TP6615

TP6615 USB Keyboard With uTouch Widget

Application Note

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tenx technology inc.

CONTENTS

PRODUCT NAME

TP6615

TITLE

USB Keyboard With uTouch Widget

APPLICATION NOTE

1. Introduction to the product's functions

This product is a USB 8x16 keyboard device with 3 touch buttons with built-in tenx Widget software applications, to which Google and software gadgets shared on Internet can be added at will. These Widget software applications can be edited and saved into personalized tool bar to facilitate quick launch.

2. Introduction to software and hardware functions

The basic default functions on the planning tool bar in the hidden popup for the USB uTouch Widget application software： Windows Media Player, Email、Paint, Volume control, Recorder, tenx Inc. web page, System information, Timer clock, Calendar, Calculator, etc. Users can configure and edit relevant contents using function of the uTouch Widget application software and select the desired gadgets or execute programs through pressing and sliding on the touch control panel.

Toolbar is hidden

Toolbar is in display

2.1 Introduction to the editing function of the software

Right click on the mouse on the uTouch Widget icon on the Toolbar in the lower right corner of the computer operating system, and selection items related to editing will show up for the user to perform function setup as shown in the following figure:

(1) uTouch Add Widget function to facilitate adding new Widgets by the user.

(2) uTouch Widget Management function to facilitate managing and editing Widgets by the user.

(3) uTouch Widget Dockside function to facilitate setting up the display location of the Toolbar by the user; it provides up, down, left, right directions to choose from.

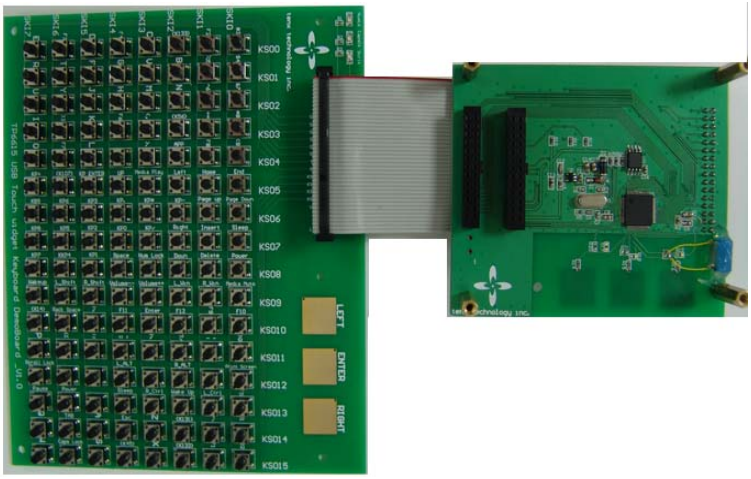
(4) uTouch Widget Settings function to facilitate setting the sensitivity of the USB capacitive touch device, the size of the toolbar icons, the rotational direction of the toolbar, and the rotation speed of the toolbar etc. by the user.

2.2 Introduction to **Demoboard** functions

(1) Support 8*16 matrix keyboard scanning.

(2) Support 2 capacitive touch buttons with matching uTouch Widget AP.

(3) DemoBoard prototype is shown in the following figure:



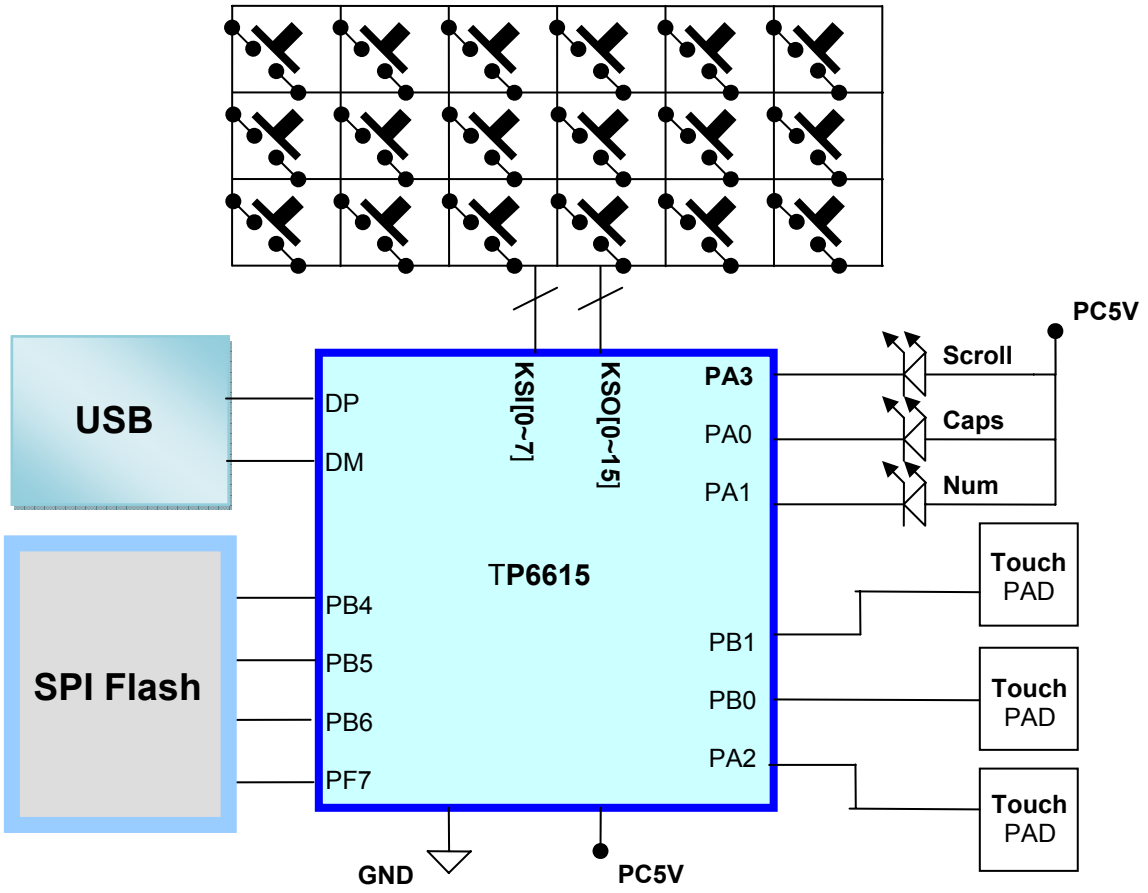
3. Notes for circuit design

(1). Please use the circuits proposed in the application circuit as the bases for circuit design。
(2). Place the layout of the added passive components as close to the IC as possible.
(3). 10-mil trace width is recommended for circuit design (excluding power traces, ground traces, and CLK traces).
(4). Keep trace widths at least 20 mils for power traces, ground traces, and CLK traces for circuit design。
(5). The area of PAD (touch copper foil) should be larger than 12 mm X 12 mm.
(6). The traces between PAD's should be placed on the central area of the PCB board as possible (but not right underneath PAD) or be far away from the edge of the PCB board to avoid malfunction.
(7). The length of TP[0] and TP[1] should be the same and the number of vias should be kept no more than 1 as possible so that the parasitic effect of TP[0] and TP[1] will be close.
(8). The conducting lines should be kept as far away to each other as possible; keep three trace widths minimum between them. In particular, stay away from high-frequency signal lines as well; do not run parallel to high-frequency signal lines, perpendicular at the most.
(9). The traces connecting PAD (induction foil) should be kept on a different Layout layer from PAD. They can be connected through one Via. The component should be kept on a different layer from PAD as well.
(10). DP, DM should run parallel, equal length, and trying to not to go through vias.
(11). FR4 1.6mm is recommended as the thickness of the PCB board.
(12). PCB board with large area copper pour is not recommended for to use with this product, it will reduce the variation amount of touch buttons.
(13). The thickness of dielectric must be 1mm.
(14). The dielectric should be stick on right next to the top of the touch copper foil (using adhesive) as tight as possible, best without air if possible.
(15). Keep the spacing between two PAD's (touch copper foil) to be 5mm.
(16). Please refer to Application Note "TM57FLA80 TouchKey PCB Layout Guide"

4. Keyboard matrix Table

		PC7	PC6	PC5	PC4	PC3	PC2	PC1	PC0
		KSI7	*KSI6*	*KSI5*	*KSI4*	*KSI3*	*KSI2*	*KSI1*	*KSI0*
PD0	*KSO0*	E	F3	D	F4	C	(K133)	F2	# 3
PD1	*KSO1*	R	T	F	G	V	B	% 5	$ 4
PD2	*KSO2*	U	Y	J	H	M	N	^ 6	& 7
PD3	*KSO3*	I	}]	K	F6	< ,	(K56)	+ =	* 8
PD4	*KSO4*	O	F7	L		> .	App	F8	(9
PD5	*KSO5*	KP +	(K107)	KP ENTER	Up	Media Play	Left	Home	End
PD6	*KSO6*	KB 9	KP 6	KP 3	KP .	KP *	KP -	Page Up	Page Down
PD7	*KSO7*	KP 8	KP 5	KP 2	KP 0	KP /	Right	Insert	Sleep
PE0	*KSO8*	KP 7	KP 4	KP 1	Space	Num Lock	Down	Delete	Power
PE1	*KSO9*	WakeUp	L_Shift	R_Shift	Volume--	Volume +	L_Win	R_Win	Media Mute
PE2	*KSO10*	(K14)	Back Space	| \	F11	Enter	F12	F9	F10
PE3	*KSO11*	P	{ [	: ;	" '	| \	? /	- -	) 0
PE4	*KSO12*	Scroll Lock			L_ALT		R_ALT		Print Screen
PE5	*KSO13*	Pause	Power		Sleep	R_Ctrl	Wake Up	L_Ctrl	F5
PE6	*Kso14/PA1*	Q	TAB	A	Esc	Z	(K131)	~ `	! 1
PE7	*Kso15/PA0*	W	Caps Lock	S	(K45)	X	(K132)	F1	@ 2

5. Circuit Application Selection



6. Application Circuit