

version 0.1

YT9218N Sample Delivery Instructions

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Revision History

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| **Revision** | **Release Date** | **Summary** |
| 0.1 | 2023.07.08 | First edition. |
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# Basic Function

YT9218N is high-performance 8-port Gigabit Ethernet switch.It integrates eight PHY ports support 1000Base-T/100Base-TX/10Base-Te.

Supports SMI/IIC/SPI interfaces and EEPROM or FLASH for functional configuration.



# Hardware

YT9218N can replace RTL8370N-VB,precautions for hardware replacement are as follow:

### Power supply

YT9218N：AVDDH/DVDDIO supply 3.3V from external power.

 DVDDL/AVDDL/PLLVDDL\_0/PLLVDDL\_1 supply 1.1V from external power.

RTL8370N-VB: AVDDH/DVDDIO supply 3.3V from external power.

 DVDDL/AVDDL/PLLVDDL\_0/PLLVDDL\_1 supply 1.1V from external power.

### Power on strapping

Reserved pin.

|  |  |
| --- | --- |
| Pin67 | Pull up 4.7K resistance to DVDDIO. |
| Pin68 |
| Pin79 |

Define switch core ID, ID = {SWITCH\_ID\_1,SWITCH\_ID\_0}

YT9218N has this feature and RTL8370N-VB does not.

|  |  |
| --- | --- |
| Pin93 | SWITCH\_ID\_1 |
| Pin87 | SWITCH\_ID\_0 |

 EEPROM\_mod, pin80. Both YT9218N and RTL8370N-VB have this feature.

|  |  |
| --- | --- |
| Pull UP | EEPROM Size greater than 16Kbits |
| Pull Down | EEPROM Size less than or equal to 16Kbits |

En\_pwrlight, pin83. Both YT9218N and RTL8370N-VB have this feature.

|  |  |
| --- | --- |
| Pull UP | Enable Power on Light |
| Pull Down | Disable Power on Light |

 Dis\_mcu, pin85. Both YT9218N and RTL8370N-VB have this feature.

|  |  |
| --- | --- |
| Pull UP | Disable Embedded MCU |
| Pull Down | Enable Embedded MCU |

 Disautoload, pin86. Both YT9218N and RTL8370N-VB have this feature.

|  |  |
| --- | --- |
| Pull UP | Disable EEPROM/FLASH autoload |
| Pull Down | Enable EEPROM/FLASH autoload |

MID29, pin89. Both YT9218N and RTL8370N-VB have this feature.

|  |  |
| --- | --- |
| Pull UP | MII Management Interface PHY ID is 29(0x1d) |
| Pull Down | MII Management Interface PHY ID is 0 |

 En\_phy, pin91. Both YT9218N and RTL8370N-VB have this feature.

|  |  |
| --- | --- |
| Pull UP | Enable Embedded PHY |
| Pull Down | Disable Embedded PHY |

 Define smi\_sel, Selection = {SMI\_SEL\_1,SMI\_SEL\_0}

Both YT9218N and RTL8370N-VB have this feature,but when smi\_sel value is 2’b11, YT9218N is YT IIC mode,RTL8370N-VB is RTL IIC mode.

|  |  |
| --- | --- |
| Pin88 | SMI\_SEL\_1 |
| Pin94 | SMI\_SEL\_0 |

EN\_EEE, pin90. Both YT9218N and RTL8370N-VB have this feature.

|  |  |
| --- | --- |
| Pull UP | Enable 802.3az EEE. |
| Pull Down | Disable 802.3az EEE.  |

Dis\_lpd, pin72. YT9218N has this feature and RTL8370N-VB does not.

|  |  |
| --- | --- |
| Pull UP | Disable Loop detection function. |
| Pull Down | Enable Loop detection function. |

Dis\_led,pin75. YT9218N has this feature and RTL8370N-VB does not.

|  |  |
| --- | --- |
| Pull UP | Disable LED function when powered on. |
| Pull Down | Enable LED function when powered on. |

En\_flash,pin84. Both YT9218N and RTL8370N-VB have this feature.

|  |  |
| --- | --- |
| Pull UP | Enable FLASH interface. |
| Pull Down | Disable FLASH interface. |

### Power on sequence



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | SYM | Description/Condition | Type | Min | Typical | Max | Units |
| Reset Delay Time | t1 | The duration from ‘all power steady’ to the reset signal released to high. | I | 0 | - | - | ms |
| Reset Low Time | t2 | The duration of reset signal remaining low time before issuing a reset to the YT9218N. | I | 10 | - | - | ms |
| VDDL Power Rise Time | t3 | VDDL power rise time.(10%-90%) | I | 0.5 | - | - | ms |
| VDDH Power Rise Time | t4 | VDDH power rise time.(10%-90%) | I | 0.5 | - | - | ms |

### Others

1. The main functions compared with RTL8370N-VB are as follow:

|  |  |  |
| --- | --- | --- |
| P/N | YT9218N | RTL8370N-VB |
| Product modality | 8\*GPHY | 8\*GPHY |
| GE PHY | 8 ports | 8 ports |
| LUT | 4K | 4K |
| Jumbo | 9K | 9K |
| LED | Parallel&Serial | Parallel&Serial |
| CSD | support | support |
| EEE | support | support |
| Green | support | support |
| Flow Control | support | support |
| Micro Processor | RISC -V | 8051 |
| Process | 55nm | NA |
| Package | LQFP 128 | LQFP 128 |

1. YT9218N E-PAD is 7.15mmX6.55mm, RTL8370MB E-PAD is 6.60mmX6.60mm. Direct replacement does not affect usage.
2. YT9218N pin65 has the function of dying gasp by resistance partial voltage. RTL8370N-VB pin65 is GPIO.

# Power Consumption Information

YT9218N:



RTL8370N-VB,no detailed data description is provided in this Datasheet.

# Software

SMI Slave：

The form is as follow.



|  |  |
| --- | --- |
| **PRE** | 32’b1 |
| **ST** | 2’b01 |
| **OP** | Write:2’b01Read:2’b10 |
| **PHY ADDR[4:0]** | When mid29 = 0, PHY ADDR = 0When mid29 = 1, PHY ADDR = 29 |
| **REG ADDR** | [4] : 1‘b0[3:2] : Switch ID[1] : ADDR/DATA, 0: ADDR, 1: DATA[0] : W/R, 0:W,1:R |
| **TA** | 2’b10 |
| **DATA** | **FRAME0**:[15:0] : PADDR[31:16]**FRAME1**:[15:0] : PADDR [15:0]**FRAME2**:[15:0] : DATA [31:16]**FRAME3**:[15:0] : DATA[15:0] |

Example MDIO frame of access register.

MID29=0,Write Switch 1, PADDR: 0x1213\_3434,DATA: 0x9876\_5432

Using Clause 22 frame format, we need to send 4 MDIO frame:

1. Write the high word of 32 bit address



1. Write the low word of 32 bit address



1. Write the high word of 32 bit data



1. Write the low word of 32 bit data

 

IIC Slave：

The 7-bit address of IIC slave is 0x5c (YT9218N IIC address:0x5c).

The write operation frame format show below :



The read operation frame format show below:



# Thermal Resistance Information



# Known Problem Specification

Nothing.