Ours Technology Inc.

OTI-6808
FLASH DISK CONTROLLER

■ Description

The flash disk controller (OTI_6808) is a disk controller used to make a linear flash device array look likes a normal disk, hiding the flash related problems with erasing.

The OTI_6808 is a controller with USB interface. The USB interface is for full speed operation (12Mb/s). It conforms to USB Specification, Version 1.1. The USB transceiver is embedded in this controller. With stable slew-rate control, the controller reduces EMI.

The OTI_6808 has a Phase Lock Loop (PLL) embedded. The PLL provides all clocks needed in this controller. It needs an externally provided clock operating in 14.318MHz.

The OTI_6808 can control up to 4 pieces of NAND flash memory. The flash capacity can be 32M bits up to 1G bits. And these chips can be any combination. It has been optimized to support Toshiba and Samsung flash memory designs. The controller has write-protected ability to prevent writing data to flash. The controller has a led control pin. It has three operation modes: suspend (off), active (fast) and idle (twinkle) mode. For read/write operation, the controller can achieve 1,000kB/920kB throughput. Comprehensive application with Windows OS is available.

This controller can operate in Win XP, Win2000, Windows Me, and Mac OS without any driver installation.

The OTI_6808 is available in cost-saving 32-pin TSOP package.

■ Features

• Flash controller with full-speed USB interface

• Low power, single 3.3V power supply

• USB Specification Compliance

— Conforms to USB Specification, Version 1.1

• Integrated USB transceiver

— Dynamic feedback control

— Stable slew rate, independent of external loading

• RISC micro-controller

— High-performance RISC architecture

— Single cycle instruction execution

• 14.318 MHz external clock

• Integrated PLL

• Support up to 4 pieces of NAND Flash memory with write-protected ability

• Support wear leveling

• Higher reliability: ECC on the fly

• Automatic bad block management

• Supported OS:

Win XP, Win2K, Windows ME, Linux 2.4 above, and MAC OS 9.0 & higher

Win 98 driver available

Mac 8.6 mass storage driver available from Apple

Multiple LUN Windows driver is available

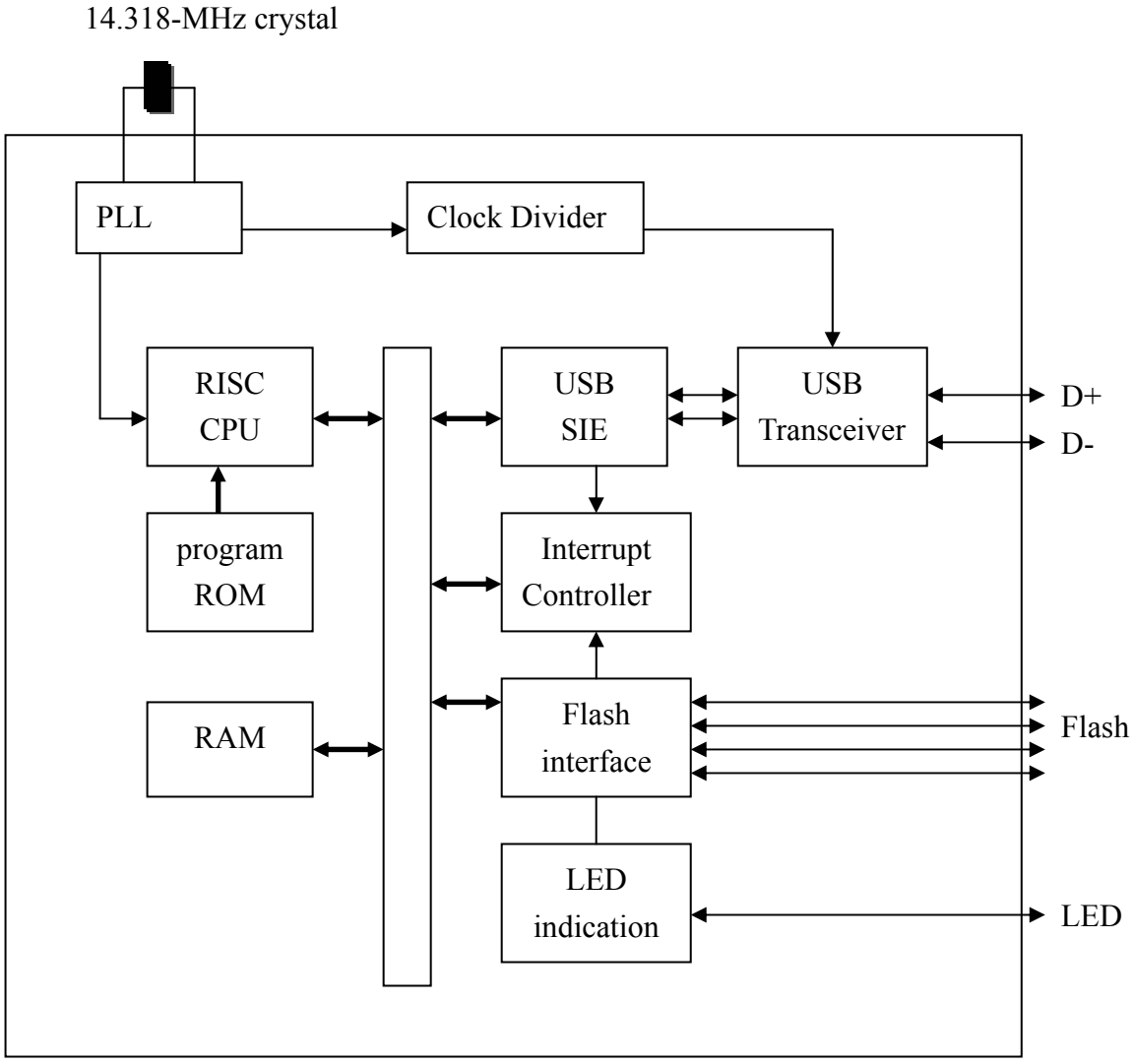
• LED indication:

Programmable through Mass Production Toolset

• Performance: Read (1,000kBytes/s) , Write (920kBytes/s) Max.

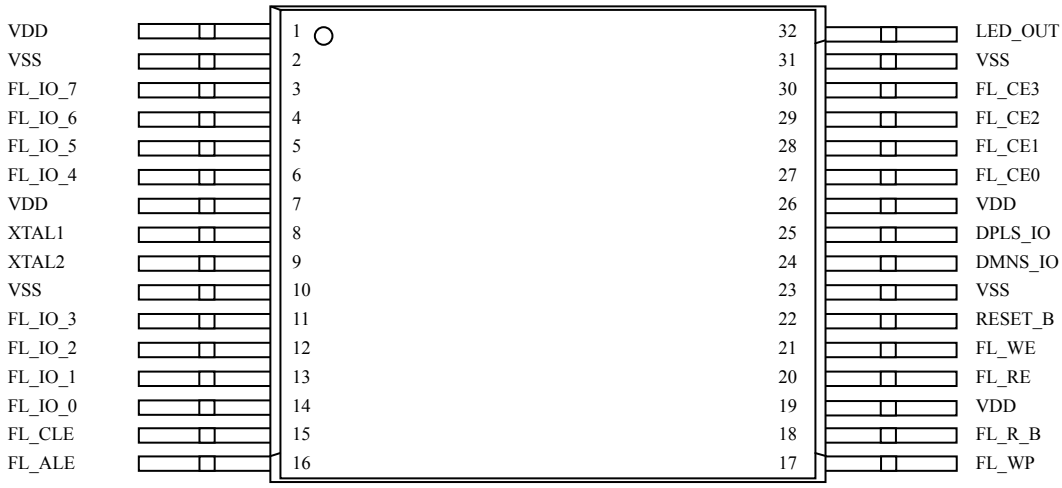
• Small form factor - standard 32-pin TSOP package.

■ BLOCK DIAGRAM



■ Pin Configuration

TSOP 32 L



■ Pin Description

Pin Name	Attribute	Description	Pin #
VDD	I	3.3V	1
VSS	I	GND for	2
FL_IO_7	I/O	Flash data bus – bit 7	3
FL_IO_6	I/O	Flash data bus – bit 6	4
FL_IO_5	I/O	Flash data bus – bit 5	5
FL_IO_4	I/O	Flash data bus – bit 4	6
VDD	I	3.3V	7
XTAL1	I	Crystal input (14.318MHz)	8
XTAL2	O	Crystal output	9
VSS	I	GND	10
FL_IO_3	I/O	Flash data bus – bit 3	11
FL_IO_2	I/O	Flash data bus – bit 2	12
FL_IO_1	I/O	Flash data bus – bit 1	13
FL_IO_0	I/O	Flash data bus – bit 0	14
FL_CLE	O	Flash Command Latch Enable	15
FL_ALE	O	Flash Address Latch Enable	16
FL_WP	I/O	Flash Write Protect	17
FL_R_B	I	Flash Ready_Busy	18
VDD	I	3.3V	19
FL_RE	O	Flash Read Enable	20
FL_WE	O	Flash Write Enable	21
RESET_B	I	Reset, active low	22
VSS	I	GND	23
DMNS_IO	I/O	USB D-	24
DPLS_IO	I/O	USB D+	25
VDD	I	3.3V	26
FL_CE0	O	Flash Chip Enable – Chip 0	27
FL_CE1	O	Flash Chip Enable – Chip 1	28
FL_CE2	O	Flash Chip Enable – Chip 2	29
FL_CE3	O	Flash Chip Enable – Chip 3	30
VSS	I	GND	31
LED_OUT	O	LED indication(open drain)	32

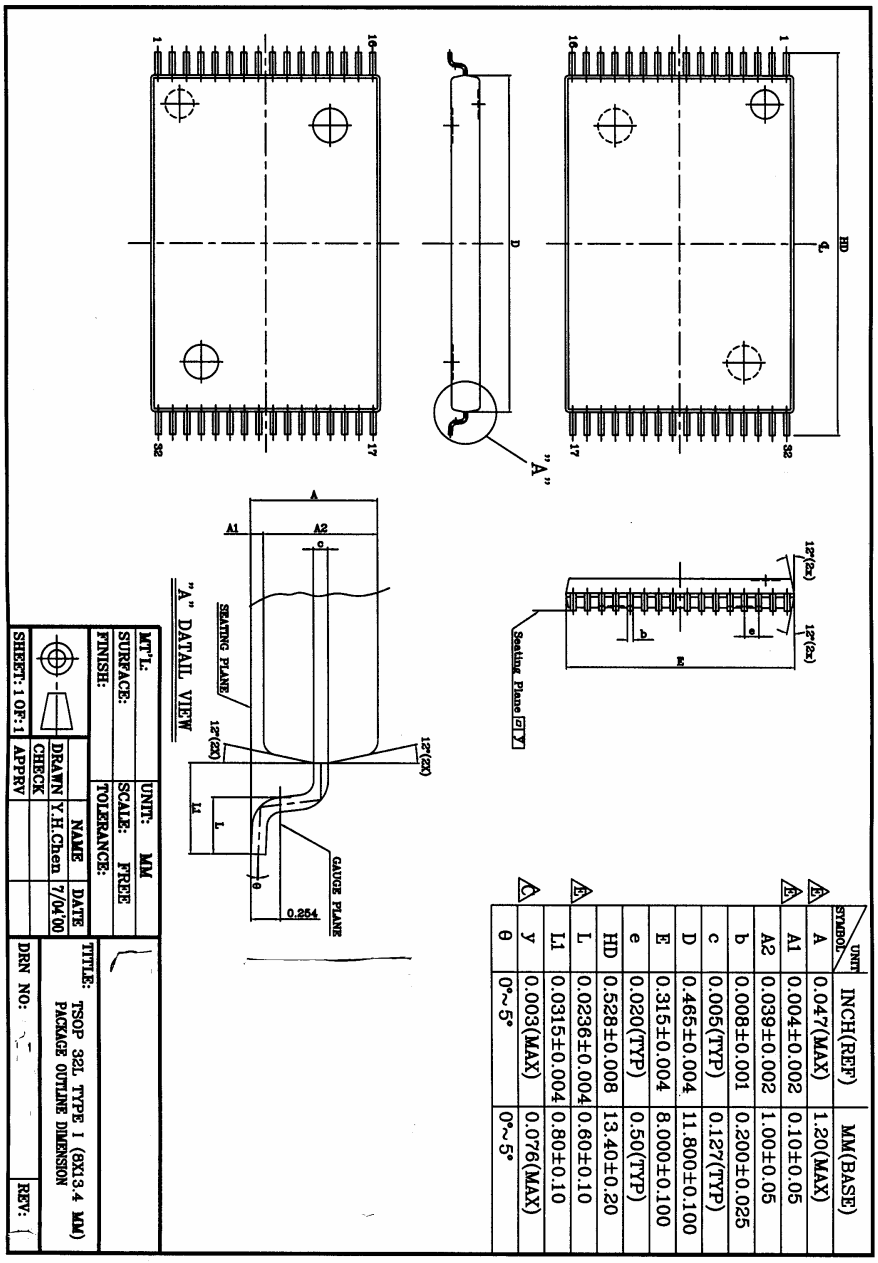
■ D.C. Characters

DC Characteristics-1 (Ta=0 °C to +70 °C, Vcc = 3.3V ±10%)

Parameter	Symbol	MIN	TYP	MAX	Unit
Power Supply	VCC	3.0	3.3	3.6	
Input Voltage	VIH	0.7x Vcc	--	5	V
	VIL	-0.3	--	0.2 x Vcc	V
Output Voltage	VOH	Vcc – 0.4	--	--	V
	VOL	--	--	0.4	V
Input leakage current (*2)	ILK	-1	--	1	uA
Working Current	IRW	--	20	--	mA
Operating Temperature	Ta	0		70	°C
Storage Temperature	Ts	-55		+150	°C
IO output current	IOH	--	4	--	mA
	IOL	--	4	--	mA

■ A.C. Characters

Parameter	Symbol	MIN	TYP	MAX	Unit
Input rising delay	TPIlh	0.35(2PF)	0.4(4PF)	0.54(8PF)	ns
Input falling delay	TPIhl	0.46(2PF)	0.53(4PF)	0.64(8PF)	ns
Output rising delay	TPOlh	1.35(10PF)	1.97(30PF)	2.59(50pF)	ns
Output falling delay	TPOhl	1.61(10PF)	2.41(30PF)	3.21(50pF)	ns



UNIT / SYMBOL	INCH(REF)	MM(BASE)
A	0.047(MAX)	1.20(MAX)
A1	0.004±0.002	0.10±0.05
A2	0.039±0.002	1.00±0.05
b	0.008±0.001	0.200±0.025
c	0.005(TYP)	0.127(TYP)
D	0.465±0.004	11.800±0.100
E	0.315±0.004	8.000±0.100
e	0.020(TYP)	0.50(TYP)
HD	0.528±0.008	13.40±0.20
L	0.0236±0.004	0.60±0.10
L1	0.0315±0.004	0.80±0.10
y	0.003(MAX)	0.076(MAX)
θ	0°~5°	0°~5°

MT'L:		UNIT:	MM
SURFACE:		SCALE:	FREE
FINISH:		TOLERANCE:	
	NAME	DATE	
DRAWN	Y.H.Chen	7/04'00	
CHECK			
APPRV			
SHEET: 1 OF: 1			

TITLE: TSOP 32L TYPE I (8X13.4 MM)
PACKAGE OUTLINE DIMENSION

DRN NO: REV:

Note:

OTI reserves the right to make any changes without further notice to any products herein.

How to reach us:

OURS TECHNOLOGY INC. **4F, No. 85, Kung-Ming 6th Rd., Jubei City, Hsin-Chu Hsien, Taiwan, R.O.C.**

TEL: +886-3-553-7511 FAX: +886-3-555-5804