

### CFP-100G-SR10-HUW-C

Huawei® 02310YTB Compatible TAA 100GBase-SR10 CFP Transceiver (MMF, 850nm, 150m, MPO, DOM)

#### Features:

- CFP MSA 1.4 Compliance
- MPO Connector
- Multi-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



#### Applications:

- 100GBase Ethernet
- Access and Enterprise

#### Product Description

This Huawei® 02310YTB compatible CFP transceiver provides 100GBase-SR10 throughput up to 150m over multi-mode fiber (MMF) using a wavelength of 850nm via an MPO connector. It is guaranteed to be 100% compatible with the equivalent Huawei® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."



### Absolute Maximum Ratings

| Parameter                 | Symbol | Min. | Max.    | Unit |
|---------------------------|--------|------|---------|------|
| Storage Temperature       | TST    | -20  | +85     | °C   |
| Supply Voltage            | VCC    | -0.3 | 3.6     | V    |
| Input Voltage             | VIN    | -0.3 | VCC+0.3 | V    |
| Humidity (non-condensing) | Rh     | 5    | 95      | %    |

### Recommended Operating Conditions

| Parameter                  | Symbol | Min. | Typ. | Max. | Unit |
|----------------------------|--------|------|------|------|------|
| Operating Case Temperature | TOP    | 0    |      | +70  | °C   |
| Power Supply Voltage       | VCC    | 3.13 | 3.3  | 3.47 | V    |
| Power Supply Current       | ICC    |      |      | 300  | mA   |
| Surge Current              | ISurge |      |      | +30  | mA   |
| Data Rate Per Lane         | fd     |      |      | 11.2 | Gbps |

### Electrical Characteristics

| Parameter                             | Symbol           | Min.    | Typ. | Max. | Unit  |
|---------------------------------------|------------------|---------|------|------|-------|
| Differential Input Impedance          | Zin              | 90      | 100  | 110  | ohm   |
| Differential Output impedance         | Zout             | 90      | 100  | 110  | ohm   |
| Differential Input Voltage Amplitude  | $\Delta V_{in}$  | 120     |      | 820  | mVp-p |
| Differential Output Voltage Amplitude | $\Delta V_{out}$ | 300     |      | 820  | mVp-p |
| Input Logic Level High                | VIH              | 2.0     |      | VCC  | V     |
| Input Logic Level Low                 | VIL              | 0       |      | 0.8  | V     |
| Output Logic Level High               | VOH              | VCC-0.5 |      | VCC  | V     |
| Output Logic Level Low                | VOL              | 0       |      | 0.4  | V     |

## Optical Characteristics

| Parameter                                    | Symbol                                         | Min. | Typ. | Max. | Unit |
|----------------------------------------------|------------------------------------------------|------|------|------|------|
| Data Rate                                    |                                                |      |      | 11.2 | Gbps |
| Transmitter                                  |                                                |      |      |      |      |
| Center Wavelength                            | $\lambda_c$                                    | 840  | 850  | 860  | nm   |
| RMS Spectral Width                           | $\lambda$                                      |      | 0.5  | 0.65 | nm   |
| Average Optical Power (per channel)          | Pout                                           | -8   | -25  | +1   | dBm  |
| Average Optical Power (per channel) Disabled | Poff                                           |      |      | -30  | dBm  |
| Optical Return Loss Tolerance                |                                                |      |      | 12   | dB   |
| Extinction Ratio                             | ER                                             | 3    |      |      | dB   |
| Transmitter eye mask                         | Compliant to IEEE802.3a eye mask specification |      |      |      |      |
| Receiver                                     |                                                |      |      |      |      |
| Center Wavelength                            | $\lambda_c$                                    | 840  | 850  | 860  | nm   |
| RMS Spectral Width                           | $\lambda$                                      |      | 0.5  | 0.65 | nm   |
| Optical Return Loss                          | RI                                             | 12   |      |      | dB   |
| Optical Power Sensitivity (per channel)      | Pin min                                        |      | -12  | -9.9 | dBm  |
| Optical Power Saturation (per channel)       | Pin max                                        | +1   |      |      | dBm  |
| Stressed Receiver Sensitivity                | Ps                                             |      |      | -5.4 | dBm  |

## Pin Descriptions

### Part A: Bottom Row Pin Function Definition

| Pin | Symbol     | Type            | I/O | Description                                                                                                                                                    |
|-----|------------|-----------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | 3.3V_GND   | GND             |     | 3.3V Module Supply Voltage Return Ground, Can be separate or tied together with Signal Ground                                                                  |
| 2   | 3.3V_GND   | GND             |     |                                                                                                                                                                |
| 3   | 3.3V_GND   | GND             |     |                                                                                                                                                                |
| 4   | 3.3V_GND   | GND             |     |                                                                                                                                                                |
| 5   | 3.3V_GND   | GND             |     |                                                                                                                                                                |
| 6   | 3.3V       | VCC             |     | 3.3V Module Supply                                                                                                                                             |
| 7   | 3.3V       | VCC             |     |                                                                                                                                                                |
| 8   | 3.3V       | VCC             |     |                                                                                                                                                                |
| 9   | 3.3V       | VCC             |     |                                                                                                                                                                |
| 10  | 3.3V       | VCC             |     |                                                                                                                                                                |
| 11  | 3.3V       | VCC             |     |                                                                                                                                                                |
| 12  | 3.3V       | VCC             |     |                                                                                                                                                                |
| 13  | 3.3V       | VCC             |     |                                                                                                                                                                |
| 14  | 3.3V       | VCC             |     |                                                                                                                                                                |
| 15  | 3.3V       | VCC             |     |                                                                                                                                                                |
| 16  | 3.3V_GND   | GND             |     |                                                                                                                                                                |
| 17  | 3.3V_GND   | GND             |     |                                                                                                                                                                |
| 18  | 3.3V_GND   | GND             |     |                                                                                                                                                                |
| 19  | 3.3V_GND   | GND             |     |                                                                                                                                                                |
| 20  | 3.3V_GND   | GND             |     |                                                                                                                                                                |
| 21  | NC         |                 | I/O | Do not use                                                                                                                                                     |
| 22  | NC         |                 | I/O | Do not use                                                                                                                                                     |
| 23  | GND        | GND             |     |                                                                                                                                                                |
| 24  | (TX_MCLKn) | CML             | O   | Do not use                                                                                                                                                     |
| 25  | (TX_MCLKp) | CML             | O   | Do not use                                                                                                                                                     |
| 26  | GND        | GND             |     |                                                                                                                                                                |
| 27  | NC         |                 | I/O | Do not use                                                                                                                                                     |
| 28  | NC         |                 | I/O | Do not use                                                                                                                                                     |
| 29  | NC         |                 | I/O | Do not use                                                                                                                                                     |
| 30  | PRG_CTL1   | LVC MOS<br>w/PU | I   | Programmable Control 1 set via MDIO, MSA default: TRXIC_RSTn-TX & RX IC reset. "0"=reset, "1" or NC = enabled or not used                                      |
| 31  | PRG_CTL2   | LVC MOS<br>w/PU | I   | Programmable Control 2 set via MDIO, MSA default: Hardware power Interlock LSB, "00" = <8W, "01" = <16W, "10" < 24W, "11" or NC = >24W or not used             |
| 32  | PRG_CTL3   |                 |     | Programmable Control 3 set via MDIO, MSA default: Hardware power Interlock MSB, "00" = <8W, "01" = <16W, "10" < 24W, "11" or NC = >24W or not used             |
| 33  | PRG_ALRM1  | LVC MOS         | O   | Programmable Alarm 1 set via MDIO, Reflex default: HIPWR_ON, Module power on indicator. "1" = Module high power up completed, "0" = Module not high powered up |
| 34  | PRG_ALRM2  | LVC MOS         | O   | Programmable Alarm 2 set via MDIO, Reflex default: MOD_READY, module initialization complete, "1" = complete, "0" = not complete                               |

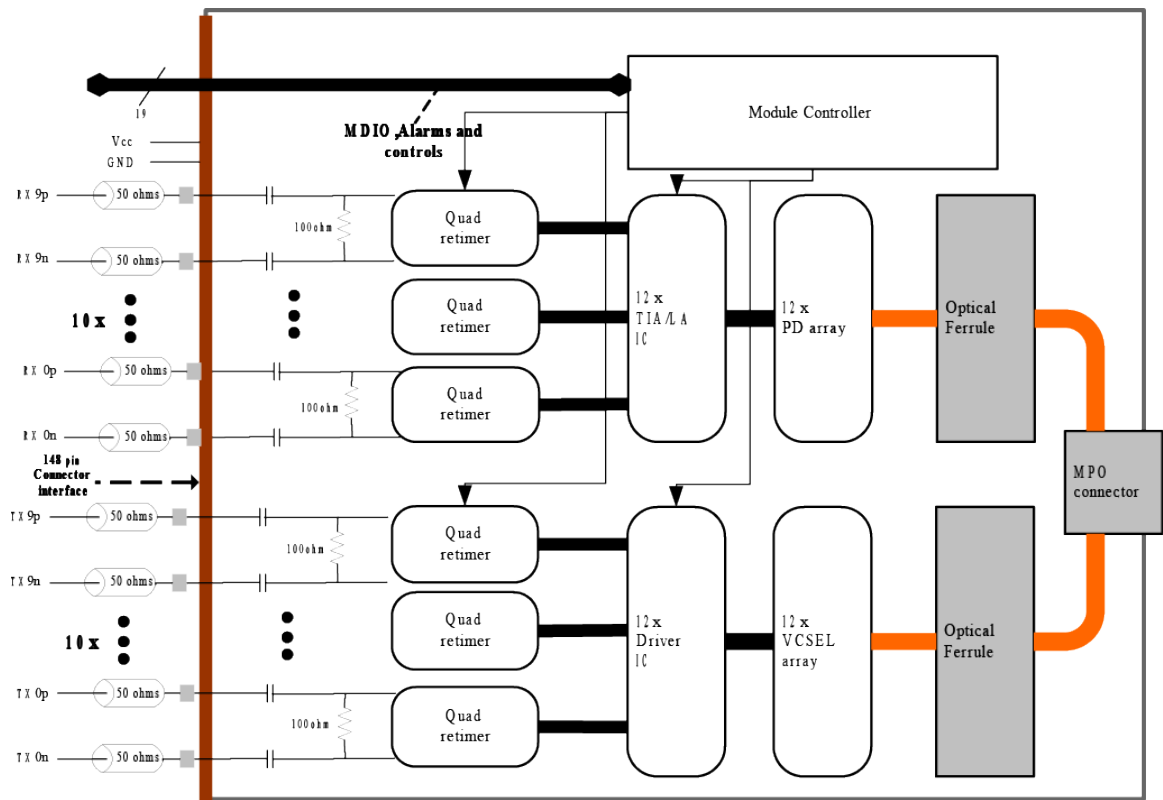
|    |           |              |     |                                                                                                                  |
|----|-----------|--------------|-----|------------------------------------------------------------------------------------------------------------------|
| 35 | PRG_ALRM3 | LVC MOS      | O   | Programmable Alarm 3 set via MDIO, Reflex default: MOD_FAULT, module fault detected, "1" = fault, "0" = no fault |
| 36 | TX_DIS    | LVC MOS w/PU | I   | Transmitter Disable for all channels, "1" or NC = transmitter disabled, "0" = transmitter enabled                |
| 37 | MOD_LOPW  | LVC MOS w/PU | I   | Module low power mode. "1" or NC = module in low power (safe) mode, "0" = power-on enabled                       |
| 38 | MOD_ABS   | GND          | O   | Module Absent. "1" or NC = Module absent, "0" = module present. Pull-up resistor on Host                         |
| 39 | MOD_RSTn  | LVC MOS w/PD | I   | Module Reset. "0" = reset the module, "1" or NC = module enabled, Pull Down resistor in module                   |
| 40 | RX_LOS    | LVC MOS      | O   | Receiver loss of optical signal on any channel, "1" = loss of signal, "0" = normal condition                     |
| 41 | GLB_ALRMn | LVC MOS      | O   | Global Alarm. "0" = alarm condition in any MDIO alarm register, "1" = no alarm                                   |
| 42 | PRTADR4   | 1.2V CMOS    | I   | MDIO port address bit 4                                                                                          |
| 43 | PRTADR3   | 1.2V CMOS    | I   | MDIO port address bit 3                                                                                          |
| 44 | PRTADR2   | 1.2V CMOS    | I   | MDIO port address bit 2                                                                                          |
| 45 | PRTADR1   | 1.2V CMOS    | I   | MDIO port address bit 1                                                                                          |
| 46 | PRTADR0   | 1.2V CMOS    | I   | MDIO port address bit 0                                                                                          |
| 47 | MDIO      | 1.2V CMOS    | I/O | Management Data I/O bi-directional data (electrical specs as per 802.3ae)                                        |
| 48 | MDO       | 1.2V CMOS    | I   | Management data clock (electrical specs as per 802.3ae)                                                          |
| 49 | GND       | GND          |     |                                                                                                                  |
| 50 | NC        |              | I/O | Do not use                                                                                                       |
| 51 | NC        |              | I/O | Do not use                                                                                                       |
| 52 | GND       | GND          |     |                                                                                                                  |
| 53 | NC        |              | I/O | Do not use                                                                                                       |
| 54 | NC        |              | I/O | Do not use                                                                                                       |
| 55 | 3.3V_GND  | GND          |     | 3.3V Module Supply Voltage Return Ground, can be separate or tied together with Signal Ground                    |
| 56 | 3.3V_GND  | GND          |     |                                                                                                                  |
| 57 | 3.3V_GND  | GND          |     |                                                                                                                  |
| 58 | 3.3V_GND  | GND          |     |                                                                                                                  |
| 59 | 3.3V_GND  | GND          |     |                                                                                                                  |
| 60 | 3.3V      | VCC          |     | 3.3V Module Supply                                                                                               |
| 61 | 3.3V      | VCC          |     |                                                                                                                  |
| 62 | 3.3V      | VCC          |     |                                                                                                                  |
| 63 | 3.3V      | VCC          |     |                                                                                                                  |
| 64 | 3.3V      | VCC          |     |                                                                                                                  |
| 65 | 3.3V      | VCC          |     |                                                                                                                  |
| 66 | 3.3V      | VCC          |     |                                                                                                                  |
| 67 | 3.3V      | VCC          |     |                                                                                                                  |
| 68 | 3.3V      | VCC          |     |                                                                                                                  |
| 69 | 3.3V      | VCC          |     |                                                                                                                  |
| 70 | 3.3V_GND  | GND          |     |                                                                                                                  |
| 71 | 3.3V_GND  | GND          |     |                                                                                                                  |
| 72 | 3.3V_GND  | GND          |     |                                                                                                                  |

|           |          |     |  |  |
|-----------|----------|-----|--|--|
| <b>73</b> | 3.3V_GND | GND |  |  |
| <b>74</b> | 3.3V_GND | GND |  |  |

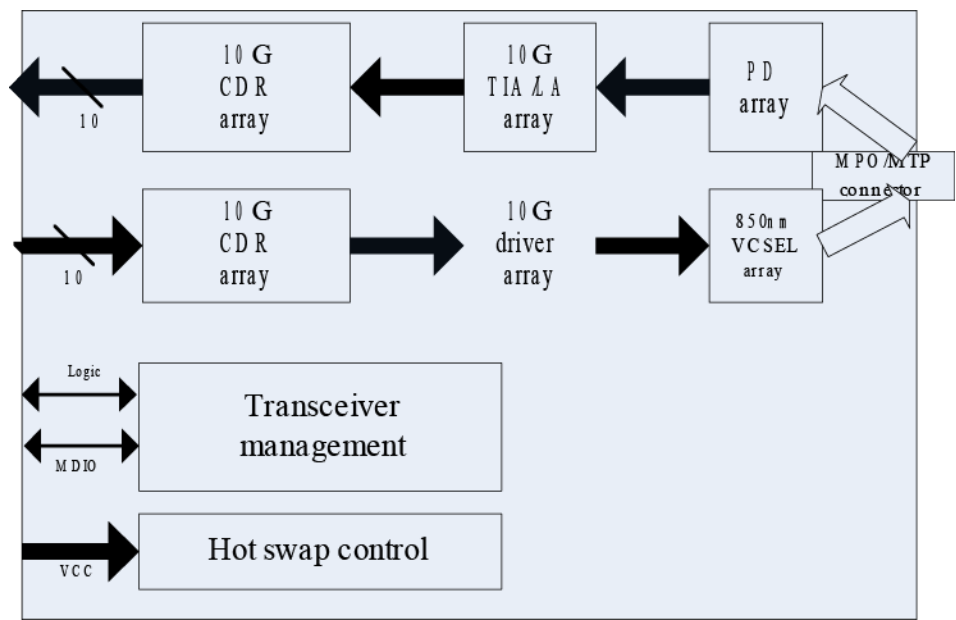
Part B: Top Row Pin Function Definition

| Pin        | Symbol   | Pin        | Symbol | Pin        | Symbol | Pin        | Symbol   | Pin        | Symbol   |
|------------|----------|------------|--------|------------|--------|------------|----------|------------|----------|
| <b>148</b> | GND      | <b>136</b> | GND    | <b>124</b> | GND    | <b>112</b> | GND      | <b>100</b> | RX7p     |
| <b>147</b> | Not used | <b>135</b> | TX7n   | <b>123</b> | TX3n   | <b>111</b> | GND      | <b>99</b>  | GND      |
| <b>146</b> | Not used | <b>134</b> | TX7p   | <b>122</b> | TX3p   | <b>110</b> | Not used | <b>98</b>  | RX6n     |
| <b>145</b> | GND      | <b>133</b> | GND    | <b>121</b> | GND    | <b>109</b> | Not used | <b>97</b>  | RX6p     |
| <b>144</b> | Not used | <b>132</b> | TX6n   | <b>120</b> | TX2n   | <b>108</b> | GND      | <b>96</b>  | GND      |
| <b>143</b> | Not used | <b>131</b> | TX6p   | <b>119</b> | TX2p   | <b>107</b> | RX9n     | <b>95</b>  | RX5n     |
| <b>142</b> | GND      | <b>130</b> | GND    | <b>118</b> | GND    | <b>106</b> | RX9p     | <b>94</b>  | RX5p     |
| <b>141</b> | TX9n     | <b>129</b> | TX5n   | <b>117</b> | TX1n   | <b>105</b> | GND      | <b>93</b>  | GND      |
| <b>140</b> | TX9p     | <b>128</b> | TX5p   | <b>116</b> | TX1p   | <b>104</b> | RX8n     | <b>92</b>  | RX4n     |
| <b>139</b> | GND      | <b>127</b> | GND    | <b>115</b> | GND    | <b>103</b> | RX8p     | <b>91</b>  | RX4p     |
| <b>138</b> | TX8n     | <b>126</b> | TX4n   | <b>114</b> | TX0n   | <b>102</b> | GND      | <b>90</b>  | GND      |
| <b>137</b> | TX8p     | <b>125</b> | TX4p   | <b>113</b> | TX0p   | <b>101</b> | RX7n     | <b>89</b>  | RX3n     |
| <b>88</b>  | RX3p     | <b>85</b>  | RX2p   | <b>82</b>  | RX1p   | <b>79</b>  | RX0p     | <b>76</b>  | Not used |
| <b>87</b>  | GND      | <b>84</b>  | GND    | <b>81</b>  | GND    | <b>78</b>  | GND      | <b>75</b>  | GND      |
| <b>86</b>  | RX2n     | <b>83</b>  | RX1n   | <b>80</b>  | RX0n   | <b>77</b>  | Not used |            |          |

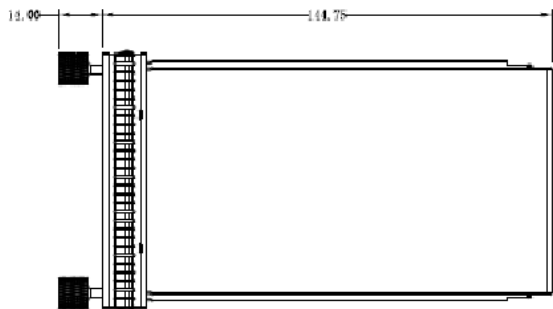
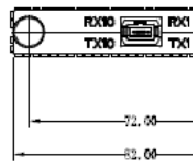
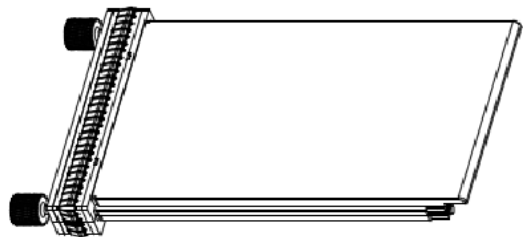
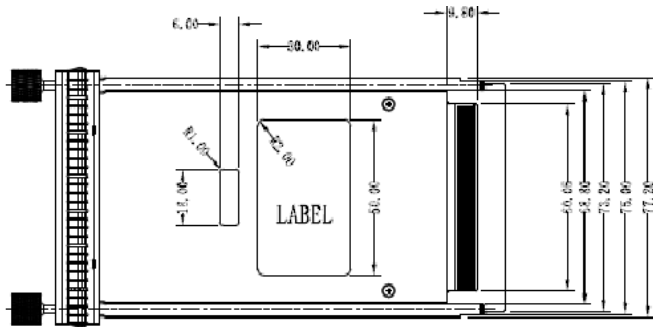
CFP Module Functional Block Diagram



Module Block Diagram



Mechanical Specifications





## About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

## Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

## Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



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