

### 1019-2900-PRO

Optelian® 1019-2900 Compatible TAA Compliant 100GBase-SR10 CFP Transceiver (MMF, 850nm, 150m, DOM, 0 to 70C, MPO)

#### Features

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



#### Applications:

- 100GBase Ethernet
- Access and Enterprise

#### Product Description

This Optelian® 1019-2900 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 Optelian® 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.

Proline's 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	V <sub>IH</sub>	2.0		VCC	V
Input Logic Level Low	V <sub>IL</sub>	0		0.8	V
Output Logic Level High	V <sub>OH</sub>	VCC-0.5		VCC	V
Output Logic Level Low	V <sub>OL</sub>	0		0.4	V

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Data Rate				11.2	Gbps
<b>Transmitter</b>					
Center Wavelength	$\lambda_c$	840	850	860	nm
RMS Spectral Width	$\lambda$		0.5	0.65	nm
Average Optical Power (per channel)	P <sub>out</sub>	-8	-25	+1	dBm
Average Optical Power (per channel) Disabled	P <sub>off</sub>			-30	dBm
Optical Return Loss Tolerance				12	dB
Extinction Ratio	ER	3			dB
Transmitter eye mask	Compliant to IEEE802.3a eye mask specification				
<b>Receiver</b>					
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)	P <sub>in min</sub>		-12	-9.9	dBm
Optical Power Saturation (per channel)	P <sub>in max</sub>	+1			dBm
Stressed Receiver Sensitivity	P <sub>s</sub>			-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 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 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_ALARM1	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_ALARM2	LVC MOS	O	Programmable Alarm 2 set via MDIO, Reflex default: MOD_READY, module initialization complete, "1" = complete, "0" = not complete

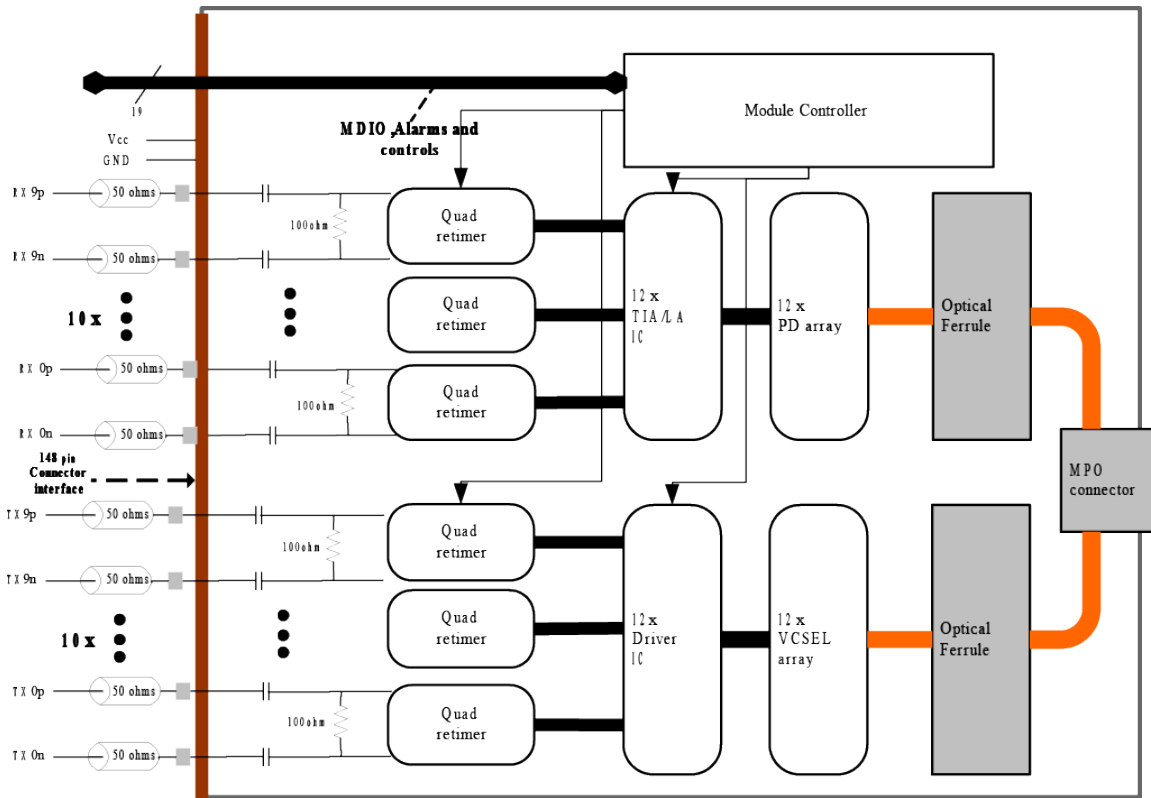
35	PRG_ALRM3	LVC MOS	O	Programmable Alarm 3 set via MDIO, Reflex default: MOD_FAULT, module fault detected, "1" = fault, "0" = no fault
36	TX_DIS	LVC MOS w/PU	I	Transmitter Disable for all channels, "1" or NC = transmitter disabled, "0" = transmitter enabled
37	MOD_LOPW	LVC MOS w/PU	I	Module low power 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		

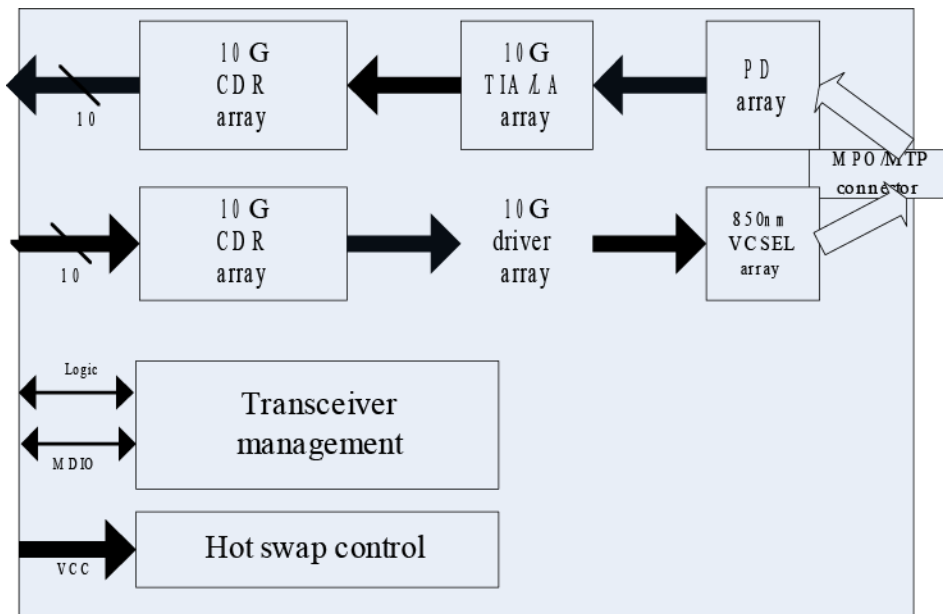
Part B: Top Row Pin Function Definition

<b>Pin</b>	<b>Symbol</b>	<b>Pin</b>	<b>Symbol</b>	<b>Pin</b>	<b>Symbol</b>	<b>Pin</b>	<b>Symbol</b>	<b>Pin</b>	<b>Symbol</b>
<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		

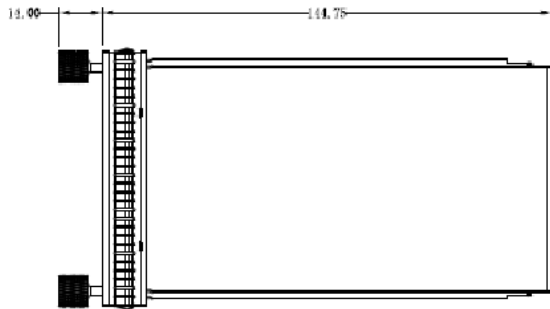
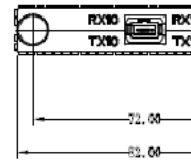
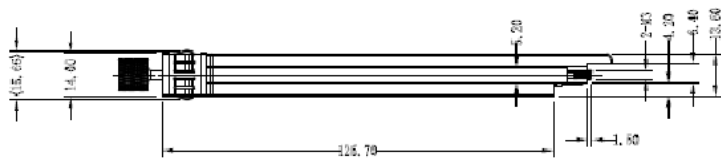
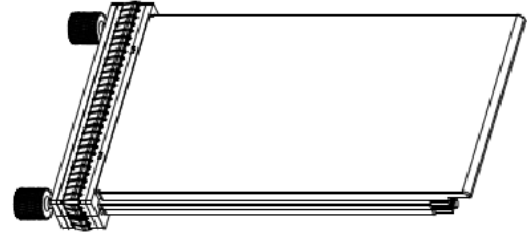
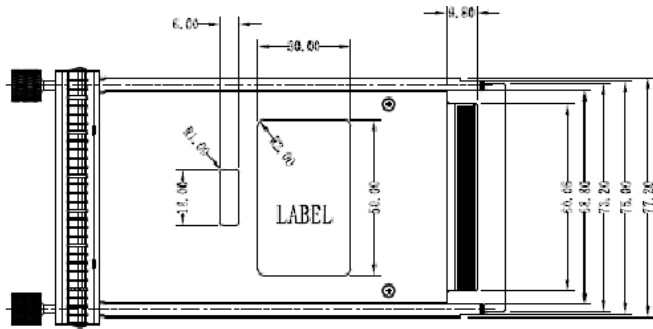
### CFP Module Functional Block Diagram



### Module Block Diagram



# Mechanical Specifications





**About Us:**

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.



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