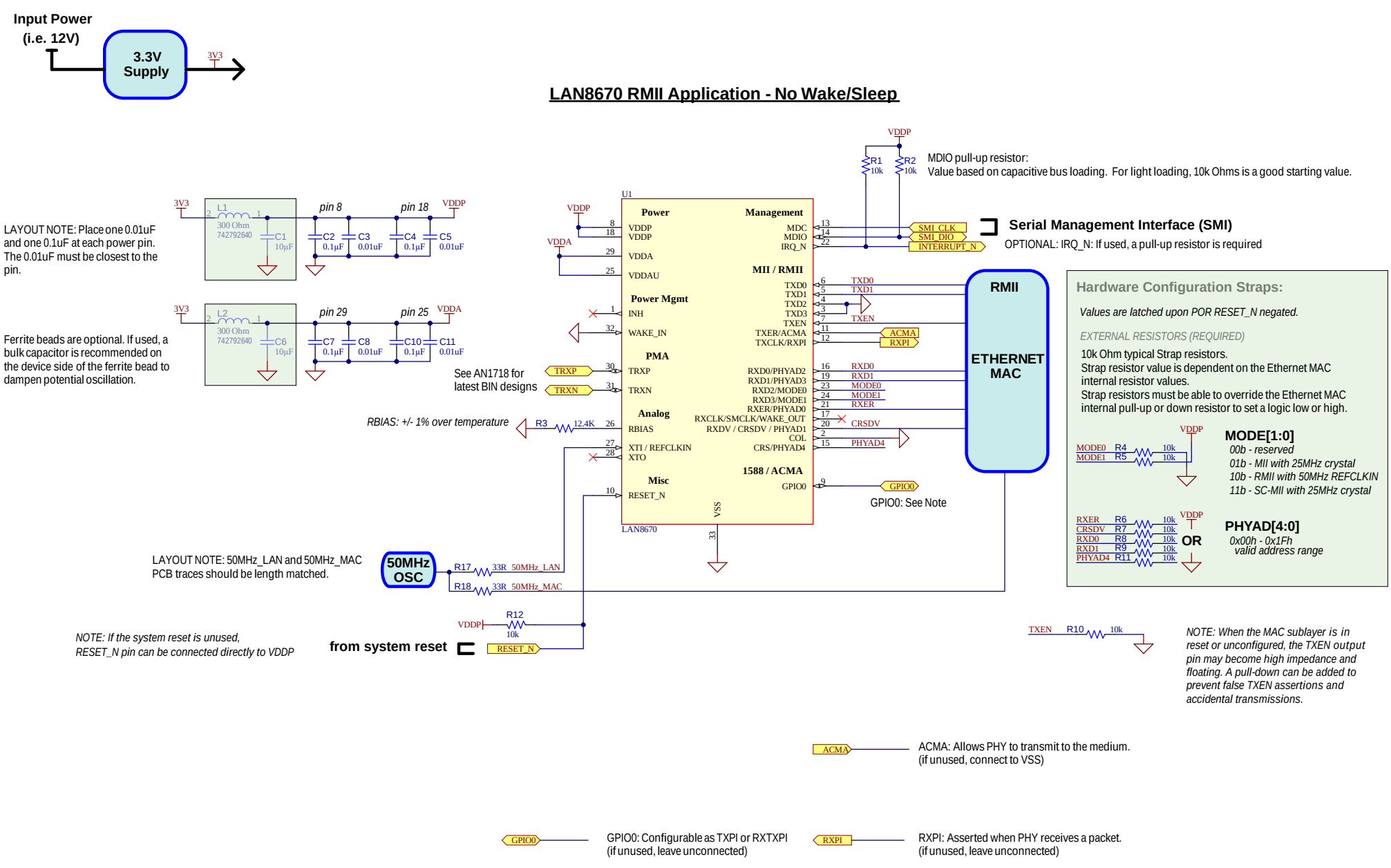
Input Power
(i.e. 12V)
3.3V Supply
3V3
LAN8670 RMII Application - No Wake/Sleep
VDDP
R1 10k
R2 10k
MDIO pull-up resistor:
Value based on capacitive bus loading. For light loading, 10k Ohms is a good starting value.
LAYOUT NOTE: Place one 0.01uF and one 0.1uF at each power pin. The 0.01uF must be closest to the pin.
Ferrite beads are optional. If used, a bulk capacitor is recommended on the device side of the ferrite bead to dampen potential oscillation.
L1
L2
300 Ohm
742792640
C1 10µF
C2 0.1µF
C3 0.01uF
C4 0.1µF
C5 0.01uF
C6 10µF
C7 0.1µF
C8 0.01uF
C10 0.1µF
C11 0.01uF
pin 8
pin 18
pin 29
pin 25
VDDA
U1
Power
VDDP
VDDA
VDDAU
Power Mgmt
INH
WAKE_IN
PMA
TRXP
TRXN
Analog
RBIAS
XTI / REFCLKIN
XTO
Misc
RESET_N
Management
MDC
MDIO
IRQ_N
MII / RMII
TXD0
TXD1
TXD2
TXD3
TXEN
TXER/ACMA
TXCLK/RXPI
RXD0/PHYAD2
RXD1/PHYAD3
RXD2/MODE0
RXD3/MODE1
RXER/PHYAD0
RXCLK/SMCLK/WAKE_OUT
RXDV / CRSDV / PHYAD1
COL
CRS/PHYAD4
1588 / ACMA
GPIO0
VSS
LAN8670
SMI_CLK
SMI_DIO
INTERRUPT_N
Serial Management Interface (SMI)
OPTIONAL: IRQ_N: If used, a pull-up resistor is required
RMII
ETHERNET MAC
ACMA
RXPI
CRSDV
PHYAD4
See AN1718 for latest BIN designs
RBIAS: +/- 1% over temperature
R3 12.4K
GPIO0: See Note
LAYOUT NOTE: 50MHz_LAN and 50MHz_MAC PCB traces should be length matched.
50MHz OSC
R17 33R 50MHz_LAN
R18 33R 50MHz_MAC
R12 10k
from system reset
NOTE: If the system reset is unused, RESET_N pin can be connected directly to VDDP
Hardware Configuration Straps:
Values are latched upon POR RESET_N negated.
EXTERNAL RESISTORS (REQUIRED)
10k Ohm typical Strap resistors.
Strap resistor value is dependent on the Ethernet MAC internal resistor values.
Strap resistors must be able to override the Ethernet MAC internal pull-up or down resistor to set a logic low or high.
MODE0 R4 10k
MODE1 R5 10k
MODE[1:0]
00b - reserved
01b - MII with 25MHz crystal
10b - RMII with 50MHz REFCLKIN
11b - SC-MII with 25MHz crystal
RXER R6 10k
CRSDV R7 10k
RXD0 R8 10k
RXD1 R9 10k
PHYAD4 R11 10k
OR
PHYAD[4:0]
0x00h - 0x1Fh
valid address range
TXEN R10 10k
NOTE: When the MAC sublayer is in reset or unconfigured, the TXEN output pin may become high impedance and floating. A pull-down can be added to prevent false TXEN assertions and accidental transmissions.
ACMA: Allows PHY to transmit to the medium.
(if unused, connect to VSS)
GPIO0: Configurable as TXPI or RXTXPI
(if unused, leave unconnected)
RXPI: Asserted when PHY receives a packet.
(if unused, leave unconnected)