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CMOS 16-BIT SINGLE CHIP MICROCONTROLLER

S5U1C17M13T1 Manual

(Software Evaluation Tool for S1C17M13)

SEIKO EPSON CORPORATION

Rev.2.0

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1. This evaluation board/kit or development tool is designed for use for engineering evaluation, demonstration, or development purposes only. Do not use it for other purposes. It is not intended to meet the requirements of design for finished products.
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NOTICE

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1. Outline

S5U1C17M13T1 (SVT17M13: Software Evaluation Tool for S1C17M13) is an evaluation board for the Seiko Epson single-chip microcontroller S1C17M13. The parts shown below are mounted on this board.

1) S1C17M13 (MCU)
2) Seven-segment red LED x 5
3) SMD orange LED x 3
4) Infrared LED
5) Tact switch x 12
6) EEPROM (128K bits)
7) Potentiometer (for evaluating A/D converter)
8) USB-serial bridge chip
9) USB interface connector
10) Debug connector

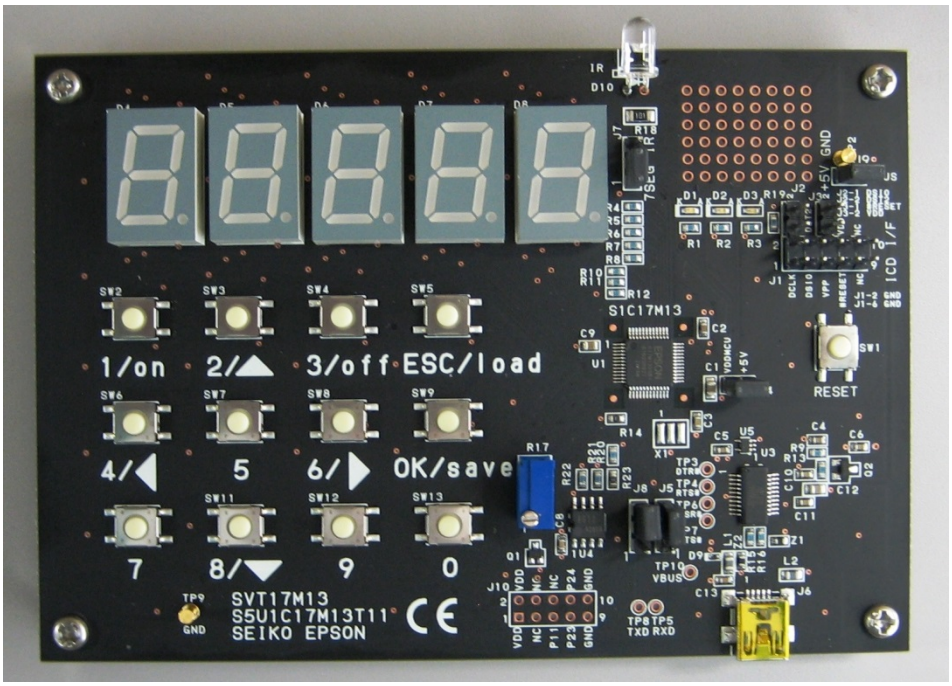


Figure 1.1 SVT17M13 External View

* Operating temperature range: 5°C to 40°C

Also this board comes with the following:

1) Flat-head screwdriver (for adjusting the potentiometer)
2) L-shaped USB cable

2. How to Use SVT17M13

2.1 To Perform Free-Run

1) Make sure that a jumper plug is inserted to jumper switches J4 (VDDMCU) and J9 (VBUS) for setting the power supply for the S1C17M13 (MCU).
2) Connect between the SVT17M13 and the PC using a mini USB cable. The SVT17M13 is powered by the USB power (+5 V) supplied from the PC.

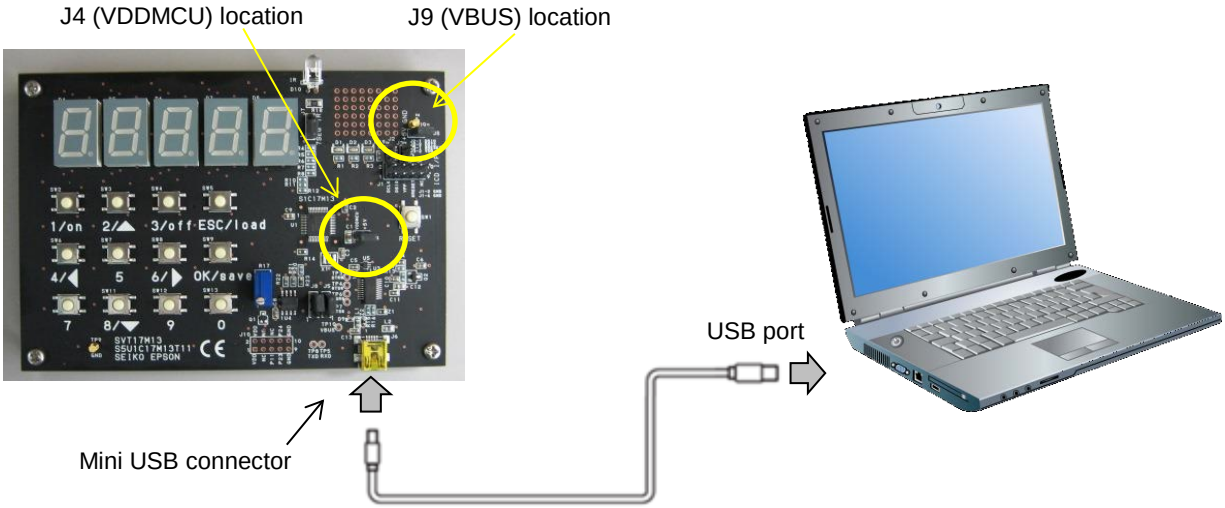


Figure 2.1 USB Connector Location and Connection with PC

3) When the SVT17M13 is connected to the PC for the first time, the driver for the USB-serial bridge chip mounted on this board will automatically be installed to the PC. Wait for the installation to complete.

Note!

The SVT17M13 operates with a +5 V power supply. Supply power to this board by connecting to a PC or using a USB AC adapter.

2.2 To Debug Software

1) Perform the same operations as in Section 2.1 to supply +5 V power to the S1C17M13 (MCU) from the PC.
2) Connect the SVT17M13 to a Seiko Epson emulator, ICDmini Ver. 2 or ICDmini Ver. 3, as shown below.

Setting and connecting ICDmini Ver. 2

Set the DIP switch on the side of ICDmini Ver. 2 as in the figure below.

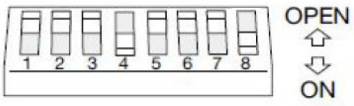


Figure 2.2 DIP Switch on ICDmini Ver. 2

- SW4 for selecting the DSIO signal level: ON (Select the voltage input from the target.)
- SW8 for selecting the flash programming voltage output: ON (Use the flash programming voltage output.)
- Other switches: OPEN

Connect the SVT17M13 to ICDmini Ver. 2 as in the figure below.

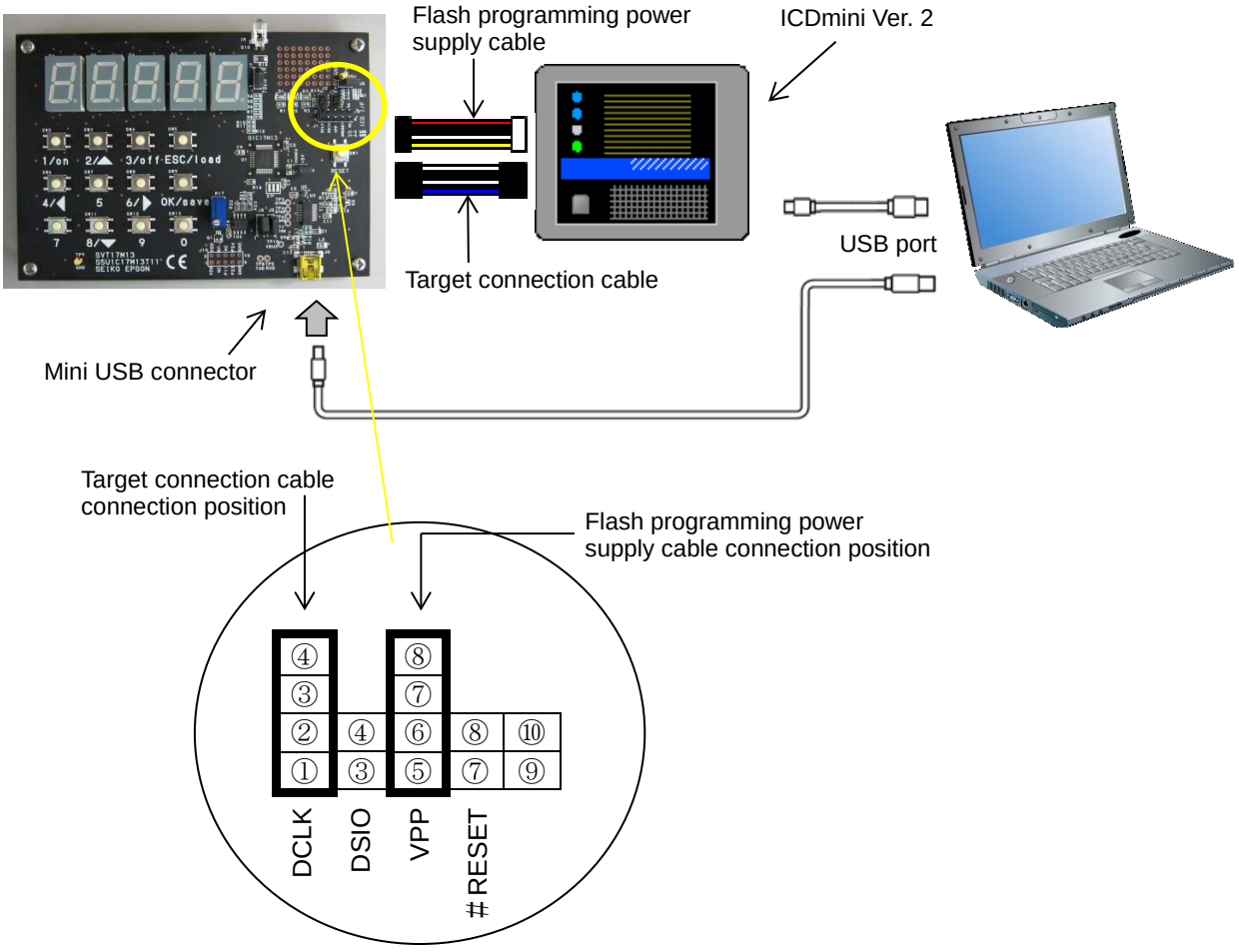


Figure 2.3 Connection Example Between SVT17M13 and ICDmini Ver. 2

Table 2.1 Target Connection Cable Connector Pin Assignment Table

Target connection cable connector (4 pins)			
No.	Pin name	I/O	Pin function
1	DCLK	I	Debug clock signal input
2	GND	–	Power supply (GND)
3	DSIO	I/O	Serial communication signal input/output for debugging
4	DST2	I	Debug status signal input

Table 2.2 Flash Programming Power Supply Cable Connector Pin Assignment Table

Flash programming power supply cable connector (4 pins)			
No.	Pin name	I/O	Pin function
1	FLASH_VCC_OUT	O	Flash programming voltage output
2	GND	–	Power supply (GND)
3	TARGET_RST_OUT	O	Target reset signal output
4	TARGET_VCC_IN	I	Target voltage input

Connecting ICDmini Ver. 3

Connect the SVT17M13 to ICDmini Ver. 3 as in the figure below.

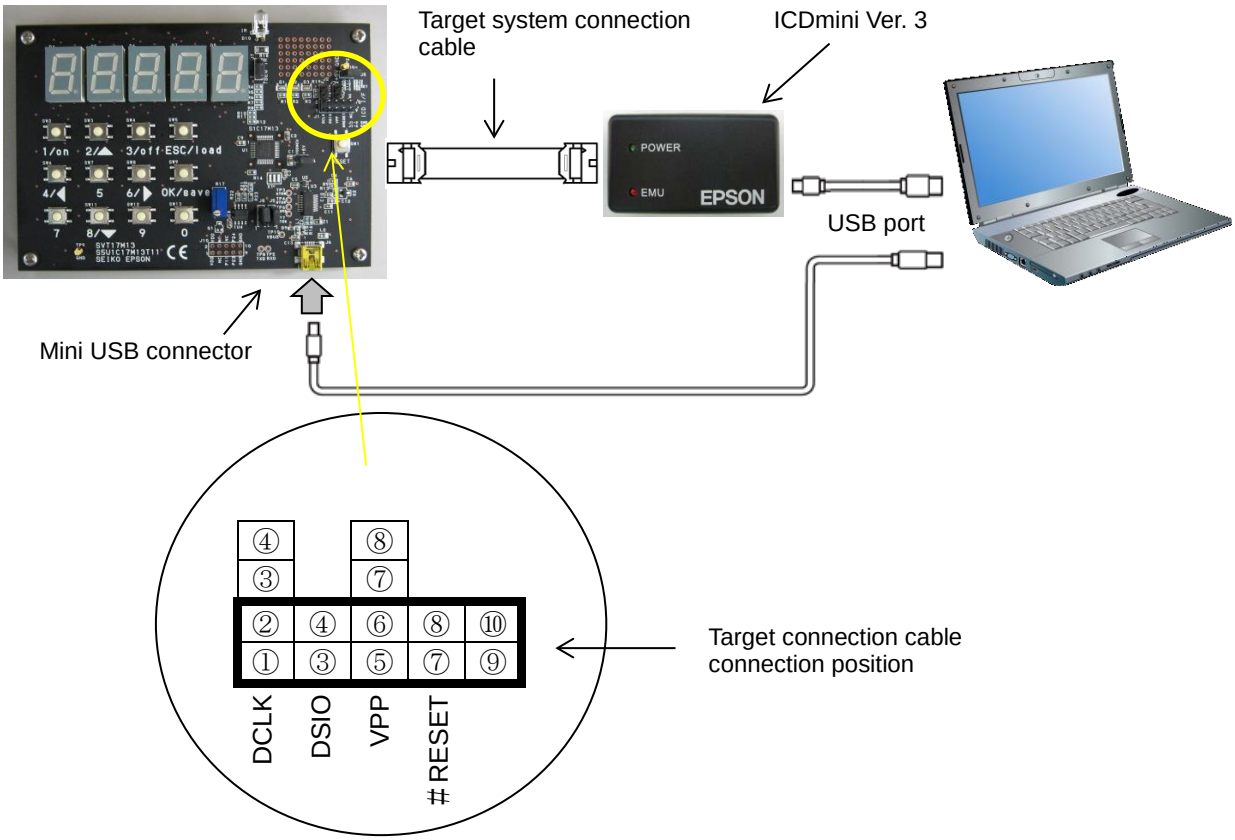
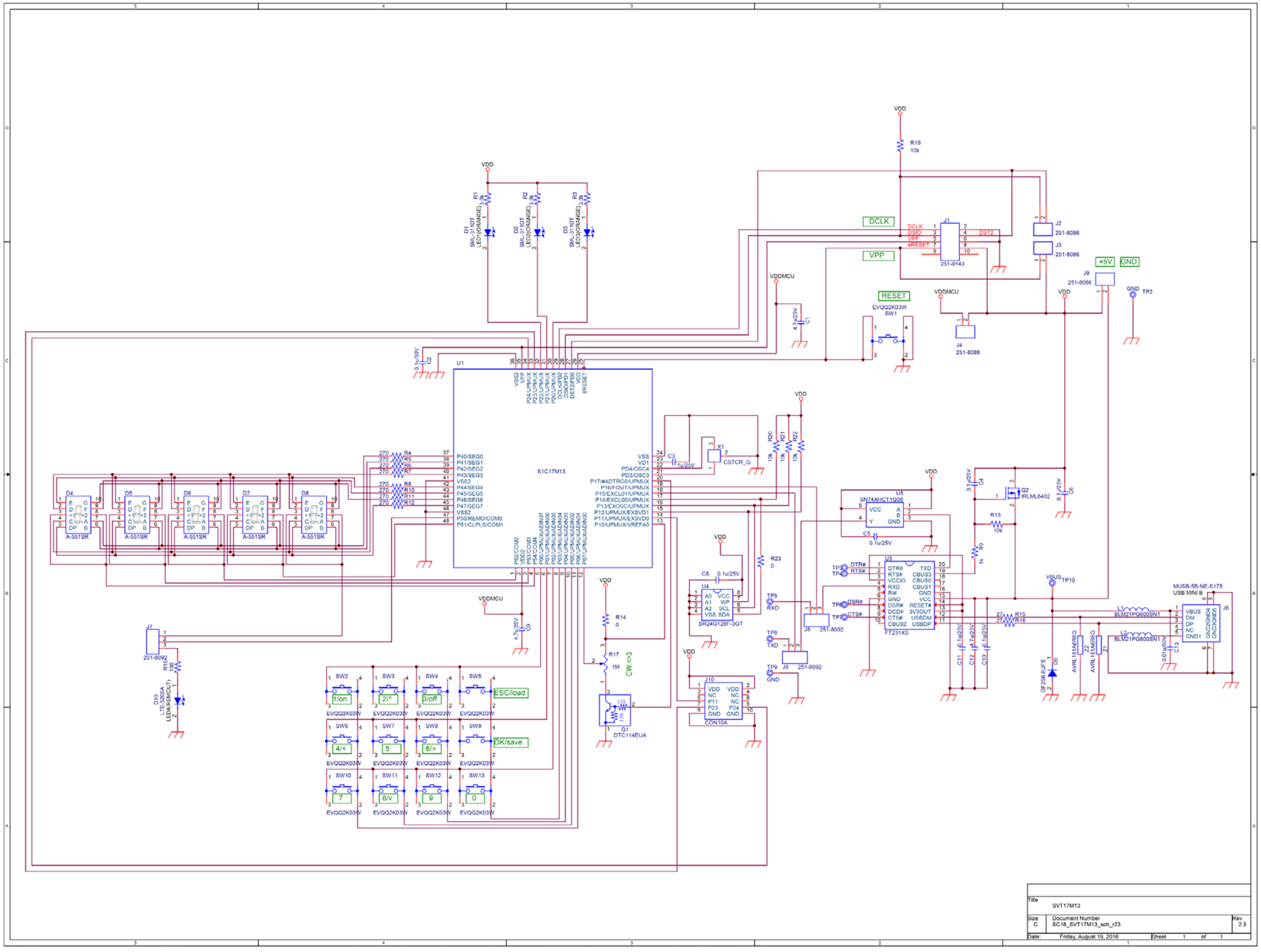


Figure 2.4 Connection Example Between SVT17M13 and ICDmini Ver. 3

Table 2.3 Target System Connection Cable Connector Pin Assignment Table

Target system connection cable connector (10 pins)			
No	Pin name	I/O	Pin function
1	DCLK	I	Debug clock signal input
2	GND	–	Power supply (GND)
3	DSIO	I/O	Serial communication signal input/output for debugging
4	DST2	I	Debug status signal input
5	FLASH_VCC_OUT	–	Flash programming voltage output
6	GND	–	Ground
7	TARGET_RST_OUT	O	Target system reset signal output
8	TARGET_VCC_IN	–	Target voltage input
9	VCC3.3V	–	Power supply (3.3 V). Not connected on this board.
10	N.C	–	Unused

Appendix A Circuit Diagram



Appendix B Parts List

(Mounted parts)

No.	Location	Name	Product number	Specification	Qty	Manufacture
1	C1, C9	Chip Capacitor	GRM21BB31E475K	2012, 4.7 µ/25 V	2	muRata
2	C2	Chip Capacitor	GRM188B31H104K	1608, 0.1 µ/50 V	1	muRata
3	C3	Chip Capacitor	GRM188B31E105K	1608, 1 µ/25 V	1	muRata
4	C4, C5, C6, C8, C10, C11	Chip Capacitor	GRM188B11E104K	1608, 0.1 µ/25 V	6	muRata
5	C12	Chip Capacitor	GRM21BB31E475K	2012, 4.7 µ/25 V	1	muRata
6	C13	Chip Capacitor	GRM188B11H103K	1608, 0.01 µ/50 V	1	muRata
7	D1, D2, D3	LED	SML-311DTT86	1608, Orange	3	ROHM
8	D4, D5, D6, D7, D8	LED	A-551SR	7-segment	5	PARA Light
9	D9	Protection diode	DF2S6.8UFS, L3M	SOD-923	1	Toshiba
10	D10	LED	LTE-5208A	Infrared	1	LITEON
11	J1	Pin header	251-8143 (W82110T3825RC)	10 pins	1	RS components
12	J2, J3, J4, J9	Pin header	251-8086 (W81102T3825RC)	2 pins	4	RS components
13	J5, J7, J8	Pin header	251-8092 (W81103T3825RC)	3 pins	3	RS components
14	J6	USB connector	MUSB-5B-NE-S175	Mini USB	1	Akizuki
15	J10	Terminal	CON10A		0	Unmounted
16	L1, L2	Chip bead	BLM21PG600SN1D	2012	2	muRata
17	Q1	Digital transistor	DTC114EUAT106	Nch, SOT-323	1	ROHM
18	Q2	MOSFET	IRLML6402TRPBF	Pch, SOT-23	1	IR
19	R1, R2, R3	Chip resistor	RK73H1JTTD3301F	1608, 3.3k	3	KOA
20	R4, R5, R6, R7, R8, R10, R11, R12	Chip resistor	RK73H1JTTD2700F	1608, 270	8	KOA
21	R9	Chip resistor	RK73H1JTTD1001F	1608, 1k	1	KOA
22	R13, R19, R20, R21, R22	Chip resistor	RK73H1JTTD1002F	1608, 10k	5	KOA
23	R14, R23	Chip resistor	RK73Z1JTTD	1608, 0	2	KOA
24	R15, R16	Chip resistor	RK73H1JTTD27R0F	1608, 27	2	KOA
25	R17	Potentiometer	CT94EW105	1M, 18-turn	1	COPAL
26	R18	Chip resistor	RK73B2BTTD101J	3216, 100	1	KOA
27	SW1, SW2, SW3, SW4, SW5, SW6, SW7, SW8, SW9, SW10, SW11, SW12, SW13	Tact switch	EVQQ2K03W	Push ON, Momentary	13	Panasonic
28	TP2, TP9	Terminal	GND	SST-2-1	2	Sunhayato
29	TP3	Terminal	DTR#		0	Unmounted
30	TP4	Terminal	RTS#		0	Unmounted
31	TP5	Terminal	RXD		0	Unmounted
32	TP6	Terminal	DSR#		0	Unmounted
33	TP7	Terminal	CTS#		0	Unmounted
34	TP8	Terminal	TXD		0	Unmounted
35	TP10	Terminal	VBUS		0	Unmounted
36	U1	MCU	S1C17M13	TQFP12-48pin	1	EPSON
37	U3	USB-232C bridge	FT231XS-R	SSOP-20	1	FTDI
38	U4	EEPROM	BR24G128F-3GTE2	128K bits, SOP8	1	ROHM
39	U5	Logic	SN74AHCT1G08DCKR	AND gate, TTL input, SC70	1	TI
40	X1	Ceramic resonator	CSTCR4M00G55-R0	4.000 MHz	0	muRata (Unmounted)
41	Z1, Z2	Chip varistor	AVRL161A6R8GTA	1608	2	TDK

Appendix B Parts List

(Installed parts)

No.	Location	Name	Product number	Specification	Qty	Manufacture
1	J4, J5, J7, J8, J9	Jumper plug	251-8503 (W8010T50RC)		5	RS components
2	---	Spacer	ASB-311E	M3, L = 11 mm	4	Hirosugi-Keiki
3	---	Screw	U-0305	M3	4	Hirosugi-Keiki

(Accessories)

No.	Location	Name	Product number	Specification	Qty	Manufacture
1	---	Mini USB conversion cable	USB2HABM3LA	90 cm Left angle mini USB extension cable, USB A male to USB Mini-B male	1	StarTech.com
2	---	Micro screwdriver	D-67	Flat head	1	HOZAN

Note !

Parts are subject to change without notice.

Revision History

Attachment-1

Rev. No.	Date	Page	Category	Contents
Rev 2.0	2017/06/01	All	New	New establishment

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