

CMOS 16-BIT SINGLE CHIP MICROCONTROLLER  
**S5U1C17M13T1 Manual**  
(Software Evaluation Tool for S1C17M13)

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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

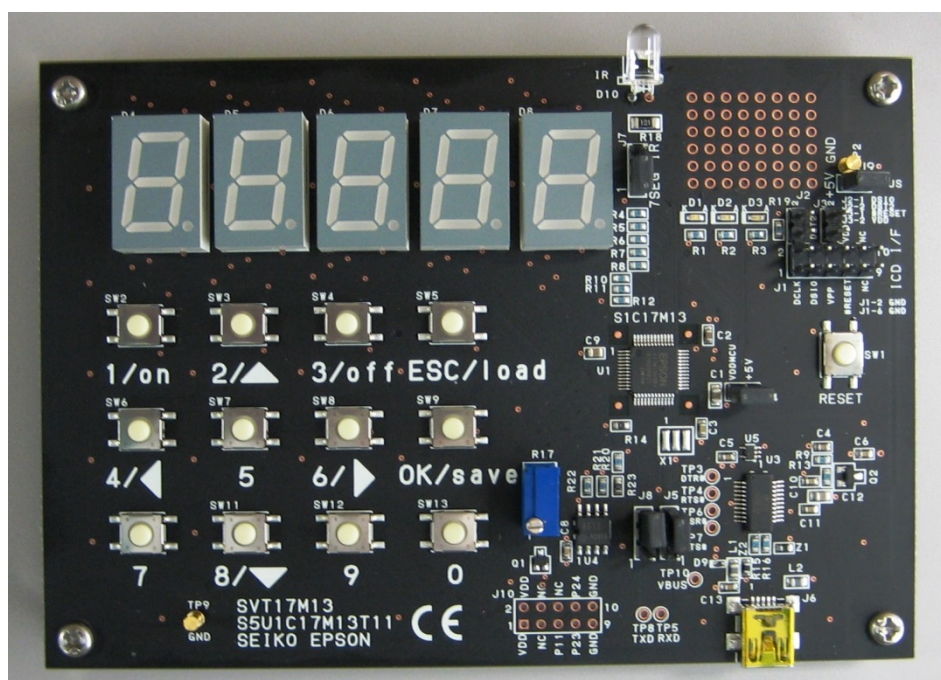


Figure 1.1 SVT17M13 External View

\* 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

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### 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.

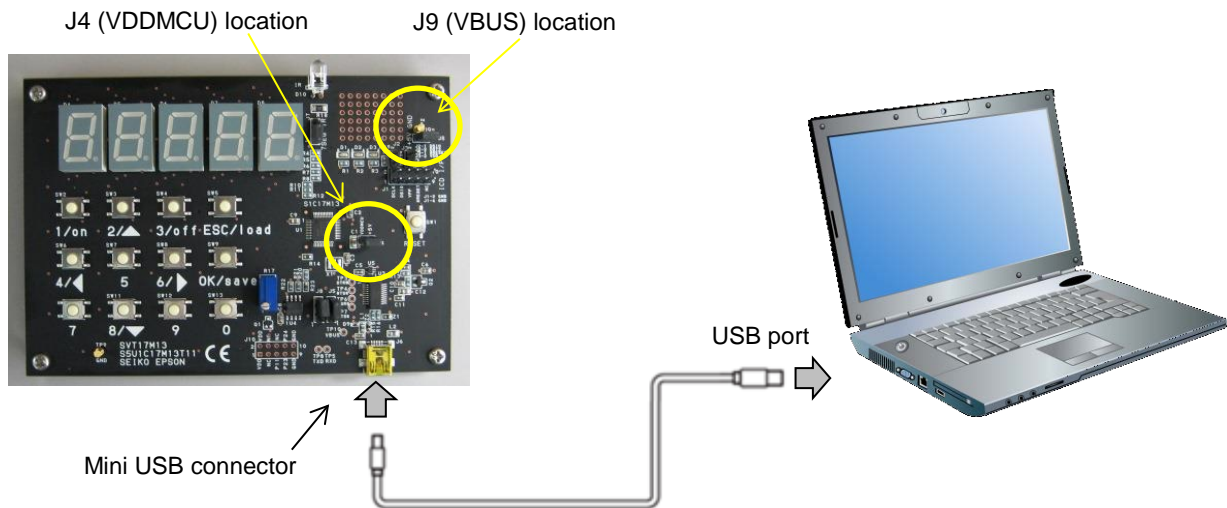


Figure 2.1 USB Connector Location and Connection with PC

- 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.

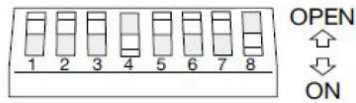


Figure 2.2 DIP Switch on ICDmini Ver. 2

- 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.

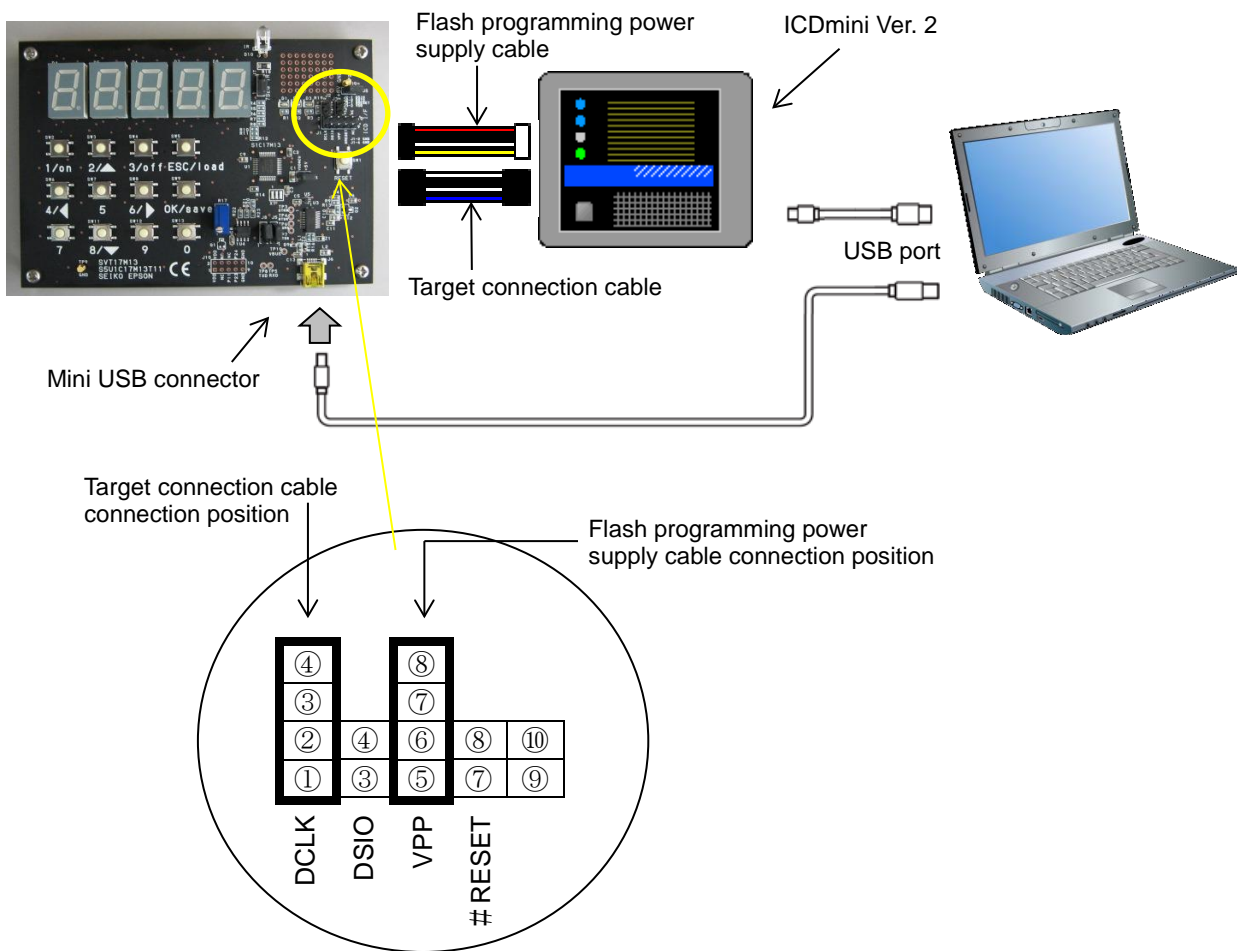


Figure 2.3 Connection Example Between SVT17M13 and ICDmini Ver. 2

## 2. How to Use SVT17M13

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.

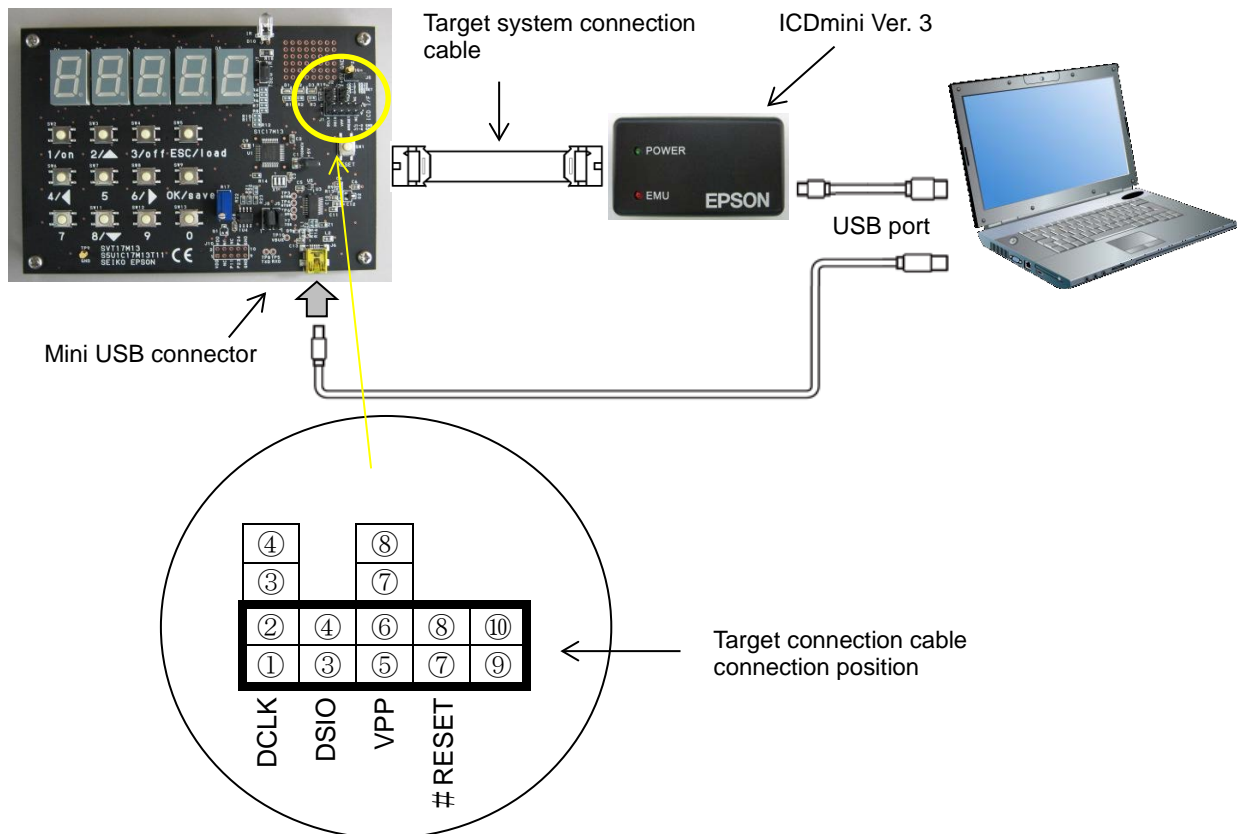


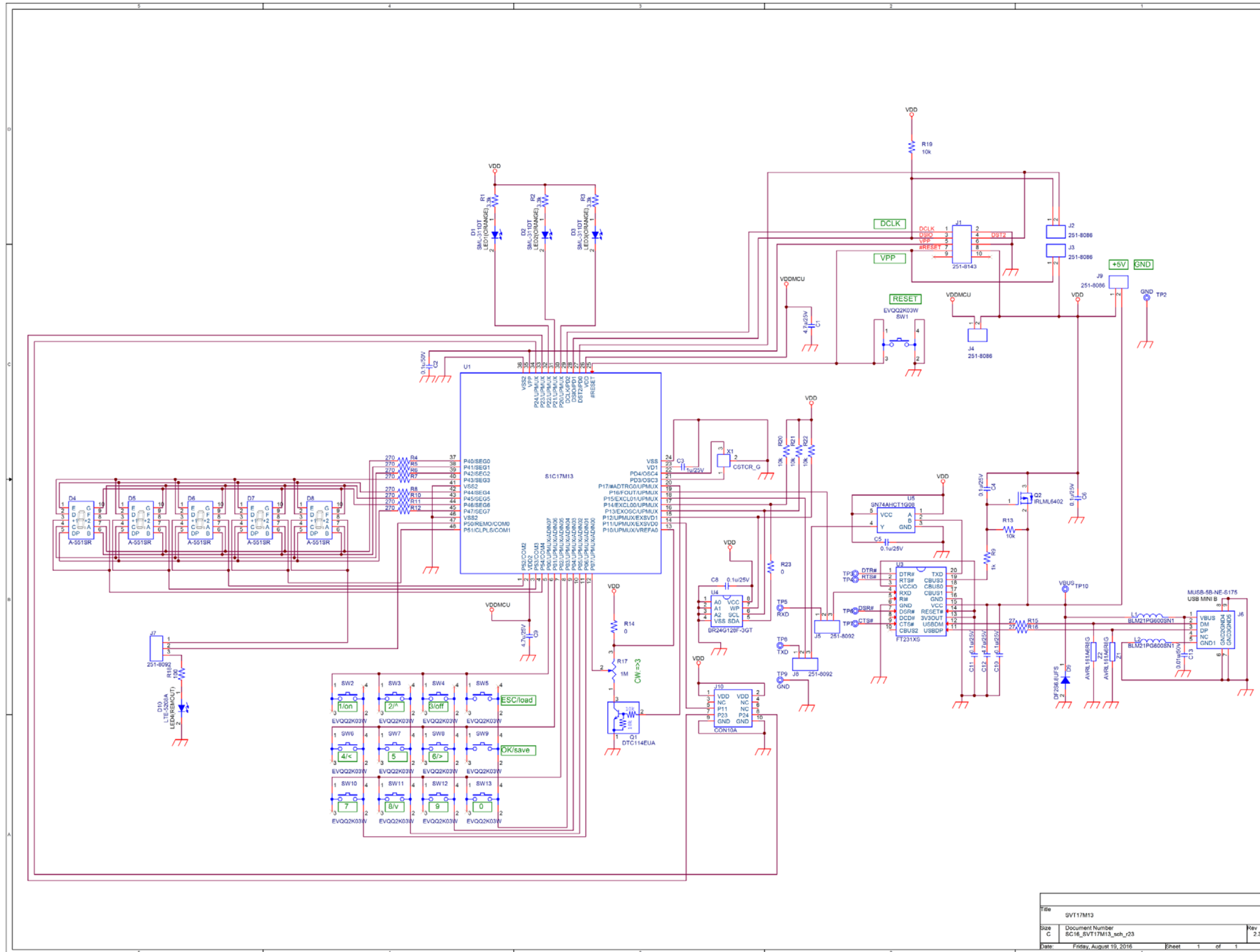
Figure 2.4 Connection Example Between SVT17M13 and ICDmini Ver. 3

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 $\mu$ /25 V	2	muRata
2	C2	Chip Capacitor	GRM188B31H104K	1608, 0.1 $\mu$ /50 V	1	muRata
3	C3	Chip Capacitor	GRM188B31E105K	1608, 1 $\mu$ /25 V	1	muRata
4	C4, C5, C6, C8, C10, C11	Chip Capacitor	GRM188B11E104K	1608, 0.1 $\mu$ /25 V	6	muRata
5	C12	Chip Capacitor	GRM21BB31E475K	2012, 4.7 $\mu$ /25 V	1	muRata
6	C13	Chip Capacitor	GRM188B11H103K	1608, 0.01 $\mu$ /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	RK73H1JTDD3301F	1608, 3.3k	3	KOA
20	R4, R5, R6, R7, R8, R10, R11, R12	Chip resistor	RK73H1JTDD2700F	1608, 270	8	KOA
21	R9	Chip resistor	RK73H1JTDD1001F	1608, 1k	1	KOA
22	R13, R19, R20, R21, R22	Chip resistor	RK73H1JTDD1002F	1608, 10k	5	KOA
23	R14, R23	Chip resistor	RK73Z1JTDD	1608, 0	2	KOA
24	R15, R16	Chip resistor	RK73H1JTDD27R0F	1608, 27	2	KOA
25	R17	Potentiometer	CT94EW105	1M, 18-turn	1	COPAL
26	R18	Chip resistor	RK73B2BTDD101J	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

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(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.



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