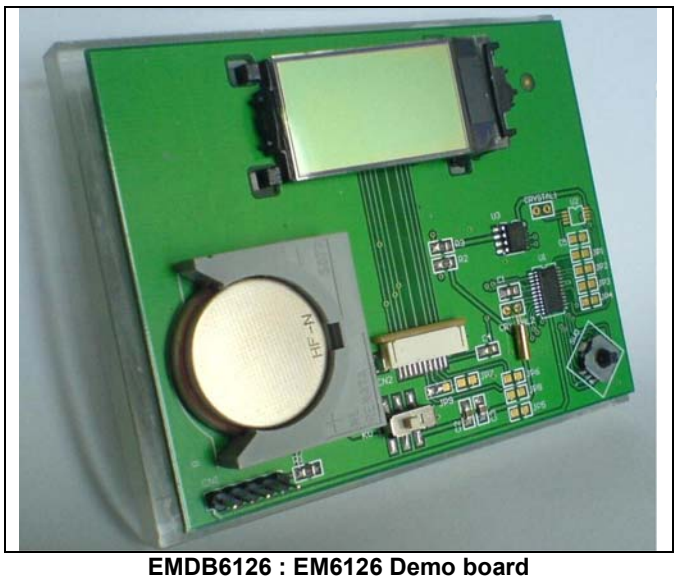
EM6121/EM6126 DemoKit User's Manual



EMDB6121 : EM6121 Demo board



EMDB6126 : EM6126 Demo board

Description

The EMDB6121/26 is a standalone demo kit based on Character LCD drivers/controller EM6121 and Graphic LCD drivers/controller EM6126. This allows an easy evaluation of the EM6121/26.

A microcontroller EM6812 is used to send, receive commands and data through I2C or Serial bus.

This demo kit is delivered with pre-programmed firmware on EM6812. The firmware runs several demos to show EM6121/26 performance.

Different configurations can be set by jumpers (I2C address, Serial mode, power supply …)

A joystick allows starting and setting up of the demo show.

The EM6121/26 demo kit contains LCD glass, PCB with EM6121/26 and EM6812.

All the latest documentation versions are published on the EM Microelectronic website www.emmicroelectronic.com

Features

- Character / Graphic LCD glass (STN Grey Reflective Positive Mode)
- 4 axis joystick with push button
- 3V Lithium battery
- RTC EM3027 TSSOP8
- 32 kHz oscillator
- 5 pin connector for microcontroller programming
- PCB equipped with EM6812 TSSOP24
- All Commons and segments are outputted on connector
- ROHS compliant

Ordering Information

Description	Part Number
EM6121 Demo kit	EMDB6121+
EM6126 Demo kit	EMDB6126+

A COMPANY OF THE SWATCH GROUP

EM6121 Quick Start

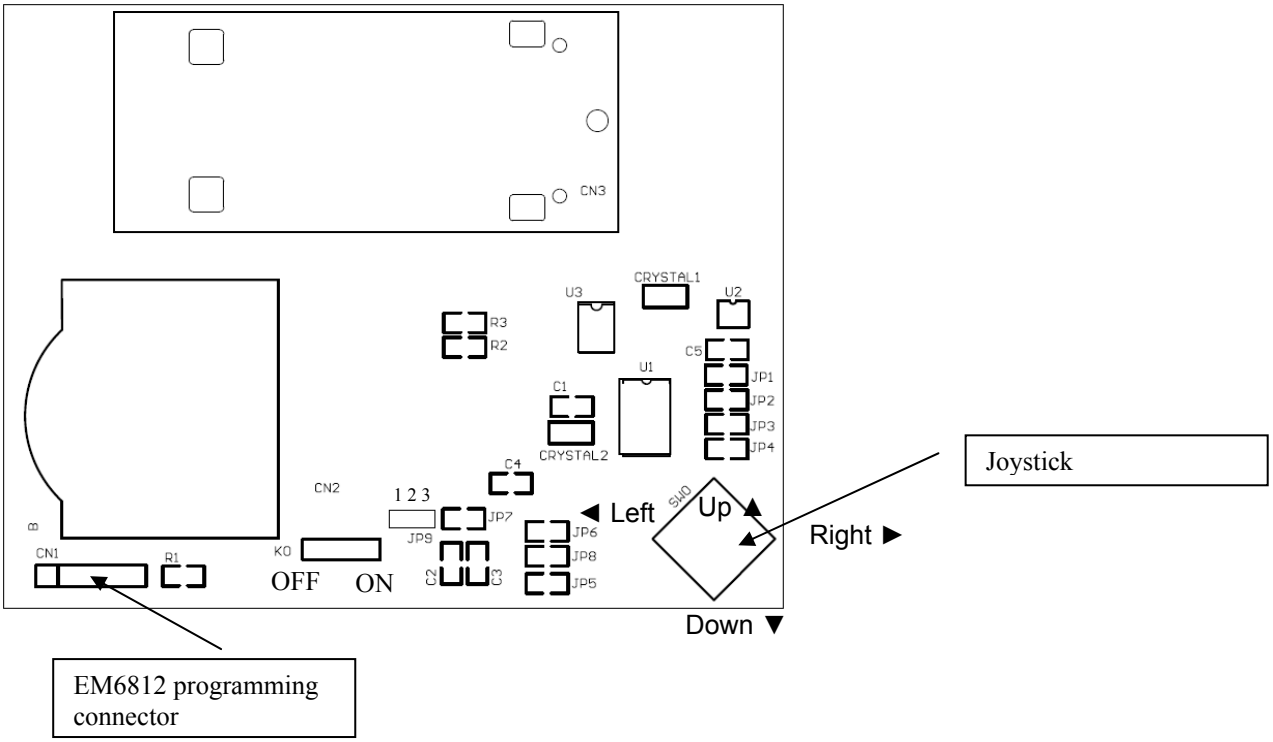
Joystick : Down ▼ Up ▲ Left ◄ Right ►

Display		Actions		
* EM6121 Demo *				
▼ ▲				
VLCD	◄►	Adjust VLCD	▼ ▲	
▼ ▲				
FONT	◄►	Display ROM font content (16 characters displayed)	▼ ▲	Display ROM Font
▼ ▲				
ICONS	◄►	Display Icons	▲	Icons Off
			▼	Icons On
▼ ▲				
INV VIDEO	◄►	Inverse video	▲	Inversed
			▼	Normal
▼ ▲				
CHECKER	◄►	Checker	▲	Checker
			▼	Normal
▼ ▲				
Double Line	◄►	Double Line	▲	Double line
			▼	Normal line
▼ ▲				
Version 100				

EM6126 Qucik Start

Display		Actions	
1	**Enter**	Checker / Normal	
◄►			
2	**Enter**	Adjust VLCD	▼ ▲
◄►			
3	**Enter**	Inverse/normal video	
◄►			
4	**Enter**	Display Small Picture	

Settings

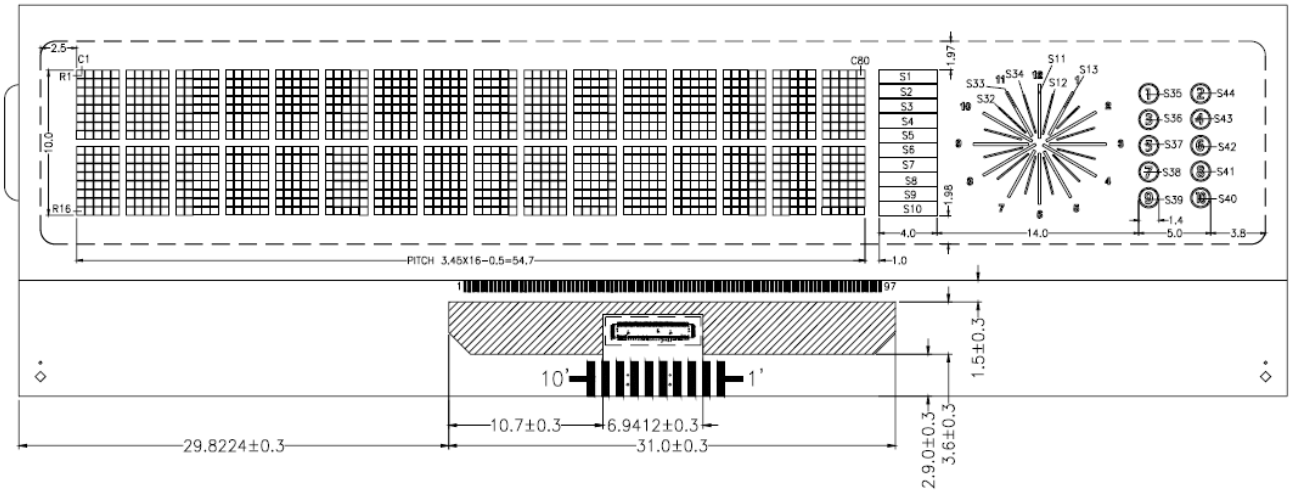


Jumper		Description		Default
		Open	Close	
JP1	CS	External host	Chip Select (CS) connected to EM6812 (PB3)	Close
JP2	RES	External host	RES connected to EM6812 (PB2)	Close
JP3	SCL	External host	SCL is generated by EM6812 (PB1)	Close
JP4	SDA	External host	SDA is generated by EM6812 (PB0)	Close
JP5	VDDMICRO	External power supply	Battery power supply selected	Close
JP6	VHV	External power supply	Battery power supply selected	Close
JP7	GNDLCD	External power supply	GNDLCD is connected to battery ground	Close
JP8	VDD	External power supply	Battery power supply selected	Close

Only for EM6121

Jumper		Description / Jumper position		Default
		1-2	2-3	
JP9	I	I2C protocol	3 wires interface	2-3

EM6121 LCD Mapping



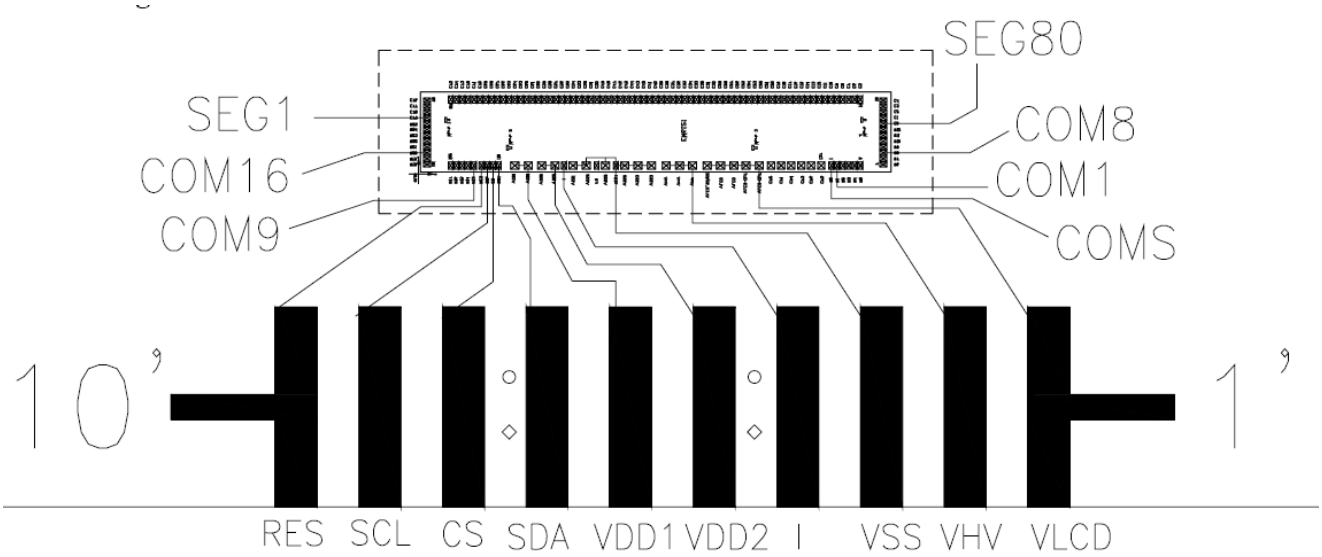
Pad #	PAD NAME	LCD	GLASS	COMS
1	**R0**	97	COMS	
2	**R1**	96	COM1	
3	**R2**	95	COM2	
4	**R3**	94	COM3	
5	**R4**	93	COM4	
6	**R5**	92	COM5	
7	**R6**	91	COM6	
8	**R7**	90	COM7	
9	**R8**	89	COM8	
10	**R9**	Not connected		
11	**R10**	Not connected		
12	**R11**	Not connected		
13	**R12**	Not connected		
14	**C0**	88	SEG80	S1
15	**C1**	87	SEG79	S2
16	**C2**	86	SEG78	S3
17	**C3**	85	SEG77	S4
18	**C4**	84	SEG76	S5
19	**C5**	83	SEG75	S6
20	**C6**	82	SEG74	S7
21	**C7**	81	SEG73	S8
22	**C8**	80	SEG72	S9
23	**C9**	79	SEG71	S10
24	**C10**	78	SEG70	10
25	**C11**	77	SEG69	9
26	**C12**	76	SEG68	8
27	**C13**	75	SEG67	S23
28	**C14**	74	SEG66	6
29	**C15**	73	SEG65	S24
30	**C16**	72	SEG64	S25
31	**C17**	71	SEG63	7
32	**C18**	70	SEG62	S26
33	**C19**	69	SEG61	S27
34	**C20**	68	SEG60	S28
35	**C21**	67	SEG59	S29
36	**C22**	66	SEG58	S30
37	**C23**	65	SEG57	S31
38	**C24**	64	SEG56	S32
39	**C25**	63	SEG55	11

Pad #	PAD NAME	LCD	GLASS	COMS
40	**C26**	62	SEG54	S33
41	**C27**	61	SEG53	S34
42	**C28**	60	SEG52	12
43	**C29**	59	SEG51	S11
44	**C30**	58	SEG50	S12
45	**C31**	57	SEG49	S13
46	**C32**	56	SEG48	1
47	**C33**	55	SEG47	S14
48	**C34**	54	SEG46	S15
49	**C35**	53	SEG45	2
50	**C36**	52	SEG44	S16
51	**C37**	51	SEG43	S17
52	**C38**	50	SEG42	3
53	**C39**	49	SEG41	S18
54	**C40**	48	SEG40	S19
55	**C41**	47	SEG39	4
56	**C42**	46	SEG38	S20
57	**C43**	45	SEG37	S21
58	**C44**	44	SEG36	5
59	**C45**	43	SEG35	S22
60	**C46**	42	SEG34	S35
61	**C47**	41	SEG33	S36
62	**C48**	40	SEG32	S37
63	**C49**	39	SEG31	S38
64	**C50**	38	SEG30	S39
65	**C51**	37	SEG29	S40
66	**C52**	36	SEG28	S41
67	**C53**	35	SEG27	S44
68	**C54**	34	SEG26	S43
69	**C55**	33	SEG25	S42
70	**C56**	32	SEG24	
71	**C57**	31	SEG23	
72	**C58**	30	SEG22	
73	**C59**	29	SEG21	
74	**C60**	28	SEG20	
75	**C61**	27	SEG19	
76	**C62**	26	SEG18	
77	**C63**	25	SEG17	
78	**C64**	24	SEG16	

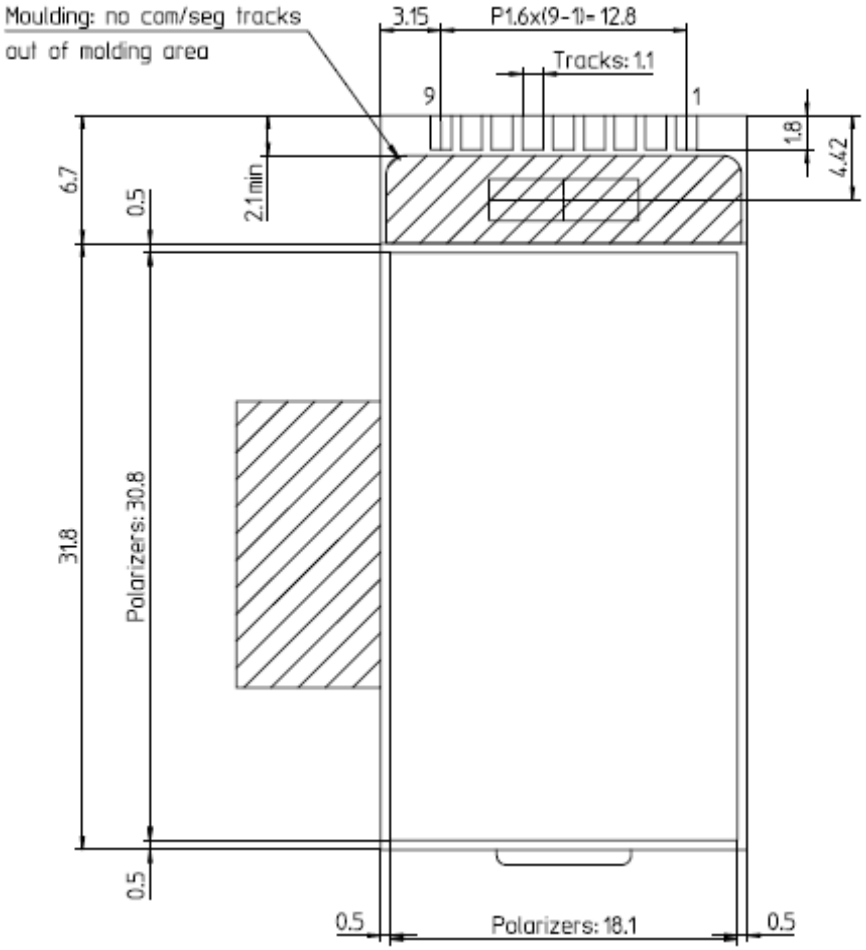
Pad #	PAD NAME	LCD	GLASS	COMS
79	**C65**	23	SEG15	
80	**C66**	22	SEG14	
81	**C67**	21	SEG13	
82	**C68**	20	SEG12	
83	**C69**	19	SEG11	
84	**C70**	18	SEG10	
85	**C71**	17	SEG9	
86	**C72**	16	SEG8	
87	**C73**	15	SEG7	
88	**C74**	14	SEG6	
89	**C75**	13	SEG5	
90	**C76**	12	SEG4	
91	**C77**	11	SEG3	
92	**C78**	10	SEG2	
93	**C79**	9	SEG1	
94	**R25**	Not connected		
95	**R24**	Not connected		
96	**R23**	Not connected		
97	**R22**	Not connected		
98	**R21**	Not connected		
99	**R20**	8	COM16	
100	**R19**	7	COM15	
101	**R18**	6	COM14	
102	**R17**	5	COM13	
103	**R16**	4	COM12	
104	**R15**	3	COM11	
105	**R14**	2	COM10	
106	**R13**	1	COM9	
107	**RES**	RES		
108	**SCL**	SCL		
109	**CS**	CS		

Pad #	PAD NAME	LCD	GLASS	COMS
110	**SDA**	SDA		
111	**VDD1**	VDD1		
112	**VDD1**	VDD1		
113	**VDD2 (alim_ref)**	VDD2		
114	**VDD2 (alim)**	VDD2		
115	**I**	I		
116	**VSS1**	VSS		
117	**VSS2 (VSS_buffers)**	VSS		
118	**FR**	Not connected		
119	**VSS2 (VSS_osc)**	VSS		
120	**TEST**	VSS		
121	**VSS2 (VSS_ref)**	VSS		
122	**VSS3 (masse)**	VSS		
123	**VSS3 (masse)**	VSS		
124	**VHV**	VHV		
125	**VHV**	VHV		
126	**VPP**	VHV		
127	**VLCD_SENSE**	VLCD		
128	**VLCD**	VLCD		
129	**VLCD**	VLCD		
130	**VLCD_OUT**	VLCD		
131	**VLCD_OUT**	VLCD		
132	**CP2**	Not connected		
133	**CP1**	Not connected		
134	**CP4**	Not connected		
135	**CP3**	Not connected		
136	**CP6**	Not connected		
137	**CP5**	Not connected		

EM6121 Configuration

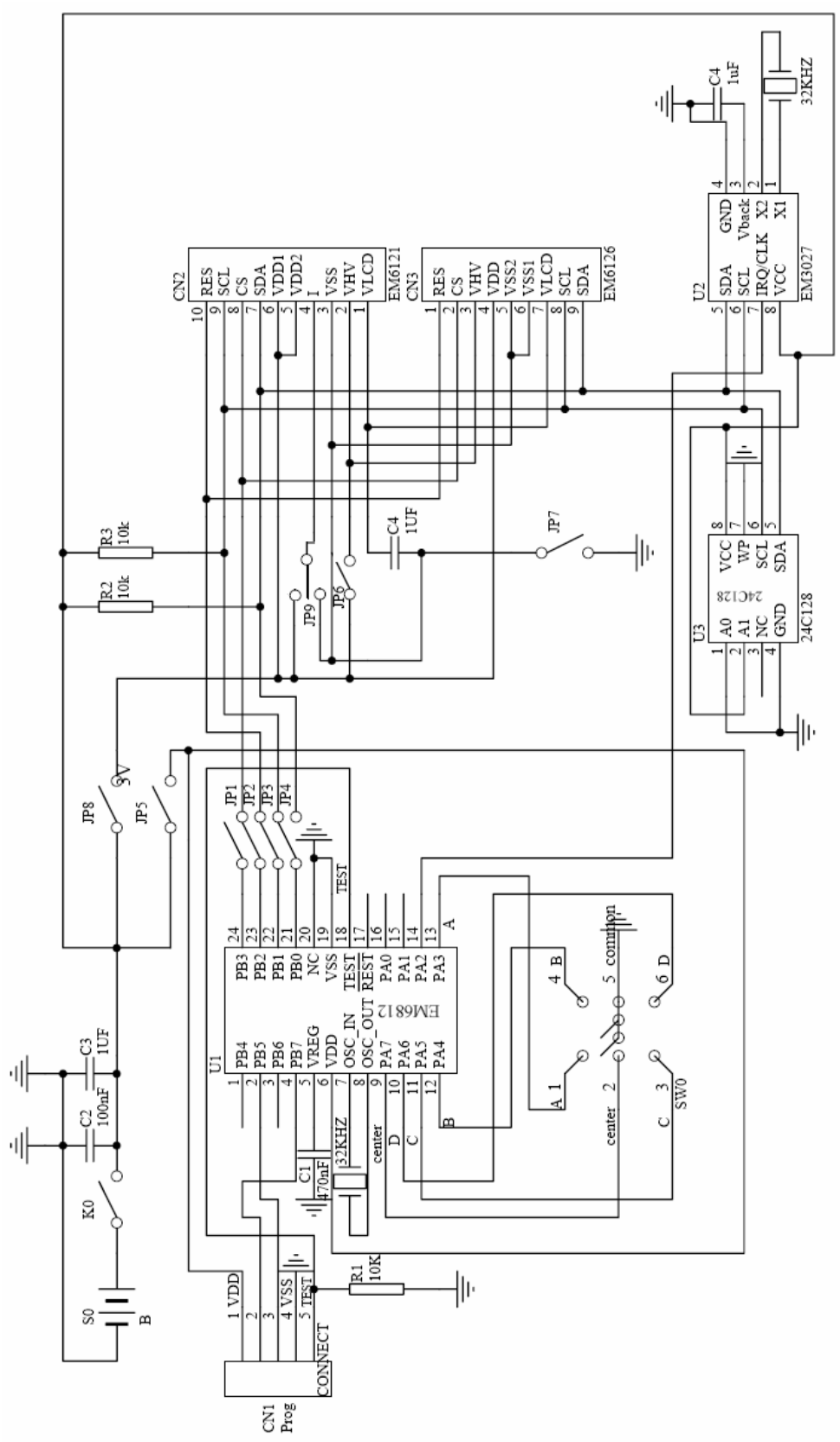


EM6126 Configuration



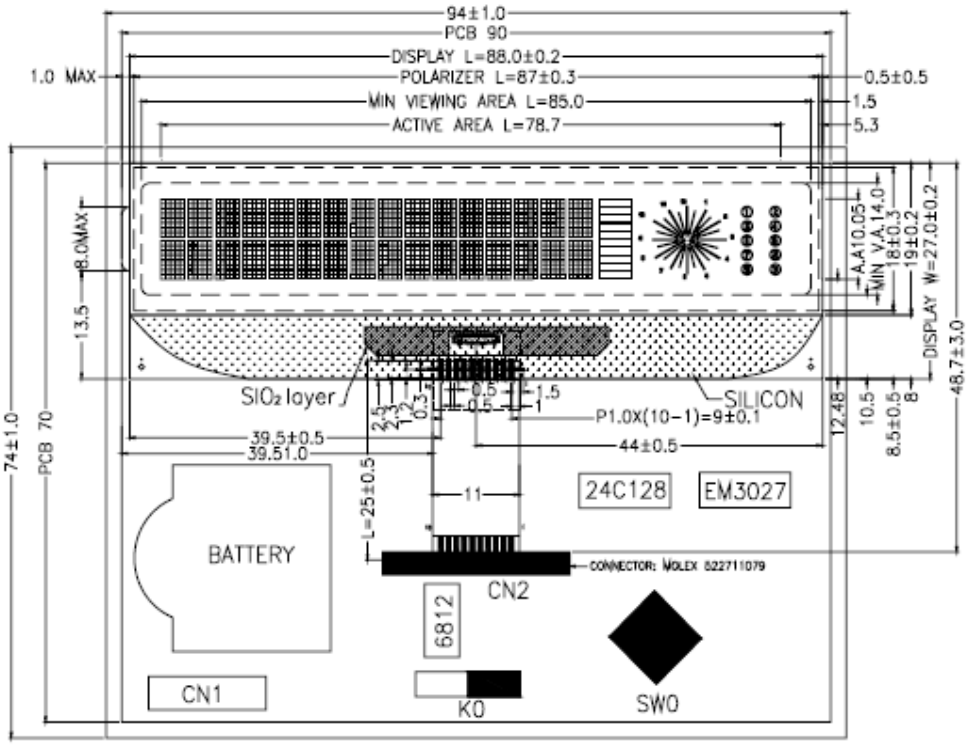
PIN I/O	
1	RES
2	CS
3	VHV
4	VDD
5	VSS2
6	VSS1
7	VLCD
8	SCL
9	SDA

Schematic

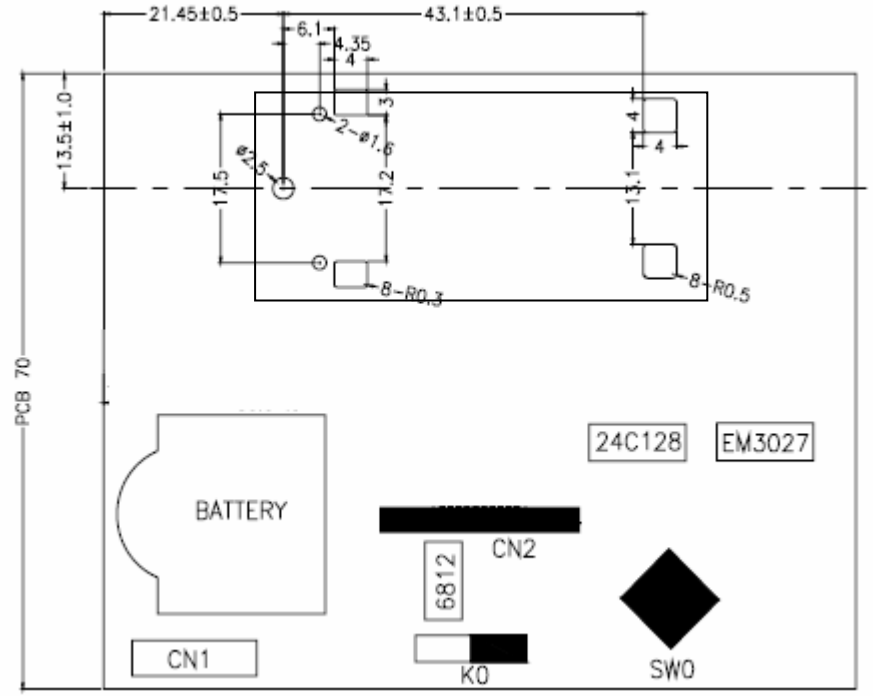


Mechanical Dimension

EMDB6121


94±1.0
PCB 90
DISPLAY L=88.0±0.2
POLARIZER L=87±0.3
MIN VIEWING AREA L=85.0
ACTIVE AREA L=78.7
1.0 MAX
0.5±0.5
1.5
5.3
8.0MAX
13.5
74±1.0
PCB 70
SiO2 layer
SILICON
P1.0x(10-1)=9±0.1
39.5±0.5
39.51.0
44±0.5
48.7±3.0
DISPLAY W=27.0±0.2
11
L=25±0.5
24C128
EM3027
BATTERY
CONNECTOR: MOLEX 022711079
CN2
6812
CN1
K0
SW0

EMDB6126


21.45±0.5
43.1±0.5
6.1
4.35
13.5±1.0
2-ø1.6
8-R0.3
8-R0.5
PCB 70
24C128
EM3027
BATTERY
CN2
6812
CN1
K0
SW0

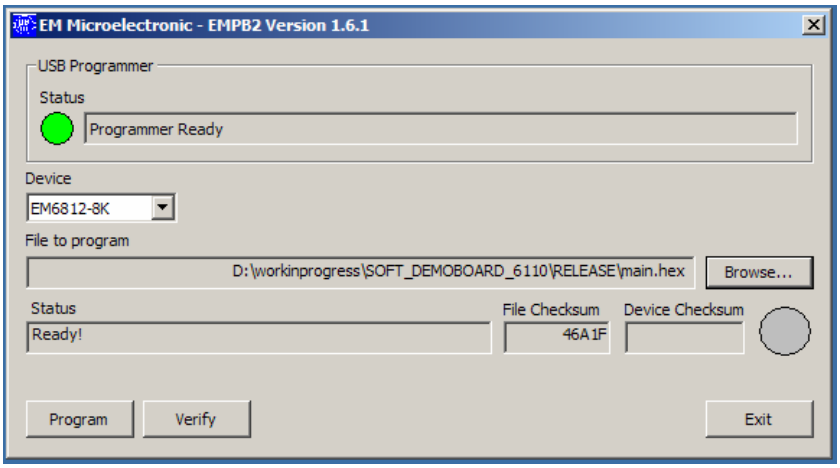
Bill of Materials

N°	Description	Reference
U1	8 bit Microcontroller	EM6812 TSSP24
U2	RTC EM3027	EM3027
U3	EEPROM 24C128	AT24C128
B	Renata Lithium Battery	CR2450N
S0	Renata Battery holder	NL5077
SW0	Joystick + Push button	ALPS SKRHABE010
R1	Resistor	1K Ohms
XT1	Crystal 32kHz	Microcrystal
XT2	Crystal 32kHz	Microcrystal
C1	Capacitor	470nF
C2	Capacitor	100nF
C3	Capacitor	1uF
C4	Capacitor	1uF
C5	Capacitor	1uF
K0	ON/OFF Switch	
JP1-JP9	Jumpers	

Programming

EMPB2 programmer

EMPB2 Connector	CN1	Description
1	1	VDD
6	2	PB7
8	3	PB5
7	4	VSS
10	5	TEST



1- Connect USB cable on PC
2- Connect Programming cable on target (CN1)
3- Execute EMPB2
4- Choose EM6812-8K microcontroller
5- Browse main.hex
6- Program Microcontroller
7- Remove Programming cable
8- Power ON