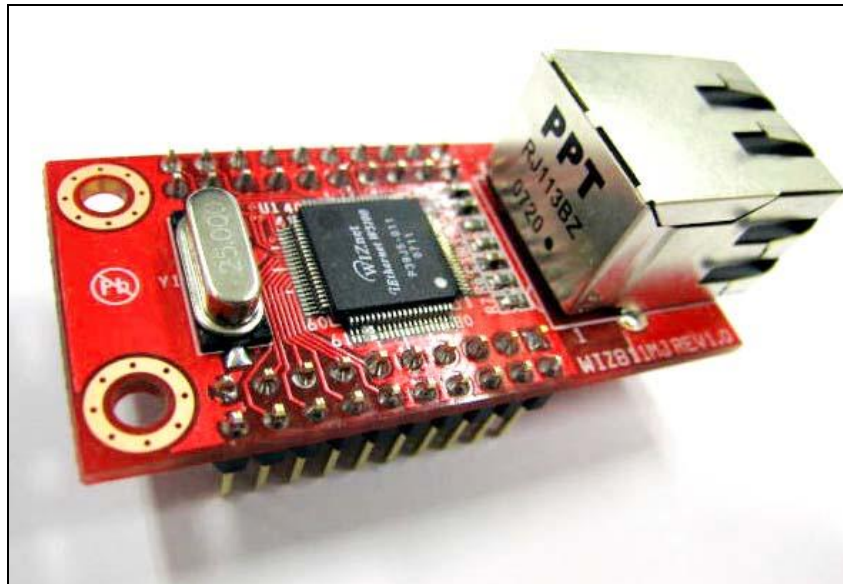


WIZ811MJ Datasheet

(Ver. 1.1)



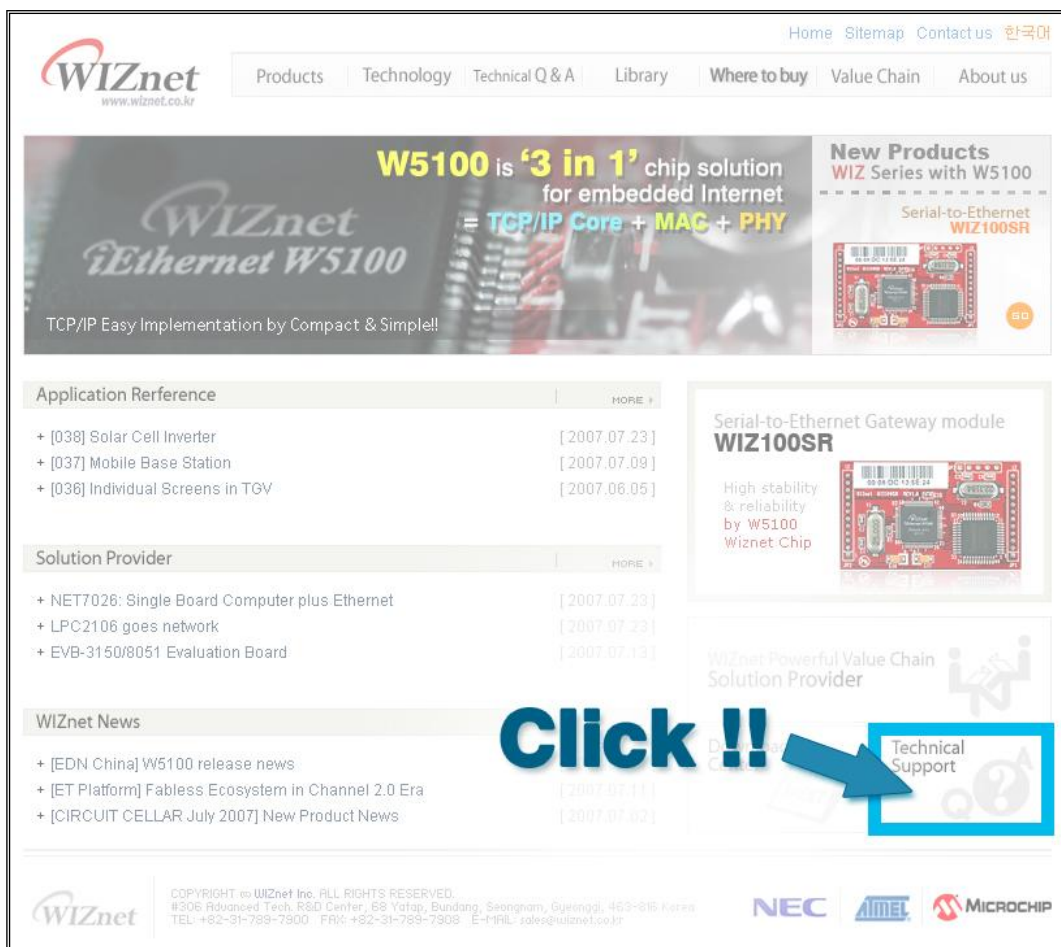
Document History Information

Revision	Data	Description
Ver. 1.0	March 11, 2008	Release with WIZ811MJ Launching
Ver. 1.1	January 28, 2009	Added temperature specification

WIZnet's Online Technical Support

If you have something to ask about WIZnet Products, Write down your question on Q&A Board in WIZnet website (www.wiznet.co.kr). WIZnet Engineer will give an answer as soon as possible.

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The screenshot shows the WIZnet website interface. At the top, there is a navigation bar with links: Home, Sitemap, Contact us, and a language selector (한국어). Below this is a secondary navigation bar with links: Products, Technology, Technical Q & A, Library, Where to buy, Value Chain, and About us. The main content area features a large banner for the W5100 chip, describing it as a '3 in 1' solution for embedded Internet (TCP/IP Core + MAC + PHY). To the right of the banner is a section for 'New Products' featuring the WIZ Series with W5100, specifically the Serial-to-Ethernet WIZ100SR. Below the banner, there are three main sections: 'Application Reference' with a list of projects (Solar Cell Inverter, Mobile Base Station, Individual Screens in TGV) and dates; 'Solution Provider' with a list of products (NET7026, LPC2106, EVB-3150/8051) and dates; and 'WIZnet News' with a list of news items (EDN China W5100 release, ET Platform Fabless Ecosystem, CIRCUIT CELLAR July 2007 New Product News) and dates. A large blue arrow with the text 'Click !!' points to the 'Technical Support' link in the bottom right corner of the website. The footer contains the WIZnet logo, copyright information, and logos for NEC, AMEL, and MICROCHIP.

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1. Introduction

WIZ811MJ is the network module that includes W5100 (TCP/IP hardwired chip, include PHY), MAG-JACK (RJ45 with X'FMR) with other glue logics. It can be used as a component and no effort is required to interface W5100 and Transformer. The WIZ811MJ is an ideal option for users who want to develop their Internet enabling systems rapidly.

For the detailed information on implementation of Hardware TCP/IP, refer to the W5100 Datasheet.

WIZ811MJ consists of W5100 and MAG-JACK.

- TCP/IP, MAC protocol layer: W5100
- Physical layer: Included in W5100
- Connector: MAG-JACK(RJ45 with Transformer)

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1.1. Features

- Supports 10/100 Base TX
- Supports half/full duplex operation
- Supports auto-negotiation and auto cross-over detection
- IEEE 802.3/802.3u Compliance
- Operates 3.3V with 5V I/O signal tolerance
- Supports network status indicator LEDs
- Includes Hardware Internet protocols: TCP, IP Ver.4, UDP, ICMP, ARP, PPPoE, IGMP
- Includes Hardware Ethernet protocols: DLC, MAC
- Supports 4 independent connections simultaneously
- Supports MCU bus Interface and SPI Interface
- Supports Direct/Indirect mode bus access
- Supports Socket API for easy application programming
- Interfaces with two 2.54mm pitch 2 x 10 header pin
- Temperature : 0 ~ 70°C (Operation), -40 ~ 85°C (Storage)

1.2. Block Diagram

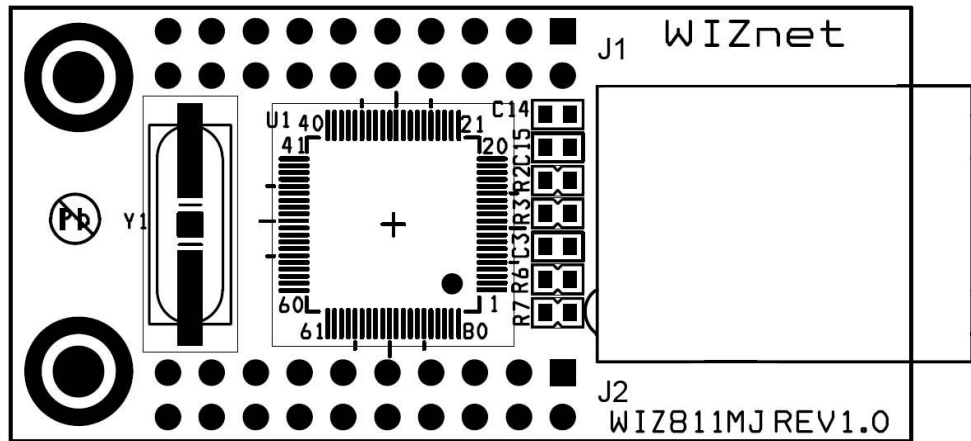


1.3. Difference between WIZ810MJ and WIZ811MJ

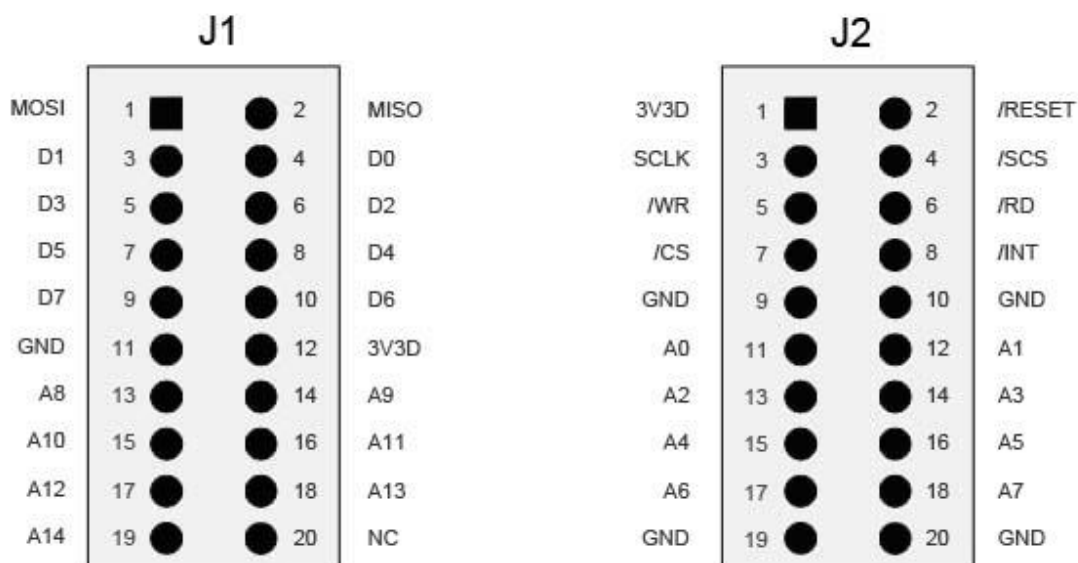
WIZ810MJ	WIZ811MJ
	
Two 2mm pitch 14x2 header	Two 2.54mm pitch 10x2 header
Not has PCB through Hole	Two PCB Through Hole(Ø3.00mm)
52 x 25 x 21mm (W x H x D)	55.5 x 25 x 23.5mm (W x H x D)
Share SPI and BUS signal pin (need to control SPI_EN pin)	Separate SPI signal pin (SPI_EN controlled automatically by /SCS signal)

2. Pin Assignments & descriptions

2.1. Pin Assignments



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I : Input
I/O : Bi-directional Input and output

O : Output
P : Power

2.2. Power & Ground

Symbol	Type	Pin No.	Description
VCC	P	J1:12 , J2:1	Power : 3.3 V power supply
GND	P	J1:11, J2:9, J2:10, J2:19, J2:20	Ground

2.3. MCU Interfaces

Symbol	Type	Pin No.	Description
SCLK	I	J2:3	SCLK(Serial Clock) This pin is used to SPI Clock Signal pin.
/SCS	I	J2:4	/SCS (Slave Select) * This pin is used to SPI Slave Select signal Pin. This pin controls SPI_EN signal of W5100. When /SCS signal assert low, W5100 drive SPI mode by SPI_EN signal toggled high.
MOSI	I	J1:1	MOSI (Master Out Slave In) * This pin is used to SPI MOSI signal pin.
MISO	I/O	J1:2	MISO (Master In Slave Out) * This pin is used to SPI MISO signal pin.
A14~A8	I	J1:13 ~ J1:19	Address Used as Address[14-8] pin
A7~A0	I	J2:11 ~ J2:18	Address Used as Address[7-0] pin
D7~D0	I/O	J1:3 ~ J1:10	Data 8 bit-wide data bus
/CS	I	J2:7	Module Select : Active low. /CS of W5100
/RD	I	J2:6	Read Enable : Active low. /RD of W5100
/WR	I	J2:5	Write Enable : Active low /WR of W5100
/INT	O	J2:8	Interrupt : Active low After reception or transmission it indicates that the W5100 requires MCU attention. By writing values to the Interrupt Status Register of W5100 the interrupt will be cleared. All interrupts can be masked by writing values to the IMR of W5100 (Interrupt Mask Register). For more details refer to the W5100 Datasheet

2.4. Miscellaneous Signals

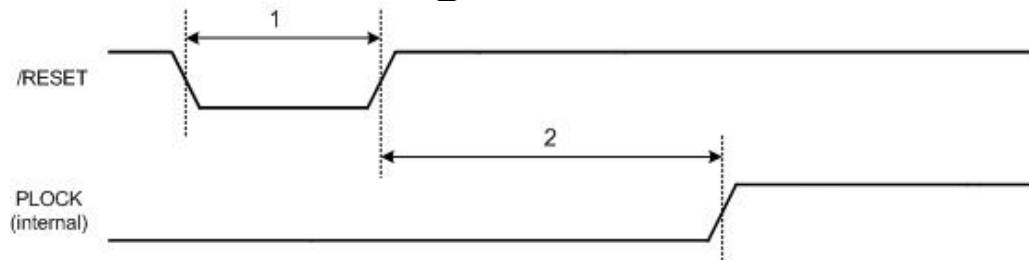
Symbol	Type	Pin No.	Description
/RESET	I	J2:2	Reset : This pin is active low input to initialize or re-initialize W5100. By asserting this pin low for at least 2us, all internal registers will be re-initialized to their default states.
NC	-	J1 : 20	Not Connect

3. Timing Diagrams

WIZ811MJ provides following interfaces of W5100.

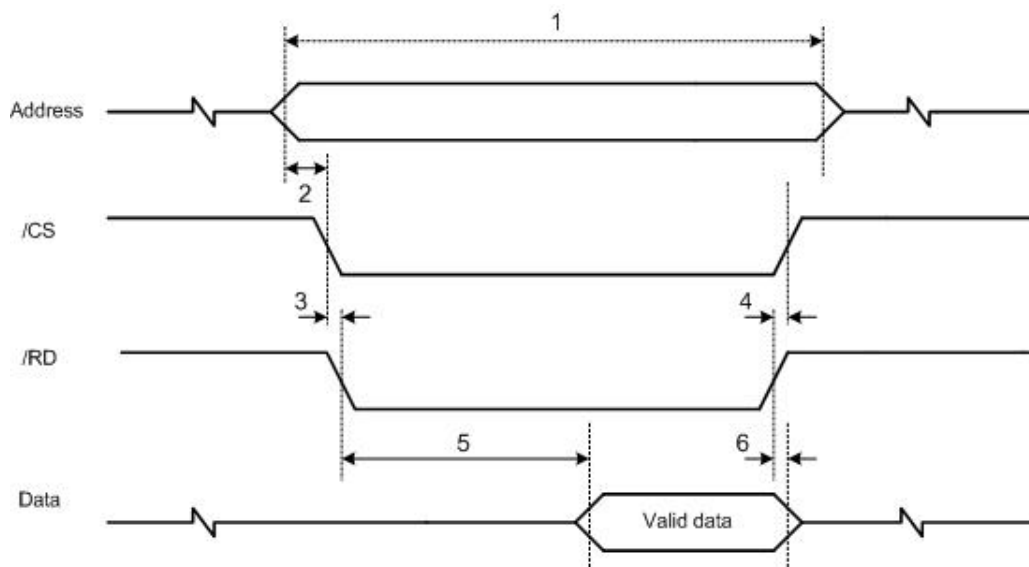
- Direct/Indirect mode bus access
- SPI access

3.1. Reset Timing



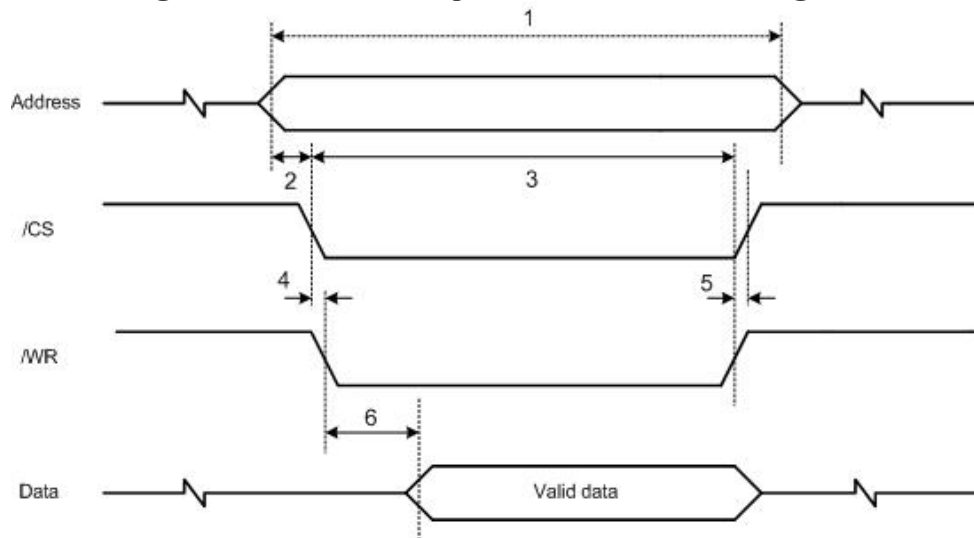
Description		Min	Max
1	Reset Cycle Time	2 μ s	-
2	/RESET to internal PLOCK	-	10 ms

3.2. Register/Memory READ Timing



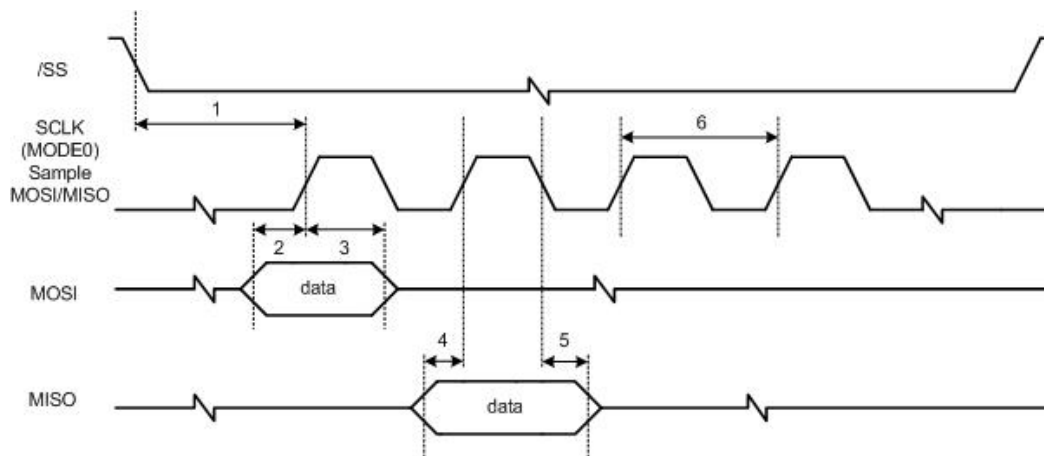
Description		Min	Max
1	Read Cycle Time	80 ns	-
2	Valid Address to /CS low time	8 ns	-
3	/CS low to /RD low time	-	1 ns
4	/RD high to /CS high time	-	1 ns
5	/RD low to Valid Data Output time	-	80 ns
6	/RD high to Data High-Z Output time	-	1 ns

3.3. Register/Memory WRITE Timing



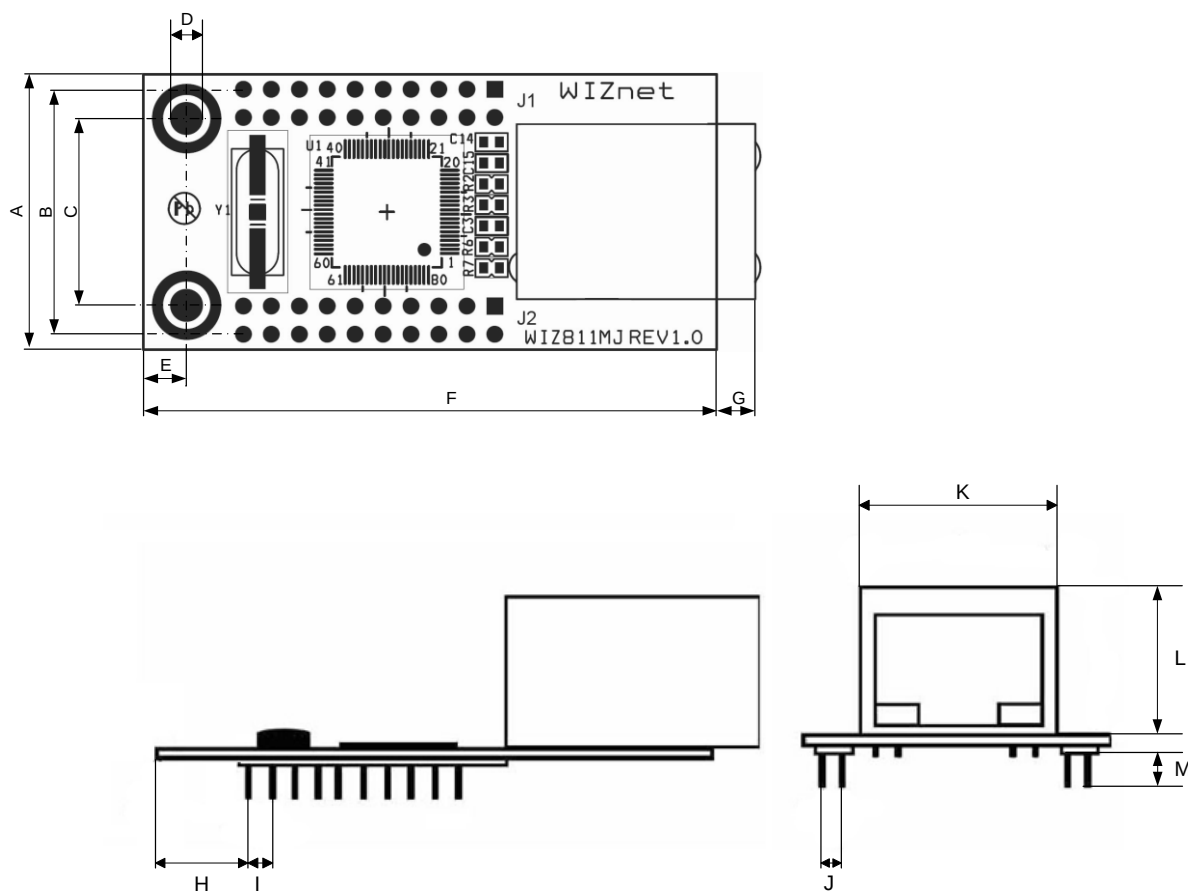
Description		Min	Max
1	Write Cycle Time	70 ns	-
2	Valid Address to /CS low time	7 ns	-
3	/CS low to /WR high time	70 ns	-
4	/CS low to /WR low time	-	1 ns
5	/WR high to /CS high time	-	1 ns
6	/WR low to Valid Data time	-	14 ns

3.4. SPI Timing

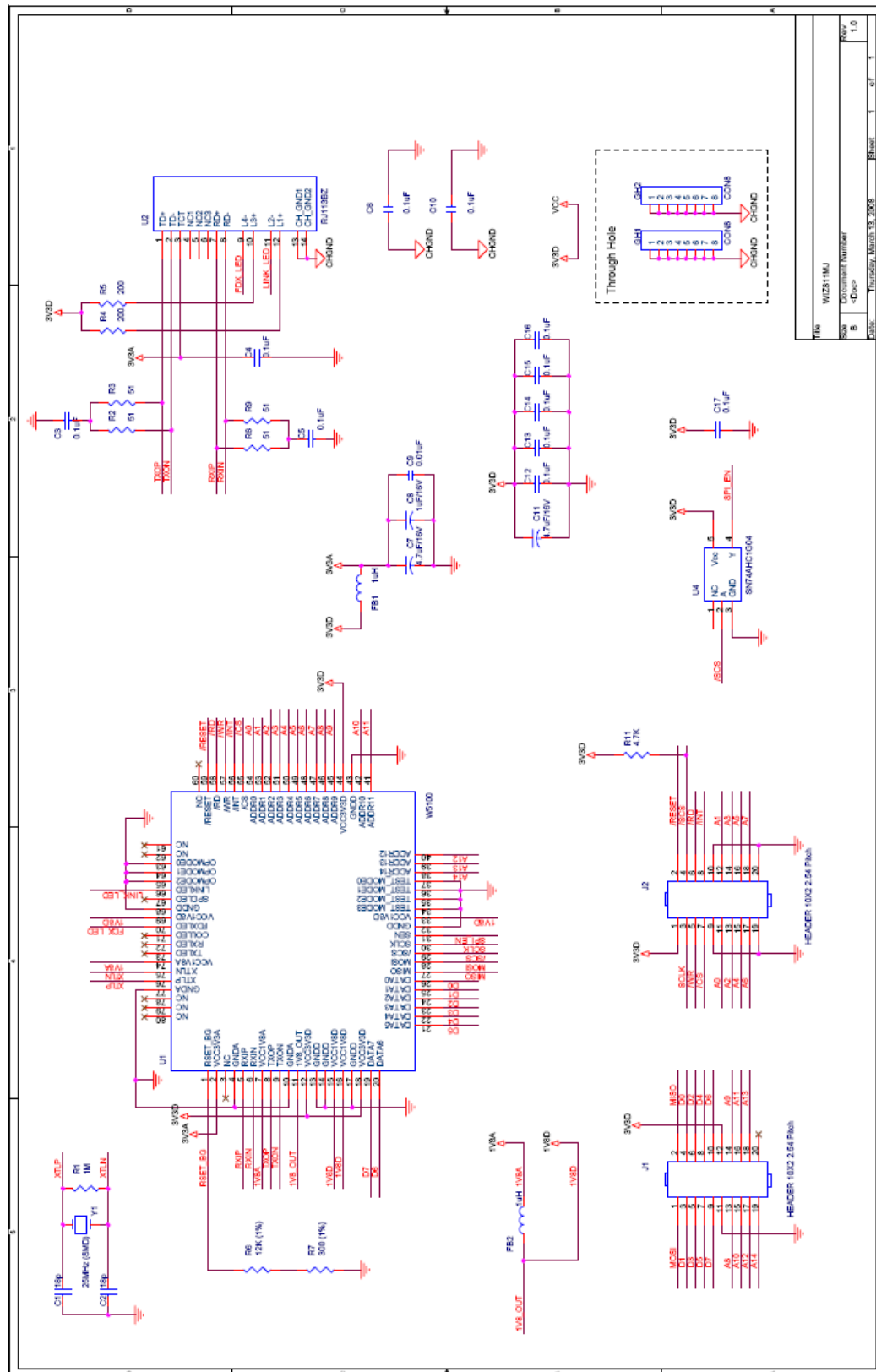


Description	Mode	Min	Max
1 /SS low to SCLK	Slave	21 ns	-
2 Input setup time	Slave	7 ns	-
3 Input hold time	Slave	28 ns	-
4 Output setup time	Slave	7 ns	14 ns
5 Output hold time	Slave	21 ns	-
6 SCLK time	Slave	70 ns	

4. Dimensions



5. Schematic



6. Partlists

Item	Q.ty	Reference	Part	Tech. Characteristics	Package
1	2	C1,C2	18pF	50V-20% Ceramic	CASE 0603
2	11	C3,C4,C5,C6, C10,C12,C13 ,C14,C15,16, C17	0.1uF	50V-20% Ceramic	CASE 0603
3	2	C7,C11	4.7uF/16V	16Vmin 10%	EIA/IECQ 3216
4	1	C8	1uF/16V	16Vmin 10%	EIA/IECQ 3216
5	1	C9	0.01uF	50V-20% Ceramic	CASE 0603
6	2	FB2,FB1	1uH Chip Ferrite Inductor	1uH, 50mA	CASE 0805
7	2	J1,J2	2X10 20PIN 2.54mm DIP STRAIGHT Header	2 X 10 2.54mm pitch	
8	1	R1	1M	1/10W-5% SMD	CASE 0603
9	4	R2,R3,R8,R9	51 1%	1/10W-1% SMD	CASE 0603
10	2	R4,R5	200	1/10W-5% SMD	CASE 0603
11	1	R6	12K (1%)	1/10W-1% SMD	CASE 0603
12	1	R7	300 (1%)	1/10W-1% SMD	CASE 0603
13	1	R11	4.7K	1/10W-5% SMD	CASE 0603
14	1	U1	W5100	WIZnet Hardware TCP/IP	LQFP80
15	1	U2	RJ113BZ	Transformer + RJ45	
16	1	U4	74AHC1G04GW	Inverting Buffer (vendor : NXP)	TSSOP5
17	1	Y1	25MHz (SMD)	SMD Type, CL=18pF	SX-1
18	1		WIZ811MJ REV1.0 1.6T 4LAYER	PRINTED CIRCUIT BOARD	