

RuggedCom Compatible SFP2133-1ER40 Quick Spec:

Part Number:	SFP2133-1ER40 SFP2133-1ER40-EXT SFP2133-1ER40-IND
Form Factor:	SFP+
TX Wavelength:	1550nm
Reach:	40km
Cable Type:	SMF
Rate Category:	10GBase
Interface Type:	ER
DDM:	Yes
Connector Type:	Dual-LC
Power Budget:	11.10 dB
TX Power Min/Max:	-3.00 to 3.00
RX Power Min/Max:	-14.10 to -1.00



RuggedCom Compatible SFP2133-1ER40 Features

- Compliant with SFF-8413 and IEEE802.3ae
- Data rate selectable ≤ 4.25 Gbps or 9.95Gbps to 10.3Gbps bit rates
- Cooled EML transmitter and PIN receiver
- Low Power Dissipation 1.5W Maximum
- Single 3.3V power supply
- Voltages, laser bias current, transmit optical power, receive optical power
- Operating Case Temperature:
 - Standard: 0°C to +70 °C
 - Extended -5°C to +85 °C
 - Industrial -40°C to +85 °C

RuggedCom Compatible SFP2133-1ER40 Applications

- 10GBASE-ER at 10.3125Gbps
- 10GBASE-EW at 9.953Gbps
- Other Optical Links

Electrical Characteristics (Condition: Ta=TOP)

Parameter	Symbol	Min.	Typ	Max.	Unit	Notes
CML Inputs(Differential)	Vin	150		1200	mV p-p	AC coupled inputs
Supply Current	ICC			300	mA	
Input Impedance (Differential)	Zin	85	100	115	ohm	Rin > 100 kohm @ DC
Tx_Disable Input Voltage – Low	VIL	0		0.8	V	
Tx_Disable Input Voltage – High	VIH	2.0		3.45	V	
Tx_Fault Output Voltage – Low	VOL	0		0.5	V	
Tx_Fault Output Voltage – High	VOH	2.0		Vcc+0.3	V	
CML Outputs (Differential)	Vout	350		700	mV pp	AC coupled outputs
Output Impedance (Differential)	Zout	85	100	115	ohms	
Rx_LOS Output Voltage- Low	VOL	0		0.5	V	
Rx_LOS Output Voltage- High	VOH	2.5			V	

Optical Characteristics (Condition: Ta=TOP)

TX						
Parameter		Symbol	Min	Typ	Max	Unit
Data Rate			-	10.3	-	Gb/s
9µm Core Diameter SMF				10		Km
Centre wavelength		λ_c	1530	1550	1565	nm
Output Spectral Width(-20dB)		$\Delta\lambda$	-	-	1	nm
Average Output Power		P _{out}	-3	-	+3	dBm
Extinction Ratio		ER	6	-	-	dB
Average Power of OFF Transmitter					-30	dBm
Side Mode Suppression Ratio		SMSR	30			dB
Input Differential Impedance		Zin	90	100	110	Ω
TX Disable	Disable		2.0		Vcc+0.3	V
	Enable		0		0.8	
TX Fault	Fault		2.0		Vcc+0.3	V
	Normal		0		0.8	

TX Disable Assert Time		t _{off}			10	us
RX						
Parameter	Symbol	Min	Typ	Max	Unit	
Center Wavelength	λ _c	1530		1565	nm	
Receive Sensitivity	P _{in}	-	-	-14.1	dBm	
Maximum Input Power	P _{MAX}	-1.0	0	-	dBm	
Signal Detect Threshold-Assertion:	SD _{HIGH}	-	-	-16	dBm	
Signal Detect Threshold-Deassertion:	SD _{LOW}	-25	-	-	dBm	
Output Differential Impedance	P _{in}	90	100	110	Ω	
Receiver Overload	P _{max}	0.5			dBm	
Optical Return Loss	ORL			-16	dB	
LOS	High	2.0		V _{cc} +0.3	V	
	Low	0		0.8		

Absolute Maximum Ratings (T_C=25°C)

Parameter	Symbol	Min	Max	Unit
Storage Temperature	T _{ST}	-40	+85	°C
Operating Temperature (Com)	T _{IP}	0	+70	°C
Operating Temperature (Industrial)		-40	+85	
Input Voltage	T _{CC}	0	5	V

Recommend Operation Environment

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	V _{CC}	+3.15	3.3	+3.45	V
Operating Temperature	T _{OP}	0	-	+70	°C
Operating Temperature		-40	-	+85	

Licensing

The following U.S. patents are licensed by Finisar to FluxLight, Inc.:

U.S. Patent Nos: 7,184,668, 7,079,775, 6,957,021, 7,058,310, 6,952,531, 7,162,160, 7,050,720