WTS10ERDC

10GBASE-ER SFP+ 1550nm 40km Transceiver / Compliant with SFF-8413 and IEE802.3ae

Part Number
WTS10ERDC



1. Product Overview

Features

- Compliant with SFF-8413 and IEE802.3ae
- Data rate selectable ≤4.25Gbps or 9.95Gbps to 10.3Gbps bit rates
- Cooled EML transmitter and PIN receiver
- link length up to 40km
- Low Power Dissipation 1.5W Maximum
- 0ºC to 70ºC Operating Case Temperature
- Single 3.3V power supply
- Diagnostic Performance Monitoring of module temperature, supply
- Voltages, laser bias current, transmit optical power, receive optical power
- RoHS compliant and lead free
- Duplex LC receptacle
- RoHS compliant and lead free

Applications

- 10GBASE-ER/EW
- 10G Fiber Channel
- Other optical links
- Absolute maximum rating
- These values represent the damage threshold of the module. Stress in excess of any of the individual Absolute Maximum Ratings can cause immediate catastrophic damage to the module even if all other parameters are within Recommended Operating Conditions
- Optical characteristics
- The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.
- Trade-offs are available between spectral width, center wavelength and minimum OMA.
- The optical power is launched into SMF
- Measured with a PRBS 231-1 test pattern @10.3125Gbps
- Measured with a PRBS 231-1 test pattern @10.3125Gbps, BER≤10-12.
- Electrical characteristics

2. Ordering Information

Part Number	Product Description
WTS10ERDC	SFP+, 10Gbps, 1550nm, SMF, 40KM, DDM, LC connector, 0 °C ~ 70 °C

3. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typica l	Max.	Unit
Storage Temperature	TS	-40		+85	°C
Maximum Supply Voltage	Vcc	-0.5		4	V
Relative Humidity	RH	0		85	%

4. Recommended Operating Conditions

Parameter	Symbol	Min.	Typica l	Max.	Unit
Case Operating Temperature	TA	0		70	°C

5. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Transmitter Section:	Transmitter Section:	Transmitter Section:	Transmitter Section:	Transmitter Section:	Transmitter Section:	Transmitter Section:
Center Wavelength	λt	1530	1550	1565	nm	
spectral width	△λ			0.3	nm	
Average Optical Power	Pavg	-2		+4	dBm	1
Optical Power OMA	Poma	-2.1			dBm	
Laser Off Power	Poff			-30	dBm	
Extinction Ratio	ER	8.5			dB	
Transmitter Dispersion Penalty	TDP			3.0	dB	2
Relative Intensity Noise	Rin			-128	dB/Hz	3
Optical Return Loss Tolerance		21			dB	
Receiver Section:	Receiver Section:	Receiver Section:	Receiver Section:	Receiver Section:	Receiver Section:	Receiver Section:
Center Wavelength	λr	1260		1600	nm	
Receiver Sensitivity	Sen			-16	dBm	4
Los Assert	LOSA	-42		-	dBm	
Los Dessert	LOSD			-22	dBm	
Los Hysteresis	LOSH	0.5			dB	
Overload	Sat	-1			dBm	5
Receiver Reflectance	Rrx			-26	dB	

6. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Supply Voltage	Vcc	3.135		3.465	V	
Supply Current	Icc			450	mA	
Power Consumption	P			1.5	W	
Transmitter Section	Transmitter Section	Transmitter Section	Transmitter Section	Transmitter Section	Transmitter Section	Transmitter Section
Input differential impedance	Rin		100		Ω	1

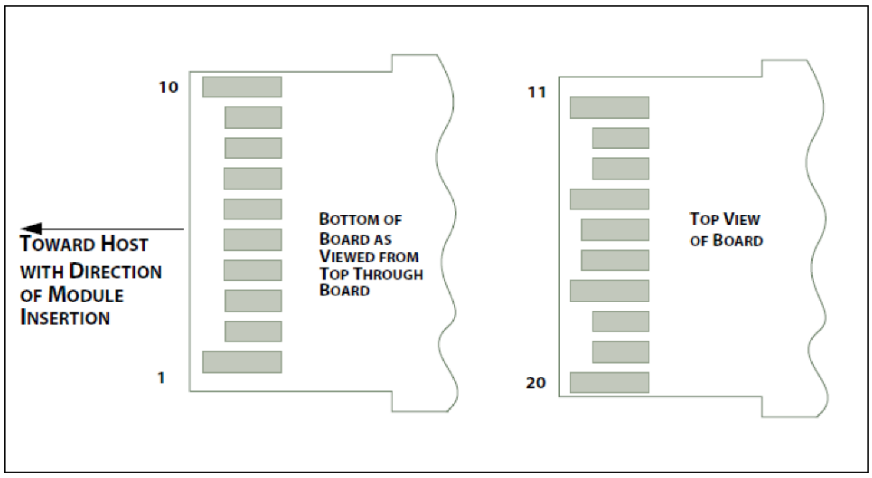
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Tx Input Single Ended DC Voltage Tolerance (Ref VeeT)	V	-0.3		4	V	
Differential input voltage swing	Vin,pp	180		700	mV	2
Transmit Disable Voltage	VD	2		Vcc	V	3
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Receiver Section	Receiver Section	Receiver Section	Receiver Section	Receiver Section	Receiver Section	Receiver Section
Single Ended Output Voltage Tolerance	V	-0.3		4	V	
Rx Output Diff Voltage	Vo	300		850	mV	
Rx Output Rise and Fall Time	Tr/Tf	30			ps	4
LOS Fault	VLOS fault	2		VccHOST	V	5
LOS Normal	VLOS norm	Vee		Vee+0.8	V	5

7. Pin Descriptions

Pin	Symbol	Description	Ref.
1	VEET	Transmitter Ground (Common with Receiver Ground)	1
2	TFAULT	Transmitter Fault.	2
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	3
4	SDA	2-wire Serial Interface Data Line (MOD-DEF2)	4
5	SCA	2-wire Serial Interface Clock (MOD-DEF1)	4
6	MOD_ABS	Module Absent, connected to VEET or VEER	4
7	RS0	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	5
9	RS1	No connection required	
10	VEER	Receiver Ground (Common with Transmitter Ground)	1
11	VEER	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	VEER	Receiver Ground (Common with Transmitter Ground)	1
15	VCCR	Receiver Power Supply	

Pin	Symbol	Description	Ref.
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	1

8. Technical Figure 1



9. Revision History

Version	Date	Description	Prepared by
V6	2025	Unified WincoTek datasheet format	WincoTek
V6.1	2026-10-23	Engineering and format review	WincoTek