CHESEN ELECTRONICS CORP.

CSC0101A

CSC0101A

Dual PS/2 to USB Data Converter Controller

Version: 1.60

April 2009

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Revision History

Revision No.	History	Date	Remark
1.00	Initial issue	April 4, 2003	
1.10	Support OTP type	May 15, 2003	
1.20	Support dice form	July 21, 2003	
1.30	Add PS/2 ports swap feature	Aug. 18, 2003	
1.40	Body revision; change name to CSC0101A	May 24, 2004	
1.50	Change company logo	Aug. 1, 2008	
1.60	Modify functional block diagram	April 20, 2009	

Features

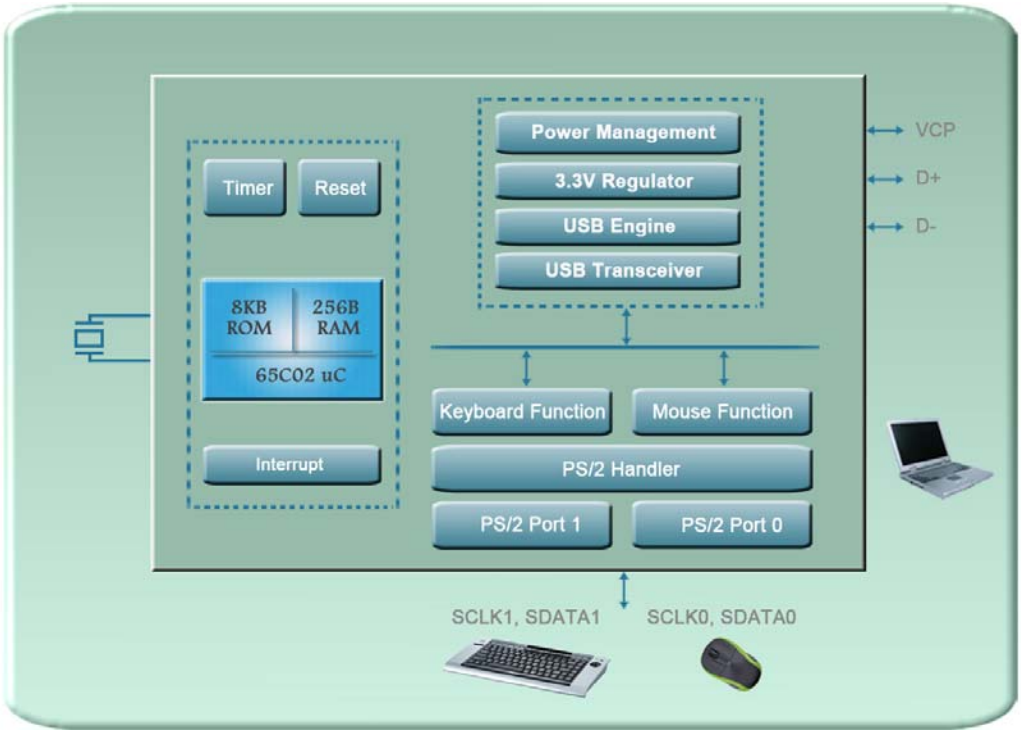
- Interface two PS/2 devices to USB
- PS/2 ports support 3 dimensions 3keys wheel mouse and multimedia keyboard function
- Built-in 65C02 8 Bit CPU
  - 6MHz external ceramic resonator
  - 3MHz internal CPU clock
  - 256 bytes RAM
  - 8 Kbytes ROM
- USB specification compliance:
  - Conforms to USB specification, version 1.1
  - Conforms to USB HID specification, version 1.1
  - Supports 1 low speed device address and 3 endpoints
  - 8 bytes FIFO for each endpoint
  - Integrated USB transceiver
  - Build in 3.3V regulator
- Built-in power on reset & watchdog timer reset
- Hot pluggable
- PS/2 ports are auto selectable and hot swappable
- Mice or keyboard can be used in either port
- No driver need
- Works with PC Win98 SE, Win Millennium, Win 2000, Win XP Netware4.11, 5.0 HP Unix, Linux, Apple computer MAC OS8.6 or higher and Sun Microsystems
- 16 pin SOIC package and dice form

Overview

The CEC CSC0101A is an integral micro-controller for converting PS/2 interface signal to USB applications, which includes 8 bits high performance micro-controller core, combined USB1.1 low-speed interface and dual PS/2 handler module. The CSC0101A supports two hot-pluggable and hot-swappable PS/2 ports with either port can accept mouse or keyboard. It is ideal for the legacy system support, enabling seamless connections of traditional PS/2 interfaces devices of mouse and keyboard to USB.

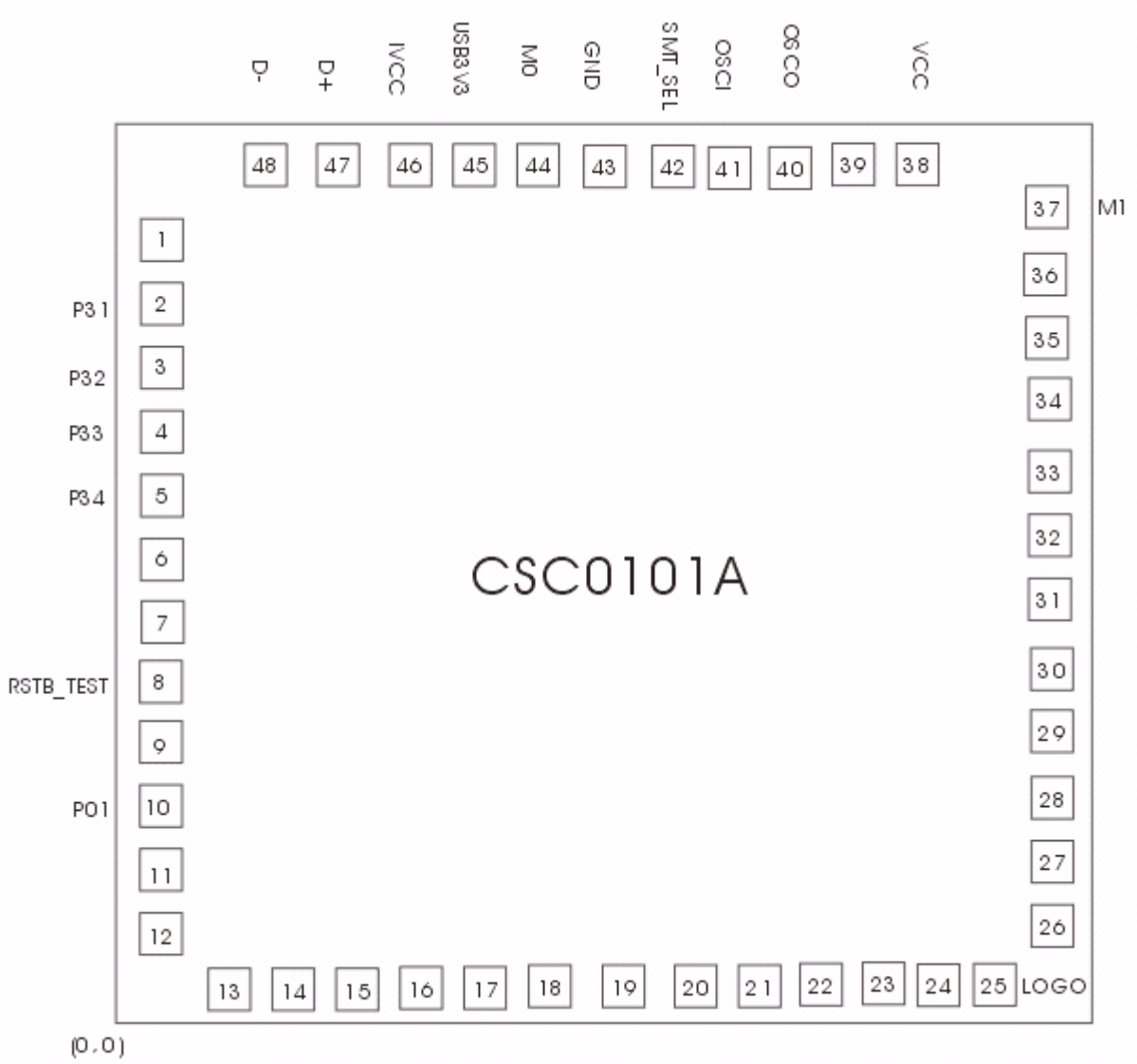
The CSC0101A is a USB 1.1 low-speed compliant device that interfaces to PS/2, it support the Human Interface Device (HID) class specification. The CSC0101A handles the merging of the PS/2 data and sends the data to the host system via the USB port

Block Diagram

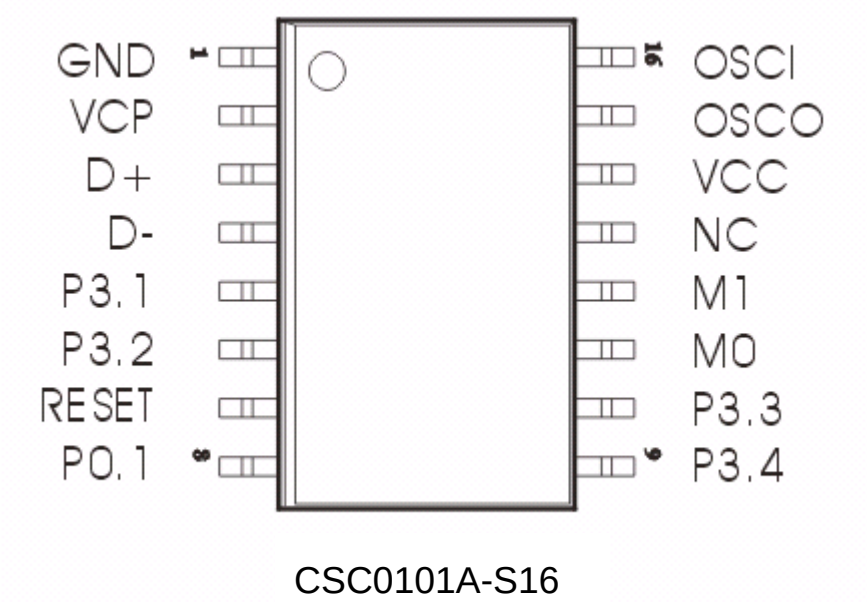


Pin Configurations

Dice



SOP 16 Pins



CSC0101A-S16

Pin Descriptions

CSC0101A

PAD #	NAME	IN/OUT	DESCRIPTION
2	P31	I/O	PS/2 data for mouse
3	P32	I/O	PS/2 clock for mouse
4	P33	I/O	PS/2 clock for keyboard
5	P34	I/O	PS/2 data for keyboard
8	RESETB	I	External reset
10	P01	I	Test input
37	M1	I	Mode selection input 1
38	VCC	P	Power supply
40	OSCO	O	Crystal/Ceramic resonator out
41	OSCI	I	Crystal/Ceramic resonator in
42	SMT_SEL	I	Force Ground
43	GND	P	Ground
44	M0	I	Mode selection input 0
45	VCP	O	USB Driver 3.3V
46	IVCC	I	3.3V input
47	D+	I/O	USB data+
48	D-	I/O	USB data-

CSC0101A-S16

PIN #	NAME	IN/OUT	DESCRIPTION
1	GND	P	Ground
2	VCP	O	USB Driver 3.3V
3	D+	I/O	USB data+
4	D-	I/O	USB data-
5	P31	I/O	PS/2 data
6	P32	I/O	PS/2 clock
7	RESETB	I	External reset
8	P01	I	Test input
9	P34	I/O	PS/2 data
10	P33	I/O	PS/2 clock
11	M0	I	Mode selection input 0
12	M1	I	Mode selection input 1
13	NC	--	No Connect
14	VCC	P	Power supply
15	OSCO	O	Crystal/Ceramic resonator out
16	OSCI	I	Crystal/Ceramic resonator in

M1	M0	Suitable PS/2 Devices
GND	GND	Legacy PS/2 mouse and keyboard with key de-bouncing
GND	VCC	Legacy PS/2 mouse and keyboard
VCC	VCC	PS/2 bar code reader

Electrical Characteristics

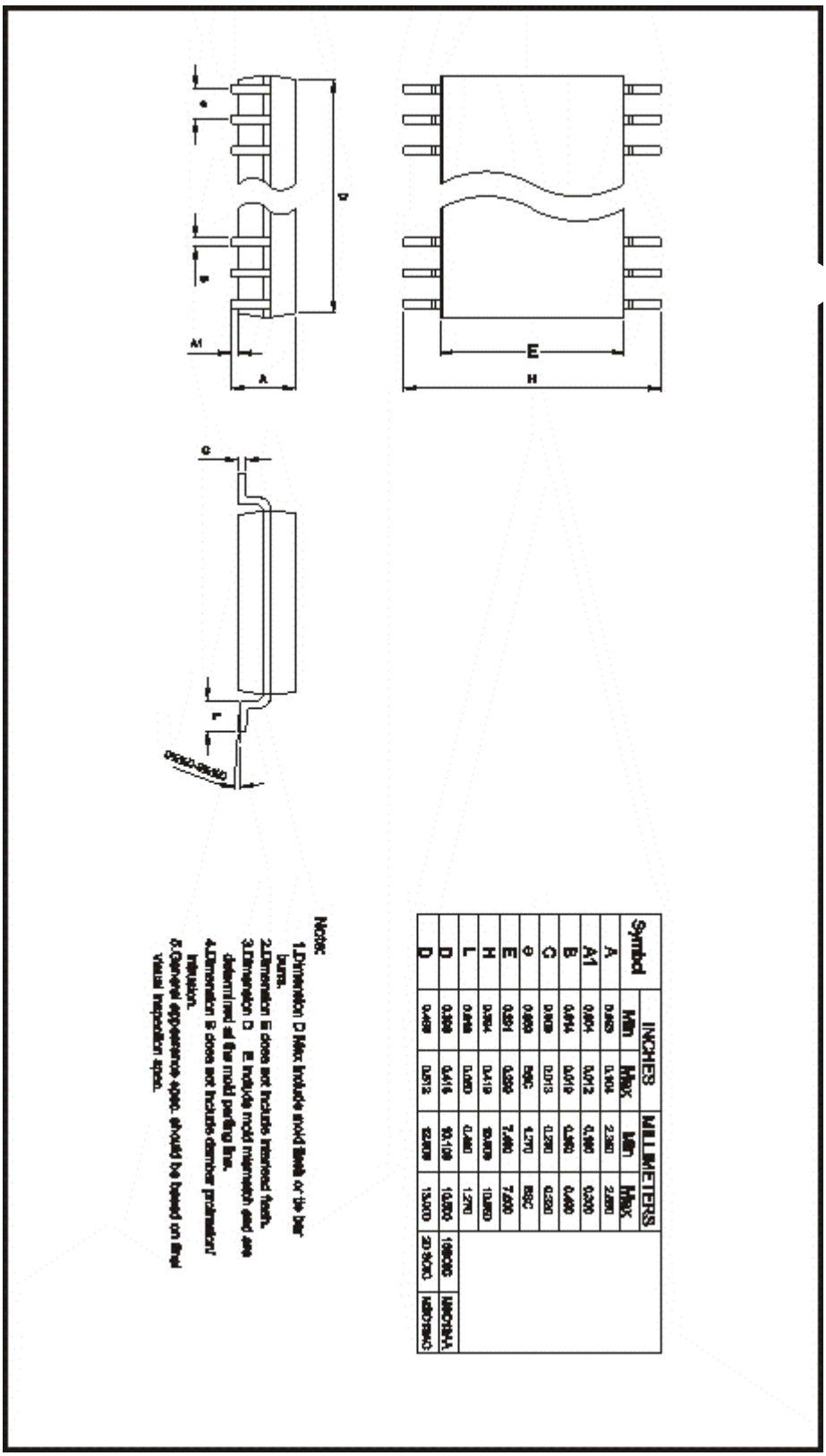
VDD=5V, GND=0V, TA=25℃, Fosc=6MHz

Parameters	Symbol	Min	Typ	Max	Unit	Conditions
Operating Voltage	Vdd	4.4	5	5.25	V	
Operating Current	Iop			20	mA	No load
Suspend Current	Isp			500	uA	
Input High Voltage	Vih	2			V	
Input Low Voltage	Vil			0.8	V	
Output High Voltage	Voh	2.4			V	
Output Low Voltage	Vol			0.4	V	

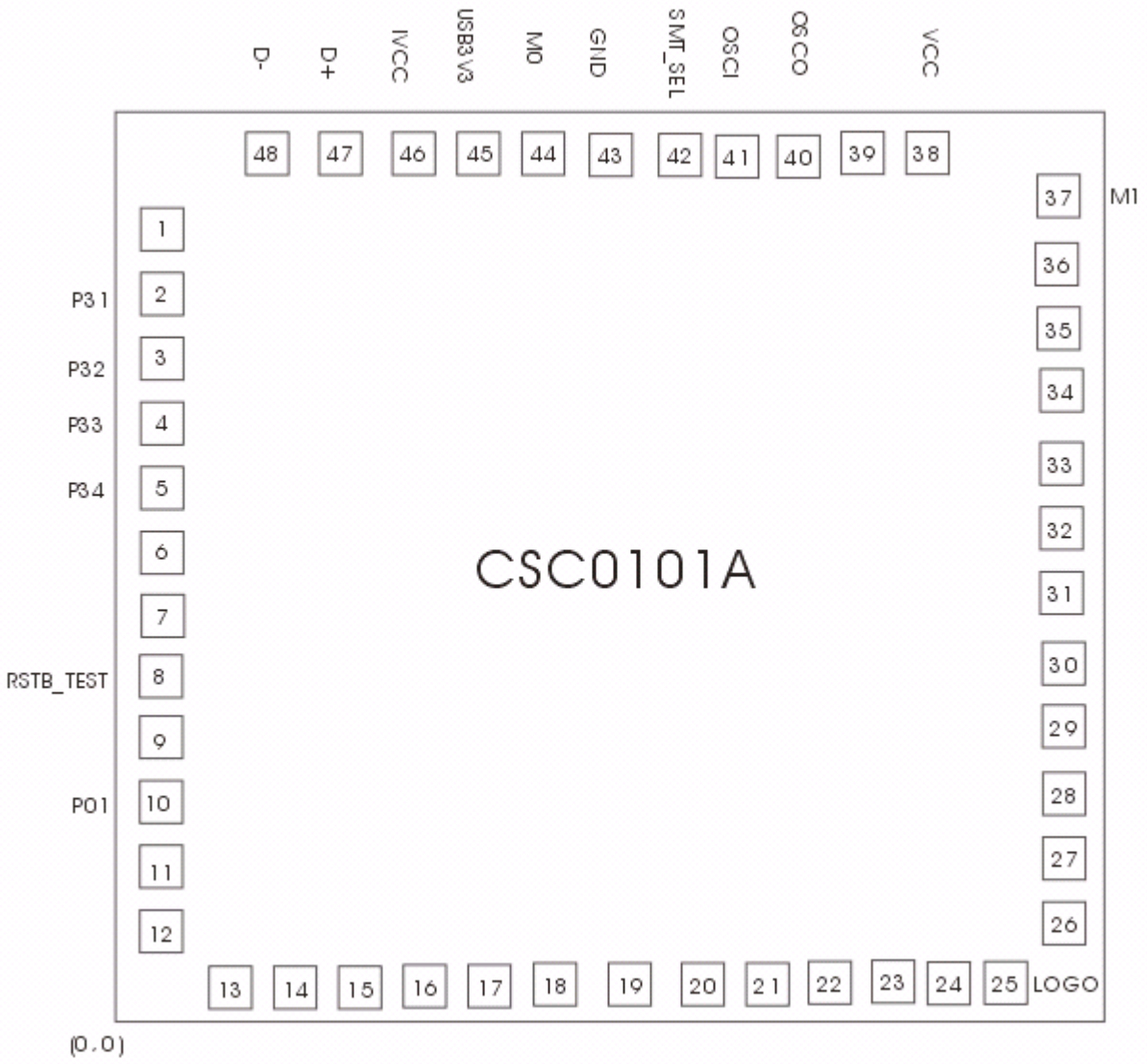
Product Matrix

Part Number	Memory		I/Os	Package Type	Operating Range
	ROM Size	RAM Size			
CSC0101A	6K Bytes	256 Bytes	6	Dice	Commercial
CSC0101A-S16	6K Bytes	256 Bytes	6	SOP-16	Commercial

Package Outline



Bonding Diagram



Coordination:

Orientation: (0, 0)
Chip size: 1867.45 um x 1726.25 um
Lower left: (0, 0)
Top right: (1867.45, 1726.25)
Min bonding pitch: 92 um
IC substrate should be connected to GND

Pad No	Pad Name	X	Y	Pad No	Pad Name	X	Y
1		42	1407.125	25		1548.325	42
2	P31	42	1302.675	26		1825.45	319.125
3	P32	42	1208.475	27		1825.45	428.35
4	P33	42	1114.25	28		1825.45	524.95
5	P34	42	1020.025	29		1825.45	621.575
6		42	925.825	30		1825.45	718.2
7		42	831.6	31		1825.45	814.8
8	RSTB_T	42	737.4	32		1825.45	911.425
9		42	643.175	33		1825.45	1008.025
10	P01	42	548.95	34		1825.45	1104.65
11		42	439.15	35		1825.45	1201.275
12		42	319.125	36		1825.45	1297.875
13		319.125	42	37	M1	1825.45	1407.125
14		434.725	42	38	VCC	1548.325	1684.25
15		526.725	42	39		1447.85	1684.25
16		618.725	42	40	OSC2	1355.625	1684.25
17		710.725	42	41	OSC1	1200.6	1684.25
18		818.325	42	42	SMT_SEL	1108.375	1684.25
19		925.925	42	43	GND	1016.125	1684.25
20		1017.925	42	44	M0	923.9	1684.25
21		1109.925	42	45	USB3V3	831.675	1684.25
22		1217.525	42	46	IVCC	739.45	1684.25
23		1325.125	42	47	D+	533.4	1684.25
24		1432.725	42	48	D-	319.125	1684.25