

**10GBASE-T SFP+ Copper Transceiver (KW3901)**  
**) Hot Pluggable, 10Gb/s, Cat-6a/7 UTP Cable,**  
**30m**

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**Features:**

- ✧ Up to 10Gb/s bi-directional data links
- ✧ Hot-pluggable SFP+ footprint
- ✧ Fully metallic enclosure for low EMI
- ✧ Low power dissipation
- ✧ Compact RJ-45 connector assembly
- ✧ Access to physical layer IC via 2-wire serial bus
- ✧ Supports Links up to 30m using Cat 6a/7 Cable

- ✧ RoHS Compliant
- ✧ Operating case temperature: 0°C to 70°C

**Applications:**

- ✧ 10 Gigabit Ethernet over Cat 6a/7 cable
- ✧ 5000GBASE-T over Cat 5e cable
- ✧ 2500GBASE-T over Cat 5e cable
- ✧ 1.25 Gigabit Ethernet over Cat 5e cable
- ✧ 100M Ethernet over Cat 5e cable
- ✧ 10M Ethernet over Cat 5e cable

**Description:**

KW3901 Copper Small Form Pluggable (SFP) transceivers are high performance, cost effective module compliant with the 10G Ethernet and 10GBASE-T standards as specified in IEEE 802.3az, which supporting 10Gbps data- rate up to 30 meters reach over unshielded twisted-pair category 6a/7 cables. The module provides standard serial ID information compliant with SFP+ MSA, which can be accessed with address of A0h via the 2wire serial EEPROM protocol.

**Cable Length:**

| Line Port  | Cable | Reach | Host Port |
|------------|-------|-------|-----------|
| 10Gbase-T  | CAT6A | 30m   | 10GBase-R |
| 5Gbase-T   | CAT5E | 50m   | 10GBase-R |
| 2.5Gbase-T | CAT5E | 50m   | 10GBase-R |
| 1000base-T | CAT5E | 100m  | 10GBase-R |
| 100base-Tx | CAT5E | 100m  | 10GBase-R |
| 10base-Tx  | CAT5E | 100m  | 10GBase-R |

**+3.3V Volt Electrical Power Interface**

The KW3901 has an input voltage range of +3.3V +/- 5%.

**Table 1. +3.3V Volt electrical power interface**

| +3.3V volt Electrical Power Interface |        |      |     |      |       |   |
|---------------------------------------|--------|------|-----|------|-------|---|
| Parameter                             | Symbol | Min  | Typ | Max  | Units | Notes/Conditions  |
| Supply Current                        | Is     |      | 700 | 750  | mA    | 2.5W max power over full range of voltage and temperature. See caution note below |
| Input Voltage                         | Vcc    | 3.13 | 3.3 | 3.47 | V     | Referenced to GND   |
| Maximum Voltage                       | Vmax   |      |     | 4    | V     |   |
| Surge Current                         | Isurge |      |     | 30   | mA    | Hot plug above steady state current. See caution note below                       |

Caution: Power consumption and surge current are higher than the specified values in the SFP MSA.

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**General Specifications**

**Table 2. General specifications**

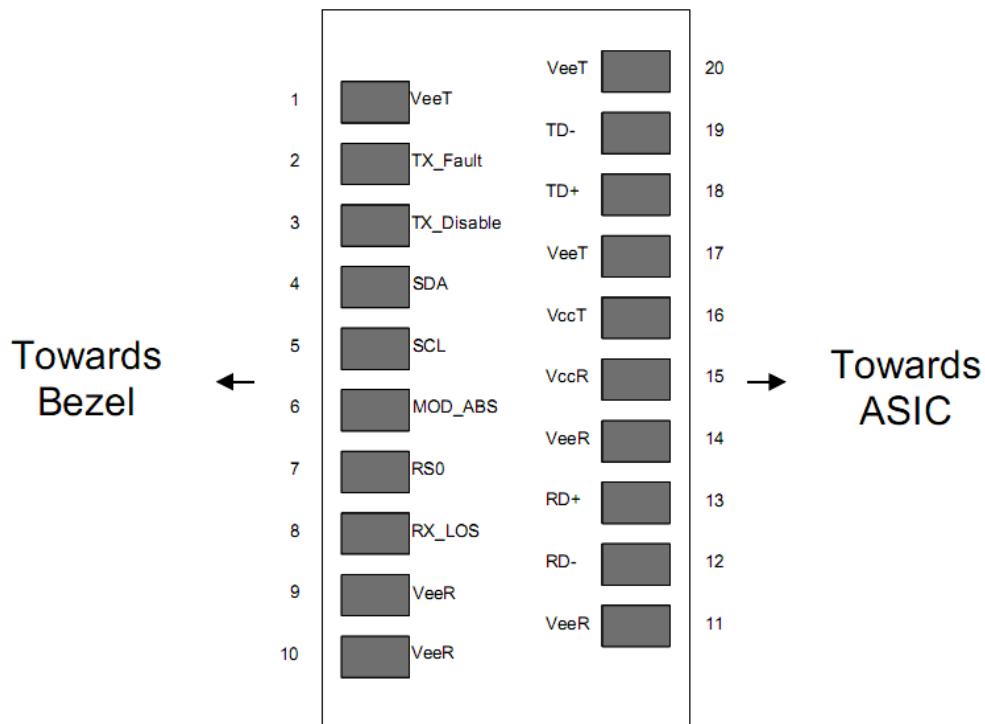
| General      |        |     |      |     |        |                               |
|--------------|--------|-----|------|-----|--------|-------------------------------|
| Parameter    | Symbol | Min | Typ  | Max | Units  | Notes/Conditions              |
| Data Rate    | BR     |     | 10.3 |     | Gb/sec | IEEE 802.3 compatible.        |
| Cable Length | L      |     |      | 30  | m      | Category 6a/7 UTP. BER <10-12 |

**Environmental Specifications**

**Table 3. Environmental specifications**

| Environmental Specifications |        |     |     |     |       |                     |
|------------------------------|--------|-----|-----|-----|-------|---------------------|
| Parameter                    | Symbol | Min | Typ | Max | Units | Notes/Conditions    |
| Operating Temperature        | Top    | 0   |     | 70  | °C    | Case temperature    |
| Storage Temperature          | Tsto   | -40 |     | 85  | °C    | Ambient temperature |

**Pin Descriptions:**



| Pin | Signal Name      | Description                  | Plug Seq. | Notes         |
|-----|------------------|------------------------------|-----------|---------------|
| 1   | V <sub>EET</sub> | Transmitter Ground           | 1         |               |
| 2   | TX FAULT         | Transmitter Fault Indication | 3         | Not supported |
| 3   | TXDISABLE        | Transmitter Disable          | 3         |               |
| 4   | SDA              | SDA Serial Data Signal       | 3         |               |

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|    |                  |   |   |  |
|----|------------------|---|---|--|
| 5  | SCL              | SCL Serial Clock Signal                   | 3 |  |
| 6  | MOD_ABS          | Module Absent. Grounded within the module | 3 |  |
| 7  | RS0              | Not Connected                             | 3 |  |
| 8  | LOS              | Loss of Signal                            | 3 |  |
| 9  | V <sub>EER</sub> | Receiver ground                           | 1 |  |
| 10 | V <sub>EER</sub> | Receiver ground                           | 1 |  |
| 11 | V <sub>EER</sub> | Receiver ground                           | 1 |  |
| 12 | RD-              | Inv. Received Data Out                    | 3 |  |
| 13 | RD+              | Received Data Out                         | 3 |  |
| 14 | V <sub>EER</sub> | Receiver ground                           | 1 |  |
| 15 | V <sub>CCR</sub> | Receiver Power Supply                     | 2 |  |
| 16 | V <sub>CCT</sub> | Transmitter Power Supply                  | 2 |  |
| 17 | V <sub>EET</sub> | Transmitter Ground                        | 1 |  |
| 18 | TD+              | Transmit Data In                          | 3 |  |
| 19 | TD-              | Inv. Transmit Data In                     | 3 |  |
| 20 | V <sub>EET</sub> | Transmitter Ground                        | 1 |  |

**Mechanical Specifications**

