



Datasheet

No.

DS10-F006

Initial Date

2012-07-29

OE

OFC6Cx418

Written Team

R&D Dept.

GH Zheng

### I Preview


PN	OFC6Cx418
Description	XFP, CWDM 80KM

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### III Revision History

No.	Date	Items	Change Recording	Ver.	Rev.	Customer
1	2012-07-29	All	Initial registration	000	000	Standard
2						
3						
4						
5						
6						

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## 1. Features

- ◆ Supports 8.0Gb/s to 11.1Gb/s bit rates
- ◆ Hot-pluggable XFP footprint, Built-in digital diagnos
- ◆ Maximum link length of 80km with SMF
- ◆ CWDM Cooled EML laser and APD photodiode
- ◆ XFP MSA package with duplex LC connector
- ◆ No reference clock required
- ◆ Single +3.3V power supply
- ◆ Power dissipation <3.5W
- ◆ Compatible with RoHS
- ◆ Temperature range: 0 to +70°C

## 2. Applications

- ◆ 10G CWDM Networks
- ◆ SONET OC-192&SDH STM-64 at 9.953Gbps
- ◆ 10G Ethernet Applications
- ◆ 10G Fiber Channel Applications
- ◆ 10GE over G.709 at 11.09Gbps
- ◆ OC192 over FEC at 10.709Gbps
- ◆ Other optical links, up to 11.1Gbps

## 3. Description

OFC6Cx418 is compliant with the 10G Small Form-Factor Pluggable (XFP) Multi-Source Agreement (MSA), supporting data-rate of 8.0~11.1Gbps, and transmission distance up to 80km on SMF. The transceiver module comprises a transmitter with 1470~1610nm CWDM Cooled EML laser and a receiver with a APD photodiode.


Transmitter and receiver are separate within a wide temperature range and offers optimum heat dissipation and excellent electromagnetic shielding thus enabling high port densities for 10 GbE systems.

## 4. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.5	4.5	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	5	95	%

## 5. Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
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Operating Case Temperature	Tc	0		+70	°C
Power Supply Voltage	Vcc	3.135	3.30	3.465	V
Power Supply Current	Icc			600	mA
Data Rate		9.95	10.3	11.1	Gbps


## 6. Optical and Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Transmitter</b>						
Centre Wavelength	$\lambda_c$	$\lambda_c-6.5$	$\lambda_c$	$\lambda_c+6.5$	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Average Output Power	P <sub>out</sub>	0		+4.0	dBm	1
Extinction Ratio	ER	8.2			dB	
Data Input Swing Differential	V <sub>IN</sub>	180		950	mV	2
Input Differential Impedance	Z <sub>IN</sub>	90	100	110	$\Omega$	
TX Disable	Disable	2.0		Vcc	V	
	Enable	0		0.8	V	
<b>Receiver</b>						
Centre Wavelength	$\lambda_c$	1450		1620	nm	
Receiver Sensitivity				-23	dBm	3
Receiver Overload		-7			dBm	3
LOS De-Assert	LOS <sub>D</sub>			-24	dBm	
LOS Assert	LOS <sub>A</sub>	-35			dBm	
LOS Hysteresis		0.5		4	dB	
Data Output Swing Differential	V <sub>out</sub>	400	600	800	mV	2
LOS	High	2.0		Vcc	V	
	Low			0.8	V	

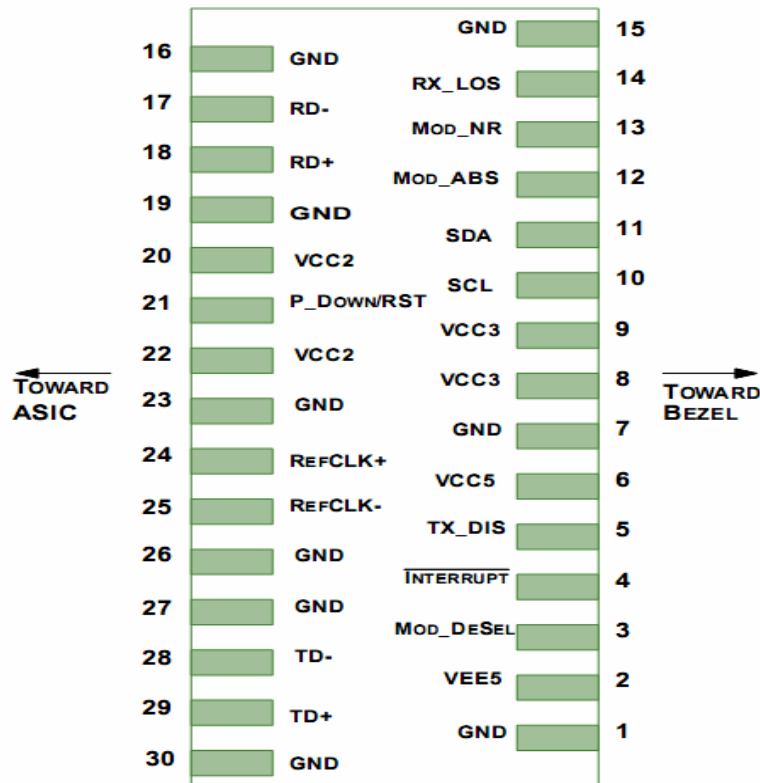
### Notes:

- The optical power is launched into SMF.
- Internally AC-coupled.
- Measured with a PRBS 2<sup>31</sup>-1 test pattern @9953Mbps, BER ≤ 1 × 10<sup>-12</sup>.

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## 7. Pin information



Pin	Logic	Symbol	Name/Description	Ref
1		GND	Module Ground	1
2		VEE5	Optional -5.2 Power Supply - <b>Not required</b>	
3	LVTTL-I	Mod-Desel	Module De-select; When held low allows the module to, respond to 2-wire serial interface commands	
4	LVTTL-O	Interrupt	Interrupt (bar); Indicates presence of an important condition which can be read over the serial 2-wire interface	2
5	LVTTL-I	TX_DIS	Transmitter Disable; Transmitter laser source turned off	
6		VCC5	+5 Power Supply - <b>Not required</b>	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	LVTTL-I	SCL	Serial 2-wire interface clock	2
11	LVTTL-IO	SDA	Serial 2-wire interface data line	2
12	LVTTL-O	Mod_Abs	Module Absent; Indicates module is not present. Grounded in the module.	2
13	LVTTL-O	Mod_NR	Module Not Ready;	2
14	LVTTL-O	RX_LOS	Receiver Loss of Signal indicator	2
15		GND	Module Ground	1

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16		GND	Module Ground	1
17	CML-O	RD-	Receiver inverted data output	
18	CML-O	RD+	Receiver non-inverted data output	
19		GND	Module Ground	1
20		VCC2	+1.8V Power Supply – <b>Not required</b>	
21	LVTTIL-I	P_Down/RS T	Power Down; When high, places the module in the low power stand-by mode and on the falling edge of P_Down initiates a module reset	
			Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle.	
22		VCC2	+1.8V Power Supply – <b>Not required</b>	
23		GND	Module Ground	1
24	PECL-I	RefCLK+	Reference Clock non-inverted input, AC coupled on the host board – <b>Not required</b>	3
25	PECL-I	RefCLK-	Reference Clock inverted input, AC coupled on the host board – <b>Not required</b>	3
26		GND	Module Ground	1
27		GND	Module Ground	1
28	CML-I	TD-	Transmitter inverted data input	
29	CML-I	TD+	Transmitter non-inverted data input	
30		GND	Module Ground	1


#### Notes:

1. Module circuit ground is isolated from module chassis ground within the module.
2. Open collector, should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15V and 3.6V.
3. A Reference Clock input is not required.

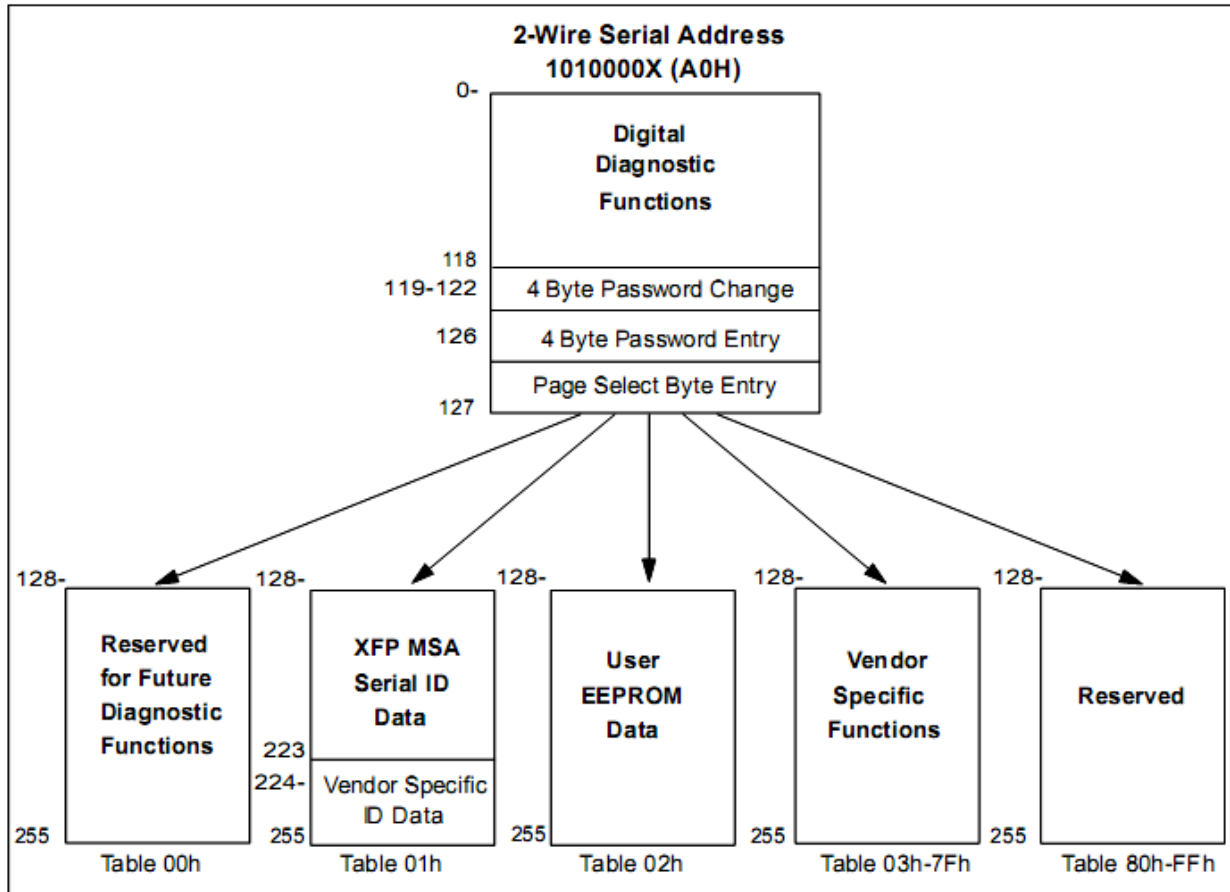
#### 8. Management Interface

The transceivers provide serial ID memory contents and diagnostic information about the present operating conditions by the 2-wire serial interface (SCL, SDA). The Module provides diagnostic information about the present operating conditions. The transceiver generates this diagnostic data by digitization of internal analog signals. Alarm/warning threshold data is written during device manufacture. Received power monitoring, transmitted power monitoring, bias current monitoring, supply voltage monitoring and temperature monitoring all are implemented.

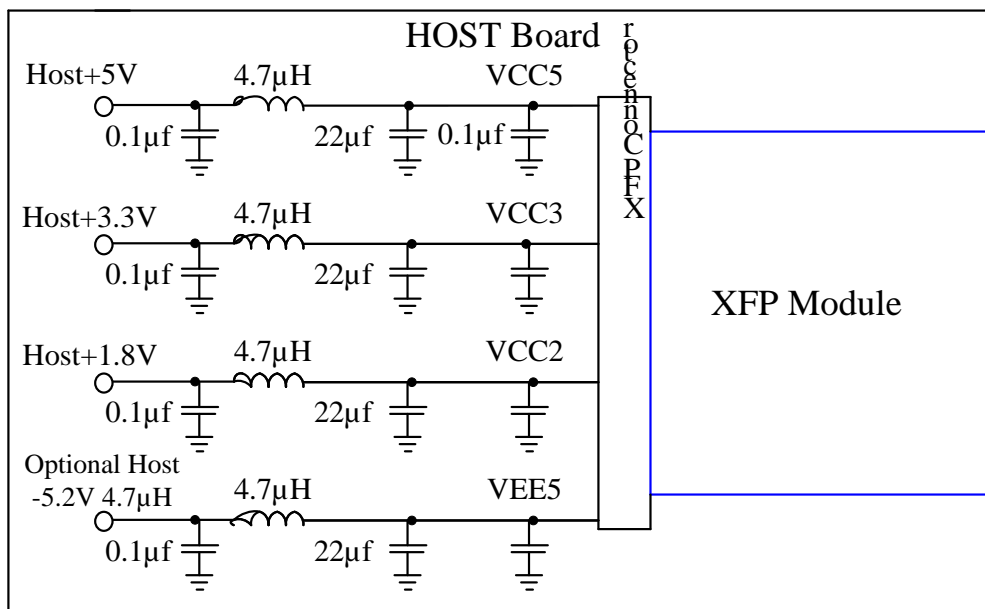
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### 9. Digital Diagnostic Memory Map



### 10. Recommended Host Board Power Supply Circuit



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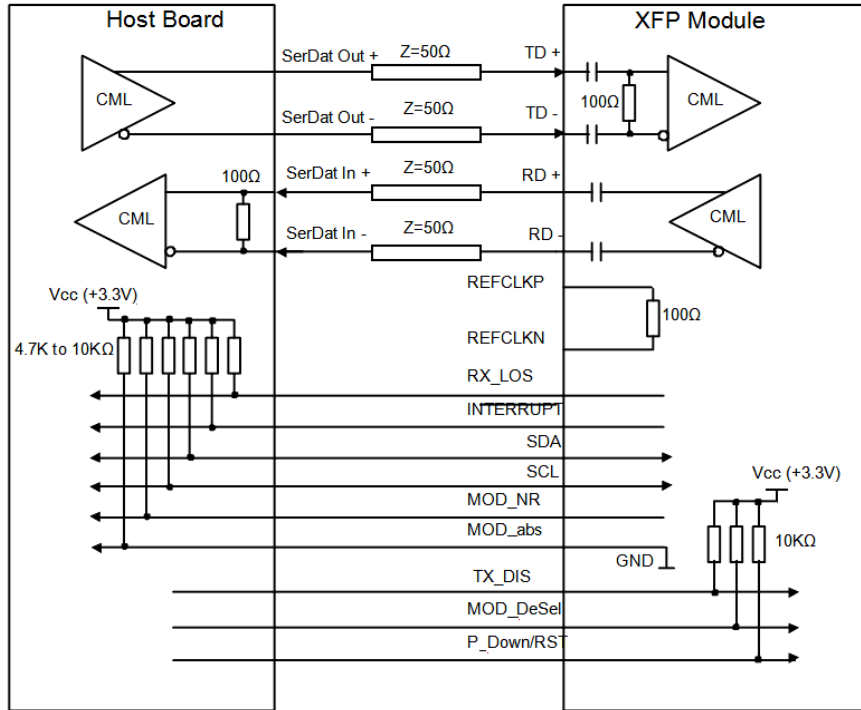
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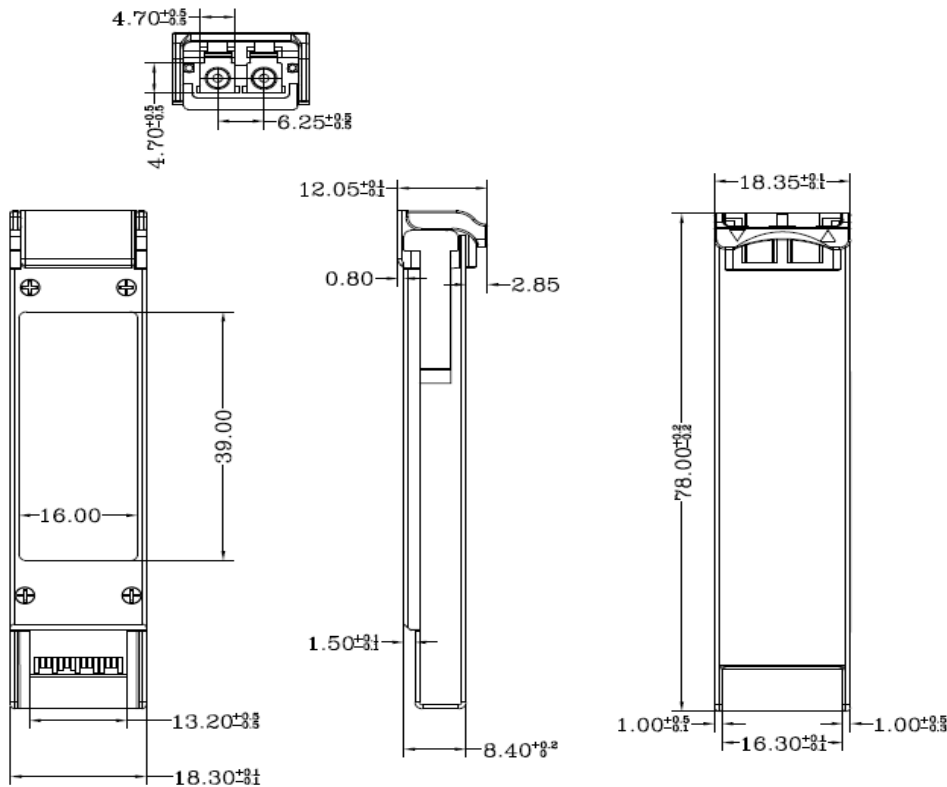
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11. Recommended High-speed Interface Circuit



12. Mechanical Dimensions



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### 13. Model Name information

PN	Description
OFC6Cx418	XFP CWDM 80KM 0~70°C

Note:

For X:

No.	$\lambda C(\text{nm})$	No.	$\lambda C(\text{nm})$	No.	$\lambda C(\text{nm})$	No.	$\lambda C(\text{nm})$	No.	$\lambda C(\text{nm})$	No.	$\lambda C(\text{nm})$
0	1270	1	1290	2	1310	3	1330	4	1350	5	1410
6	1430	7	1450	8	1470	9	1490	A	1510	B	1530
C	1550	D	1570	E	1590	F	1610				

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