WT6510

USB Keyboard Controller

(Mask ROM Type)

REV. 1.12

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GENERAL DESCRIPTION

The WT6510 is single chip Micro-controller for Universal Serial Bus (USB) keyboard applications, it includes a 8-bits 6502 CPU core, 256 bytes SRAM, 8K Bytes MASK ROM, 32-36 Programmable I/O with build in pull up resistors and interrupt capability (8 with high drive capability up to 14mA), it implement an USB Keyboard (low speed at 1.5Mhz) with integrated PS/2 port for Pointing Device.

FEATURES

- 8-bit 6502 CPU with 3MHz operating frequency
- 6MHz crystal oscillator
- 256 bytes SRAM
- 8K bytes MASK ROM
- 32-36 programmable I/O(Package Dependant) pins with interrupt capability in input mode.
- Embedded USB function with three endpoints (one control Enpoint0, two Interrupt IN endpoint)
- Watch-dog timer
- One 8-bit programmable timer
- Low VDD reset
- Power on reset
- USB Interface (USB Spec. Version 1.1 compliance)
- CMOS technology for low power consumption
- 40/42PIP package or Die

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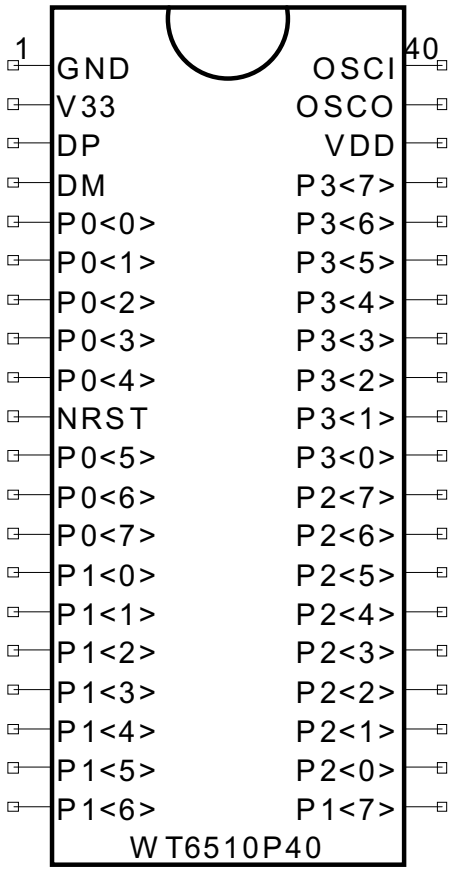
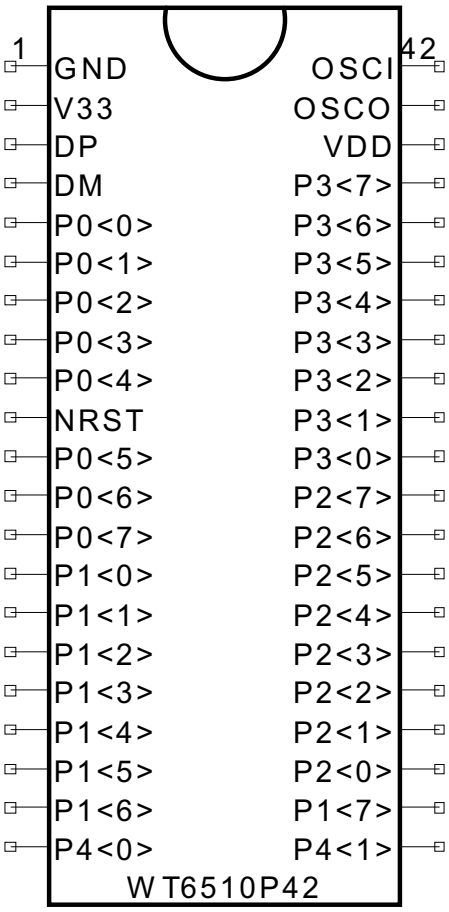
Pin out



DIP40



DIP42

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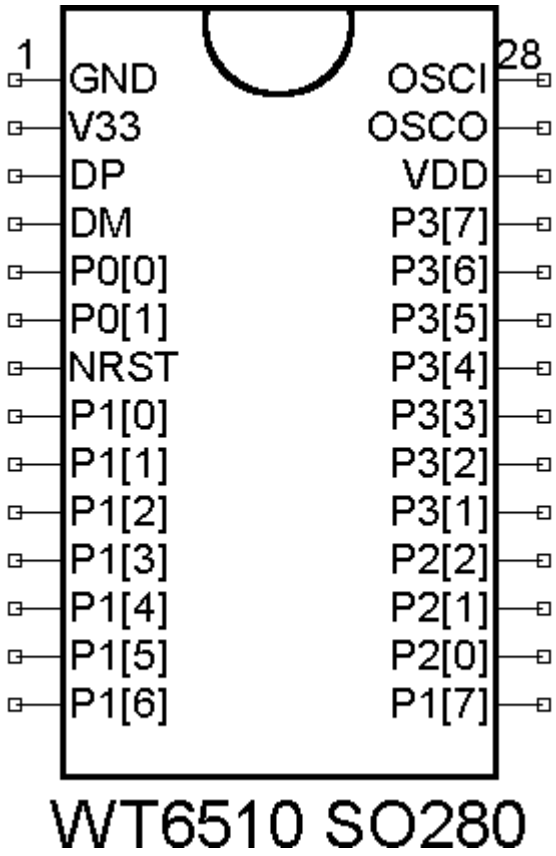

WT6510 SO280

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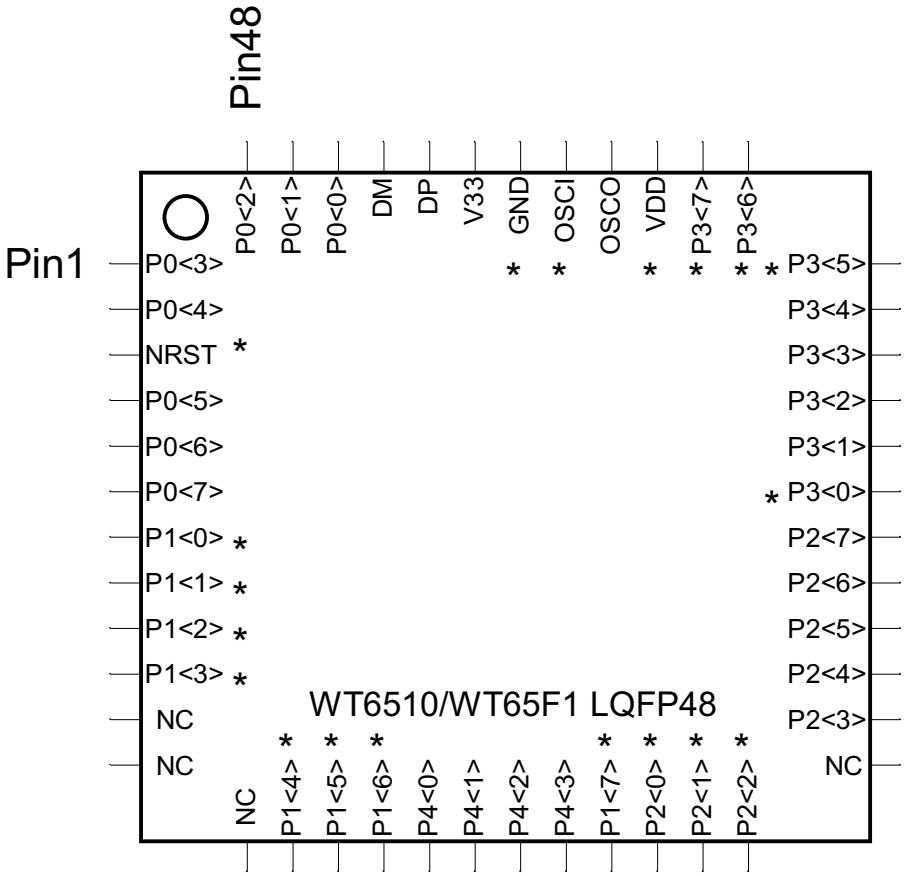

* For Flash Programming

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PIN DESCRIPTION

Pin No.				Pin Name	I/O	Description
40	42	Die	LQ48			
1	1	1	42	GND	P	Ground.
2	2	2	43	V33	P	3.3V Power output
3	3	3	44	DP	I/O	USB D+ signal.
4	4	4	45	DM	I/O	USB D- signal
5	5	5	46	P00	I/O	General Purpose I/O with programmable pull up resistor and programmable Interrupt Capability at Input falling edge
6	6	6	47	P01	I/O	General Purpose I/O with programmable pull up resistor and programmable Interrupt Capability at Input falling edge
7	7	7	48	P02	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
8	8	8	1	P03	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
9	9	9	2	P04	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
10	10	10	3	NRST	I	Power on Reset input
11	11	11	4	P05	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
12	12	12	5	P06	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
13	13	13	6	P07	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
14	14	14	7	P10	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
15	15	15	8	P11	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
16	16	16	9	P12	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
17	17	17	10	P13	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
			11	NC		NC
			12	NC		NC
			13	NC		NC
18	18	18	14	P14	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
19	19	19	15	P15	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
20	20	20	16	P16	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
	21	21	17	P40	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
	22	22	18	P41	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
		23	19	P42	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling

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						edge
		24	20	P43	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
21	23	25	21	P17	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
22	24	26	22	P20	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
23	25	27	23	P21	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
24	26	28	24	P22	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
			25	NC		NC
25	27	29	26	P23	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
26	28	30	27	P24	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
27	29	31	28	P25	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
28	30	32	29	P26	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
29	31	33	30	P27	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge
30	32	34	31	P30	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge. High current drive with typical current sink capability of 14mA.
31	33	35	32	P31	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge. High current drive with typical current sink capability of 14mA.
32	34	36	33	P32	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge. High current drive with typical current sink capability of 14mA.
33	35	37	34	P33	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge. High current drive with typical current sink capability of 14mA.
34	36	38	35	P34	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge. High current drive with typical current sink capability of 14mA.
35	37	39	36	P35	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge. High current drive with typical current sink capability of 14mA.
36	38	40	37	P36	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge. High current drive with typical current sink capability of 14mA.
37	39	41	38	P37	I/O	General Purpose I/O with programmable Interrupt Capability at Input falling edge. High current drive with typical current sink capability of 14mA.
38	40	42	39	VDD	P	+5V power supply.
39	41	43	40	OSCO	O	6MHz oscillator output.
40	42	44	41	OSCI	I	6MHz oscillator input.

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WT6510 Register mapping

Name	Addr	R/W	Initial	Bit 7	Bit 6	Bit 5	Bit4	Bit 3	Bit 2	Bit 1	Bit 0
P0_CTRL	00h	W	00h	P07OE	P06OE	P05OE	P04OE	P03OE	P02OE	P01OE	P00OE
P0_DATA	01h	R	00h	P07	P06	P05	P04	P03	P02	P01	P00
		W	00h	P07	P06	P05	P04	P03	P02	P01	P00
P1_CTRL	02h	W	00h	P17OE	P16OE	P15OE	P14OE	P13OE	P12OE	P11OE	P10OE
P1_DATA	03h	R	00h	P17	P16	P05	P14	P13	P12	P11	P10
		W	00h	P17	P16	P15	P14	P13	P12	P11	P10
P2_CTRL	04h	W	00h	P27OE	P26OE	P25OE	P24OE	P23OE	P22OE	P21OE	P20OE
P2_DATA	05h	R	00h	P27	P26	P25	P24	P23	P22	P21	P20
		W	00h	P27	P26	P25	P24	P23	P22	P21	P20
P3_CTRL	06h	W	00h	P37OE	P36OE	P35OE	P34OE	P33OE	P32OE	P31OE	P30OE
P3_DATA	07h	R	00h	P37	P36	P35	P34	P33	P32	P31	P30
		W	00h	P37	P36	P35	P34	P33	P32	P31	P30
P4_CTRL	08h	W	00h	--	--	--	--	P43OE	P42OE	P41OE	P40OE
P4_DATA	09h	R	00h	--	--	--	--	P43	P42	P41	P40
		W	00h	--	--	--	--	P43	P42	P41	P40
TIMER	10h	W	00h	PS1	PS0	TIM5	TIM4	TIM3	TIM2	TIM1	TIM0
INT_FLAG	11h	R	00h	--	--	--	--	--	IF_IOINT	IF_USB	IF_TMR
INT_EN	11h	W	00h	IE_P4INT	CR_IOINT	IE_P3INT	IE_P2INT	IE_P1INT	IE_P0INT	IE_USB	IE_TMR
WDT	12h	W	00h	--	--	--	--	--	--	--	--
DISWDT	17h	W	00h	--	--	--	--	--	--	--	DISWDT
PWRMGE	13h	W	00h	--	--	--	--	--	--	RESUME	SUSPEND
USB_ADR	20h	W	00h	EN_USB	UADR6	UADR5	UADR4	UADR3	UADR2	UADR1	UADR0
USB_ICR	21h	W	00h	--	IE_RSMI	EN_EP2IN	EN_EP1IN	EN_EP0IN	EN_RST	EN_OUT	EN_SET
USB_EVENT	21h	R	00h	ACTIVE	IF_RSMI	EP2IN	EP1IN	EP0IN	RESET	OUT	SETUP
USB_FIFO0	22h	R/W	XXh	F0_D7	F0_D6	F0_D5	F0_D4	F0_D3	F0_D2	F0_D1	F0_D0
USB_CNT	23h	R		--	UNDERN	TX_OVF	RXEMP	UCNT3	UCNT2	UCNT1	UCNT0
USB_CLR	23h	W	00h	CLR_ACT	CLR_INT	CLR_UC0	CLR_DC0	CLR_UC1	CLR_DC1	CLR_UC2	CLR_DC2
USB_CR0	**24H**	**W**	**00H**	**--**	**--**	**--**	**OUT_STL**	**EN_OUT**	EP0_IN_STL	**EP0_VALID**	**EP0_PAK**
USB_ST0	24h	R	00h	DATA0/1			OUT_STL	OUT_OK	EP0_Stall	EP0_Fail	EP0_OK
USB_FIFO1	25h	W	XXh	F1_D7	F1_D6	F1_D5	F1_D4	F1_D3	F1_D2	F1_D1	F1_D0
USB_CR1	26h	W	00h	--	--	--	--	EN_EP1	IN1_STL	EP1_VAL	EP1_PAK
USB_ST1	26h	R	00h	--	--	--	--	--	EP1_Stall	EP1_Fail	EP1_OK
USB_FIFO2	27h	W	XXh	F2_D7	F2_D6	F2_D5	F2_D4	F2_D3	F2_D2	F2_D1	F2_D0
USB_CR2	28h	W	00h	--	--	--	--	EN_EP2	IN2_STL	EP2_VAL	EP2_PAK
USB_ST2	28h	R	00h	--	--	--	--	--	EP2_Stall	EP2_Fail	EP2_OK

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