Ultimate KeyCoder® SH1101
Evaluation Kit EVK-SH1101
User-Programmable Keyboard Encoder

OVERVIEW

This is the data sheet for the EVK-SH1101, which is the evaluation kit for the Ultimate KeyCoder® SH1101.

This data sheet should be read in conjunction with the data sheet for the part itself, SH1101-DS.

The Ultimate KeyCoder® SH1101 is a keyboard encoder with a user-programmable keyboard matrix, and an interface that automatically detects a USB or PS/2 port and communicates with either. Because the IC can be programmed to scan virtually any keyboard, it combines the features of many encoders in one part.

CONTENTS OF THE EVALUATION KIT

1. Populated evaluation board - see the bill of materials (BOM) section for details

2. Fujitsu FKB7654 keyboard

3. Standard USB cable

4. USB-to-PS/2 converter cable

5. Ultimate KeyCoder® Designer program on media

6. Upgrader (matrix file uploader) program on media

7. Evaluation kit data sheet (this document)

8. SH1101 data sheet, document number SH1101-DS

USING THE EVALUATION KIT

1. Run the Ultimate KeyCoder® Designer program to create a binary matrix file to upload to the EEPROM. This program is documented in its own help file.

2. Run the Upgrader program to upload the binary matrix file to the EEPROM. This program is documented in its own readme.txt file and in the SH1101 data sheet. The evaluation board must be connected to the host system's USB port for upload. Jumper JP2 on the evaluation board must be closed to enable writing to the EEPROM.

3. Once the binary matrix file is stored in the EEPROM, the keyboard assembly can be used. The keyboard assembly can be connected to a host system's USB port or PS/2 port.

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FUJITSU FKB7654 KEYBOARD KEY LAYOUT

FUJITSU FKB7654 KEYBOARD PHYSICAL KEY-TO-MATRIX MAPPING (ROW, COLUMN)

STANDARD MATRIX FOR THE FKB7654 KEYBOARD

This table shows the standard 8-row by 16-column matrix for the Fujitsu FKB7654 keyboard, including the different key actions that occur when Num Lock (NL) is set or the Function (Fn) key is down.

The codes in this matrix are the same used by the SH1101 matrix creator program.

Rows \ Columns	C00	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15
R0			TAB		F1	8 N8	F6	F9	F10	F12	PAUSE	BACKSPACE		ARWR END		LSHIFT
NL																
Fn																
R1			CAPS LOCK		F2	9 N9	3	F5	F11	0 N*	=/+	ARWDN PAGE DOWN		ARWL HOME	LCTRL	
NL																
Fn																
R2			1		F3	I N5	4	6	F8	O N6	]/}	ARWUP PAGE UP		DELETE SYSRQ		RSHIFT
NL																
Fn																
R3			S		E	,/<	F	V	N	./> N.	\/|	'/"	RWIN	//? N/		
NL																
R4			Z	RALT	D	SPACE	C	B	H			APPLICATION				
R5		LWIN	A		W	K N2	R	G	Y			ENTER		;/: N+		
NL																
R6			Q		2	U N4	5	T	7 N7	L N3	[/{			P N-	RCTRL	
NL																
R7	FUNCTION		ESC	LALT	X	M N0	F4	F7	J N1	SCROL LOCK NUM LOCK	`/~	INSERT PRINT SCREEN		-/_		
NL																
Fn																

CREATING THE FKB7654 MATRIX FILE: TABLE 1

These pages show the matrix for the Fujitsu FKB7654 keyboard entered in the Ultimate KeyCoder®Designer program.

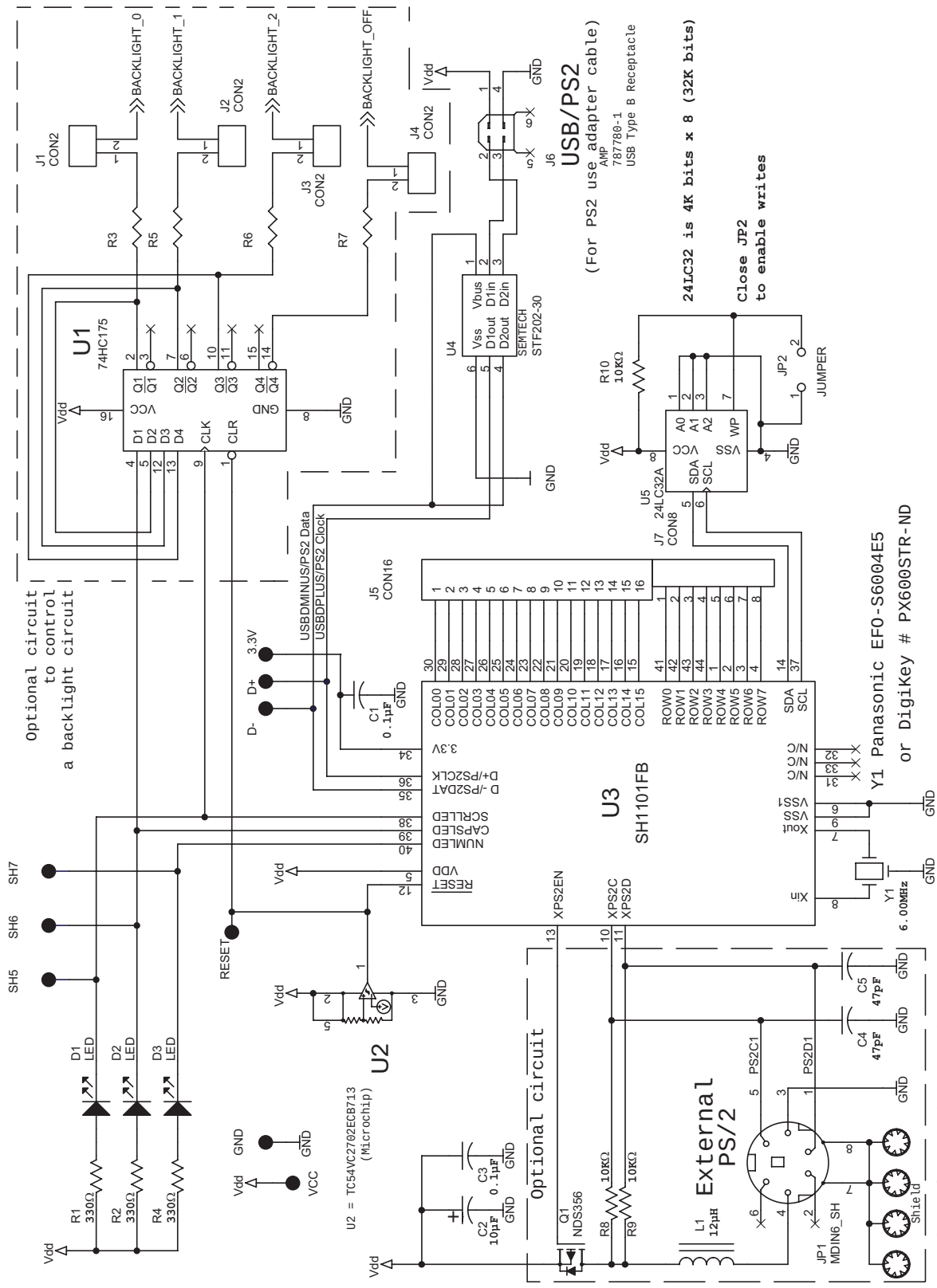
These are only examples. The look of the program may vary from the screens shown here.

CREATING THE FKB7654 MATRIX FILE: TABLE 2

CREATING THE FKB7654 MATRIX FILE: TABLE 3

CREATING THE FKB7654 MATRIX FILE: TABLE 4

SUGGESTED INTERFACING FOR THE ULTIMATE KEYCODER® SH1101FB



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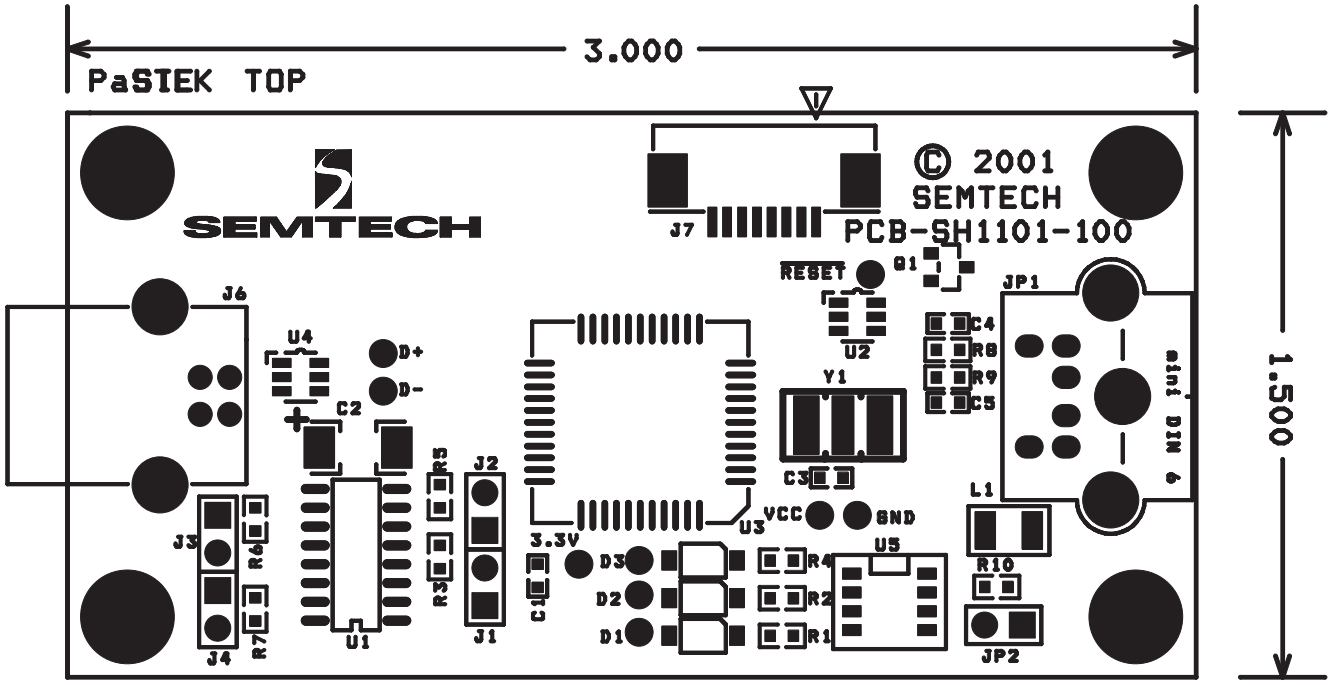
ULTIMATE KEYCODER® SCHEMATIC BILL OF MATERIALS

SH1101FB BOM

Reference	Quantity	Manufacturer	Part#	Value	Description
Board					
PCB	1	Semtech	PCB-SH1101-100		Ultimate KeyCoder® evaluation board
Cables					
CBL1	1	Lynn Products			USB to PS/2 adapter cable
CBL2	1	Semtech			USB cable, A to B, 6 feet
Keyboard					
KYBD	1	Fujitsu	FKB7654-5001		Laptop-style keyboard
Capacitors					
C1, C3	2	Generic	C0603-104-Z25	0.1µF	SMT 0603, 5% Z5U
C2	1	Generic	CC-106-T20	10µF	20V tantalum capacitor
C4, C5	2	Generic	C0805-470-X50	47pF	Ceramic chip capacitor 0805
Connectors					
J5	1	AMP	1-487952-6		16-pin FFC/FPC connector, SMT 1mm with lock, bottom contact
J6	1	AMP	787780-1		USB type B R/A receptacle assy. thru hole
J7	1	AMP	487952-8		8-pin FFC/FPC connector, SMT 1mm with lock, bottom contact
JP1	1	AMP	749231-1		Mini-DIN-6 receptacle, thru hole, right angle
JP2	1		929647-02-36-2		Cut to length, 2 pins straight header
ICs					
U2	1	Microchip	TC54VC4302ECB	4.3V	Voltage detector CMOS 4.3V SOT23
U3	1	Semtech	SH1101FB		Ultimate KeyCoder® IC
U4	1	Semtech	STF202-30		USB upstream filter and TVS
U5	1	Microchip	24LC32A/SN	32K	EEPROM LV 32K SO8
Inductor					
L1	1	Panasonic	ELJ-FA120KF2	12µH	Inductor SMT 1210(3225)
LEDs					
D1, D2, D3	3	Panasonic	LN1261CAL		Ultra bright red SMT LED
Resistors					
R1, R2, R4	3	Generic	R0805-152-TF-5	1.5KΩ	5% thick film resistor SMT 0805
R8, R9, R10	3	Generic	R0805-103-TF-5	10KΩ	5% thick film resistor SMT 0805
R11	1	Generic	R1206-562-TF-5	5.6KΩ	5% thick film resistor SMT 1206
Resonator					
Y1	1	Digi-Key	PX600SCT-ND	6.00MHz	6.00MHz ceramic resonator SMT with built-in load capacitors
Transistor					
Q1	1	Fairchild	NDS356P		MOSFET P-channel -20V 0.3Ω SOT23

Note: Auxiliary components are not shown.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PaSIEK TOP
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PCB-SH1101-100
J7
RESET
Q1
JP1
J6
U4
D+
D-
C2
C4
R8
R9
C5
Y1
C3
mini DIN 6
L1
J2
R5
J3
R6
R3
3.3V
C1
U3
VCC
GND
U5
D3
D2
D1
R4
R2
R1
R10
J4
R7
U1
J1
JP2
1.500

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