

# Network Wide

## Optical Transceivers

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### **X2-10GB-ER- NW**

10Gb/s 1550nm SM X2 ER MODULE



#### **Features**

- X2 MSA Compliant
- 70-PIN connector
- SC duplex receptacle package
- XAUI 4x3.125Gb/s and TX/RX 10Gb/s data rate
- Cooled EA-DFB/PIN-PD
- Power supply: +5.0 V, +3.3 V, APS:+1.2 V
- Power Dissipation 4W Maximum
- 0°C to 70°C Operating Case Temperature
- Digital Diagnostic Monitoring
- Management and control with MDIO 2-wire bus
- XAUI electrical interface 4 x 3.125 Gb/s Ethernet ≤40km ER (Extended Range) 10GBE
- RoHS compliant and lead free

#### **Applications**

- 10 Gb/s Ethernet transmission systems

#### **Product Description**

The **X2-10GB-ER-NW** is a highly integrated serial optical module for high-speed, 10Gbit/s data transmission applications.

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### NW Absolute Maximum Ratings

**Parameter Symbol Min Max Unit**

Supply Voltage+5V Vcc5 6.0 V  
Supply Voltage\_3.3V Vcc3 4 V  
Supply Voltage APS Vaps 2 V  
Storage Temperature Tst -20 85 °C  
Optical Input Received Power PIN - -1 dBm

### NW Operating Conditions

**Parameter Symbol Min Typical Max Unit**

Operating Case temperature Tca 0 - 70 °C  
Supply Voltage+5V Vcc5 4.75 5 5.25 V  
**Supply Current+5V Icc5 500 mA**  
Supply Voltage\_3.3V VCC3 3.14 3.3 3.47 V  
Supply Current+3.3V Icc3 1000 mA  
Supply Voltage APS Vaps 1.14 1.2 1.26 V  
Supply Current APS Iaps 1100 mA  
Module Power Dissipation Pm - 4 W

### NW Transmitter Specifications – Optical

**Parameter Symbol Min Typical Max Unit**

Center Wavelength  $\lambda_c$  1530 1565 nm  
Optical Transmit Power Po -1 2 dBm  
Optical Transmit Power (disabled) Ptx-dis - -40 dBm  
Extinction Ratio ER 9 - dB  
Side Mode Suppression Ratio SMSR 30 - - dB  
Eye Mask IEEE 802.3ae Compliant

### NW Transmitter Specifications – Electrical

**Parameter Symbol Min Typical Max Unit**

Data Rate (TXLINE0-3) TX-xaui - 3125 - Mbps  
Differential impedance Zo 80 100 120  $\Omega$   
Differential Input Amplitude Vin P-P 160 - 2000 mVpp  
Input Rise/Fall TR / TF 60 - 130 ps  
Differential Impedance of Zin Zin - 100 - ohm

### NW Receiver Specifications – Optical

**Parameter Symbol Min Typical Max Unit**

Received power Rpo -11.7 - -3 dBm  
Maximum Input Power RX-overload -3 - - dBm  
Input Operating Wavelength  $\lambda$  1260 - 1565 nm  
Reflectance Rrx - - -27 dB

### NW Receiver Specifications – Electrical

**Parameter Symbol Min Typical Max Unit**

Data Rate (TXLINE0-3) RX-xaui 3125 Mbps  
Supply Voltage VccRX 3.13 3.3 3.47 V  
Differential Output Amplitude Vout P-P 800 - 1600 mV  
Rise/Fall Time Tr / Tf 50 - 90 ps  
Differential Impedance of Zout Zout - 100 - ohm

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### NW Signal Specifications – Electrical

#### Parameter Symbol Min Typ Max Units

1.2 V CMOS

Input High Voltage VIL(MAX) - - 0.36 V

Input Low Voltage VIH(MIN) 0.84 - 1.25 V

Capacitance - - 320 pF

Pull Up Resistance Rpull 10k - 22k ohm

MDIO I/O

Output Low Voltage VOL -0.3 - 0.2 V

Output Low Current IOL - - 4 mA

Input High Voltage VIH 0.84 - 1.5 V

Input Low Voltage VIL -0.3 - 0.36 V

Pull-up Supply Voltage VPULL 1.14 1.2 1.26

Input Capacitance CIN - - 10 Pf

Load Capacitance CLOD - - 470 Pf

External Pull-up Resistance EPULL 200 - - Ohm

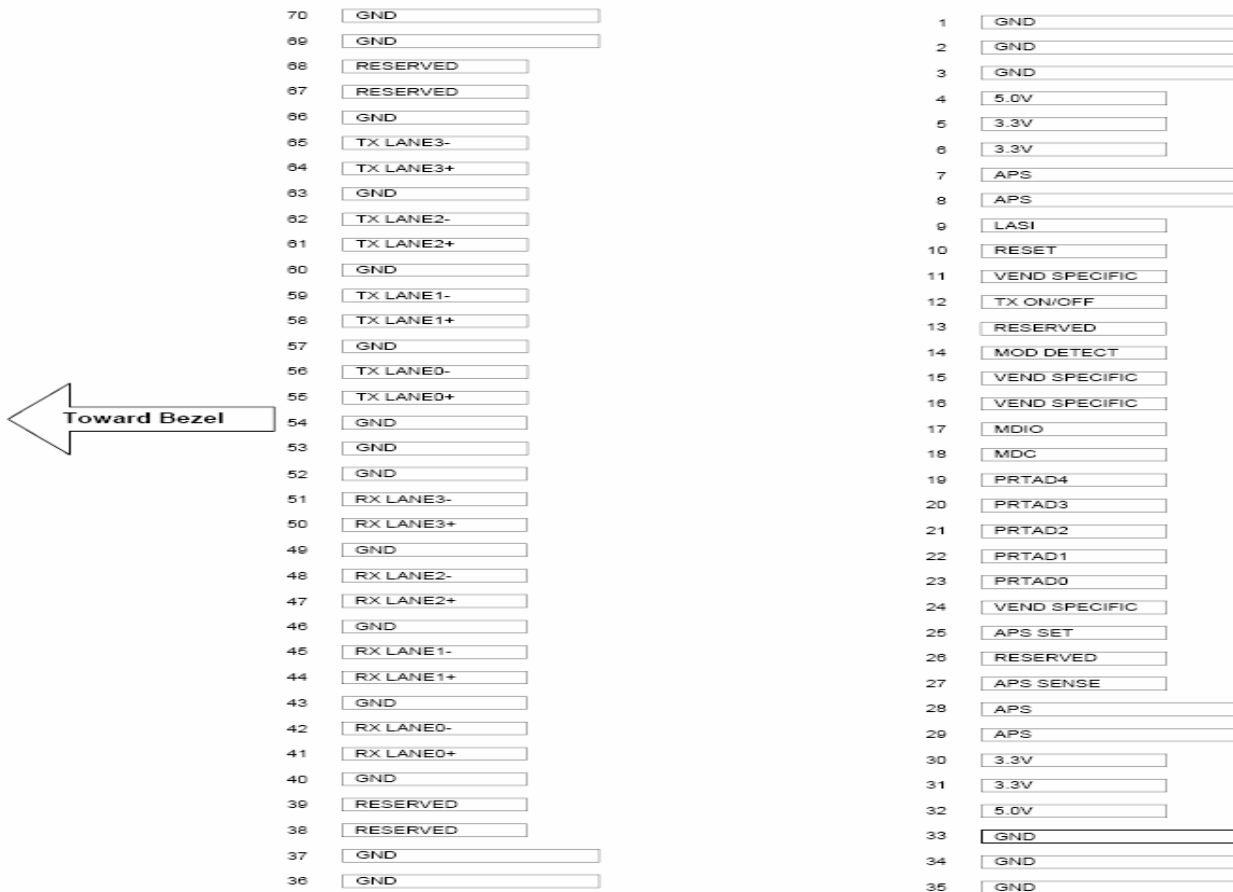


Figure1.Electrical Pin-out Details

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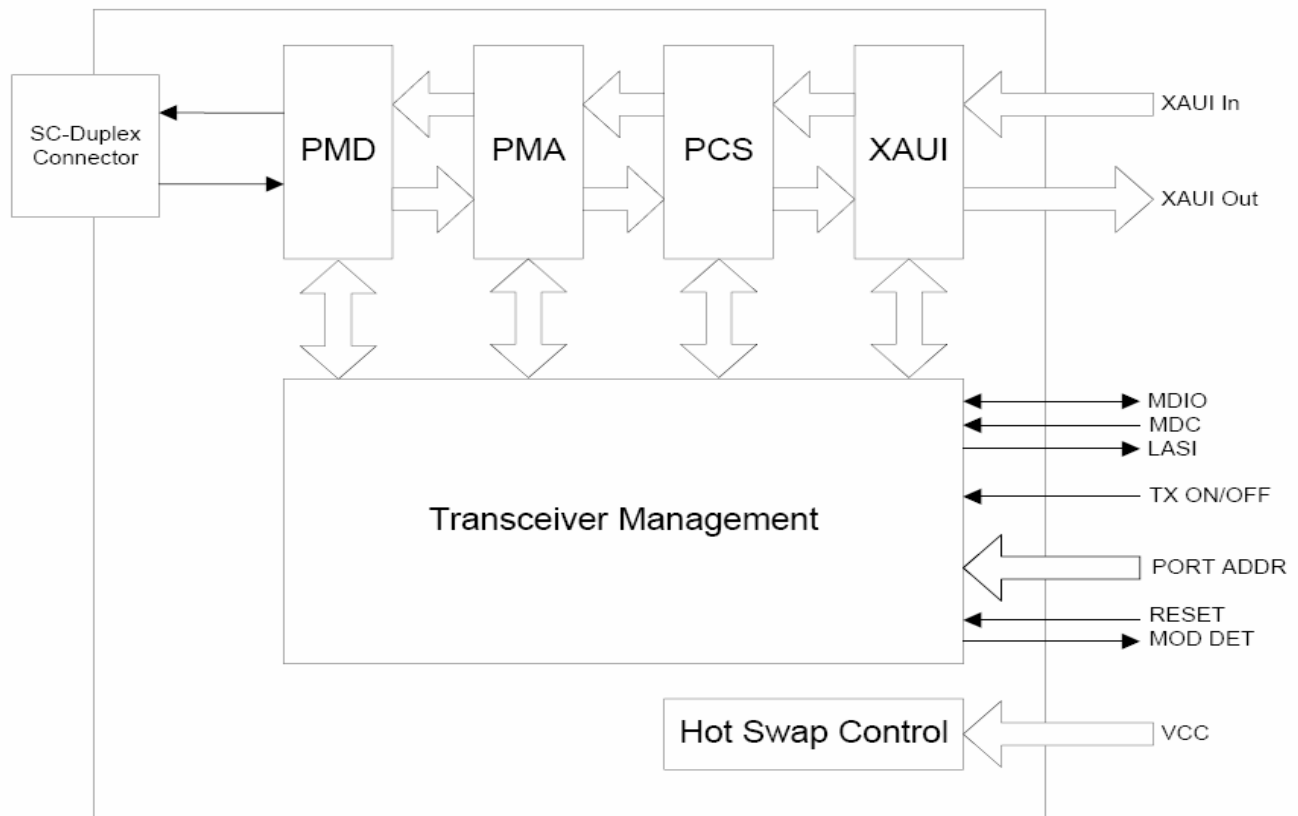
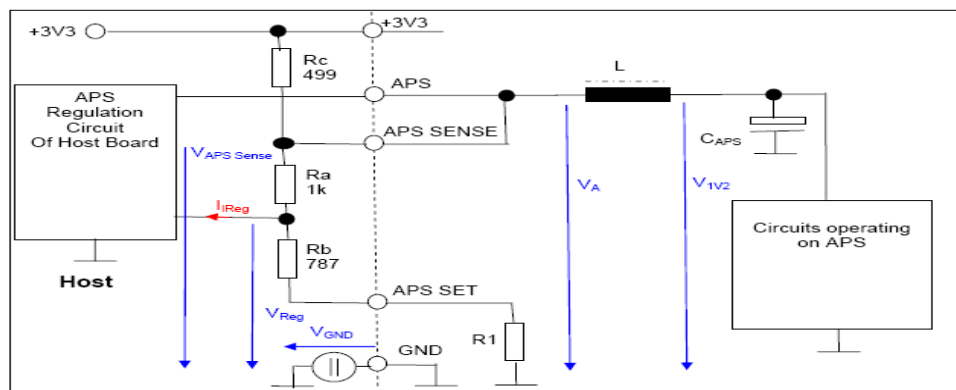


Figure2. Functional Diagram of Typical X2 Style Transceiver

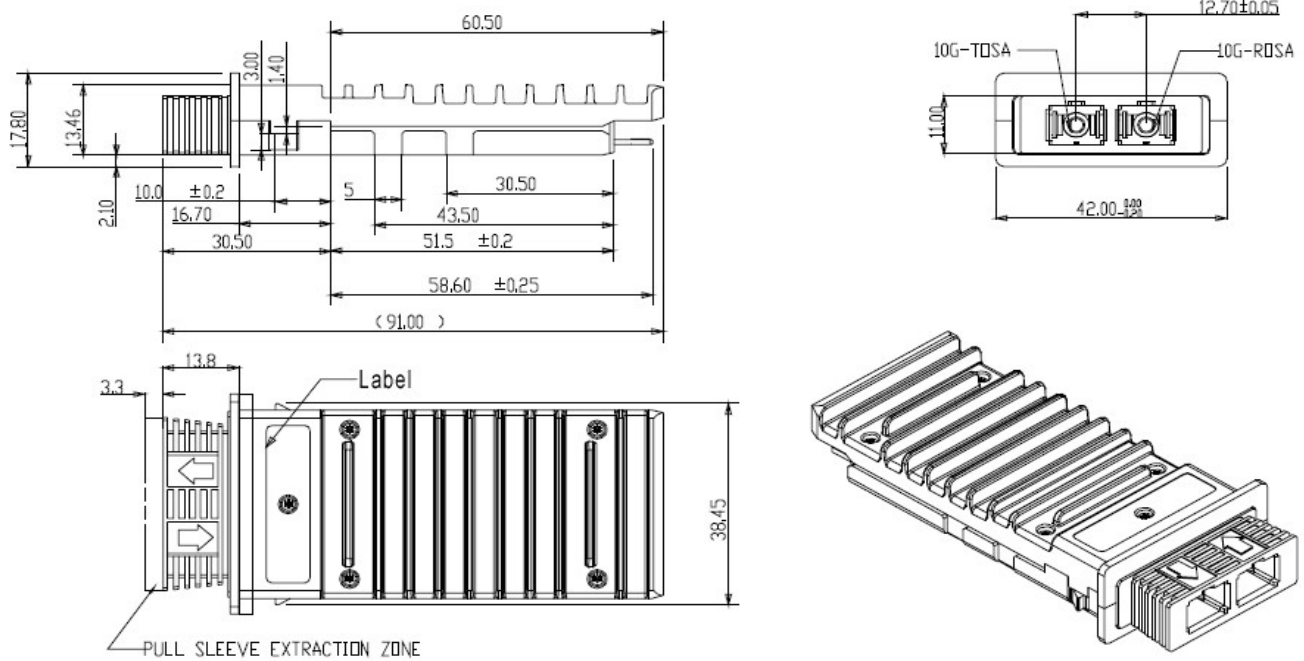
### NW Block Diagram of Adapter Power Supply Circuit



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### NW Package Dimensions



Dimensions in mm

**Figure3.** Mechanical Dimensions

**NW Ordering information: E\_mail:** [sales@networkwide.co.uk](mailto:sales@networkwide.co.uk)

Part Number	Product Description
X2-10GB-ER- NW	X2, 40km(ER), 0°C ~ 70°C