

# SV-AOC-40GT4T4-xxM

Starview QSFP+ 41.25Gbps Active Optical Cable modules, distance up to 1m; 3m;5m;7m;10m;15m



## Features

- Full duplex 4 channel 850nm parallel active optical cable
- Up to 11.1Gbps Data rate per channel
- Maximum link length of 100m links on OM3 multimode fiber  
Or 150m links on OM4 multimode fiber
- High Reliability 850nm VCSEL technology
- Electrically hot-pluggable
- Digital diagnostic QSFP+ MSA compliant
- Case operating temperature range:0°C to 70°C
- Power dissipation < 1.5 W per cable end

## Applications

- 40G Ethernet
- Infiniband QDR
- Fiber channel
- HPC Interconnections
- Compliant to QSFP+ MSA
- RoHS Compliant

## Ordering Information

Part number	Description
SV-AOC-40GT4T4-1M	Starview QSFP+ 41.25Gbps Active Optical Cable module, distance up to 1m
SV-AOC-40GT4T4-3M	Starview QSFP+ 41.25Gbps Active Optical Cable module, distance up to 3m
SV-AOC-40GT4T4-5M	Starview QSFP+ 41.25Gbps Active Optical Cable module, distance up to 5m
SV-AOC-40GT4T4-7M	Starview QSFP+ 41.25Gbps Active Optical Cable module, distance up to 7m
SV-AOC-40GT4T4-10M	Starview QSFP+ 41.25Gbps Active Optical Cable module, distance up to 10m
SV-AOC-40GT4T4-15M	Starview QSFP+ 41.25Gbps Active Optical Cable module, distance up to 15m

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Storage Temperature	Ts	-40	-	85	°C
Relative Humidity	RH	5	-	95	%
Power Supply Voltage	VCC	-0.3	-	4	V
Signal Input Voltage		Vcc-0.3	-	Vcc+0.3	V

## Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Case Operating Temperature	Tcase	0	-	70	°C
Power Supply Voltage	VCC	3.14	3.3	3.46	V
Power Supply Current	ICC	-		450	mA
Data Rate	BR		10.3125		Gbps

## General Product Characteristics

Parameter	Value	Unit	Notes
Module Form Factor	QSFP+		
Number of Lanes	4 Tx /Rx		
Maximum Aggregate Data Rate	42.0	Gb/s	
Maximum Data Rate per Lane	10.5	Gb/s	
Standard Cable Lengths	3, 5, 7, 10, 15	meters	Other lengths, please contact sales
Protocols Supported	Typical applications include Infiniband, Fiber Channel, 40G Ethernet		
Electrical Interface and Pin-out	38-pin edge connector		Pin-out as defined by the QSFP+ MSA
Standard Optical Cable Type	Multimode ribbon fiber cable assembly, riser-rated		
Maximum Power Consumption per End	1.5	W	
Management Interface	Serial, I2C-based, 400 kHz maximum frequency		As defined by the QSFP+ MSA

## Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Supply Voltage	Vcc1,VccTx,VccRx	3.14	3.3	3.46	V	
Supply Current	Icc			450	mA	
Transmitter						
Differential data input swing	Vin,pp	180		1000	mV	1
Single ended input voltage tolerance	VinT	-0.3		4.0	v	
Receiver( each lane)						
Differential data output swing	Vout,pp	300		850	mV	2
Single-ended output voltage		-0.3		4.0	v	

Note(1): AC coupled internally.

Note(2): AC coupled with 100Ω differential output impedance.

## High-Speed Characteristics per Lane

Parameter-Inputs	Symbol	Min.	Typ.	Max.	Unit	Note
Reference Differential Input Impedance	Zd		100		Ω	
Termination Mismatch	ΔZM			5	%	1
Input AC Common Mode Voltage				25	mV (RMS)	
Differential Input Return Loss	SDD11				dB	2, 0.01-4.1 GHz 3, 4.1 – 11.1 GHz
Differential to Common Mode Loss	SCD11			-10	dB	0.01-11.1 GHz
Jitter Tolerance (Total)	TJ			0.40	UI	
Jitter Tolerance (Deterministic)	DJ			0.15	UI	

Note(1): See SFF-8431 section D.15 Termination Mismatch for definition & test recommendations

2. R eflection coefficient given by equation  $SDD11(dB) < -12 + 2 * \sqrt{f}$ , with f in GHz.

3. Reflection coefficient given by equation  $SDD11(dB) < -6.3 + 13 \log_{10}(f/5.5)$ , with f in GHz.

Parameter-Inputs	Symbol	Min.	Typ.	Max.	Unit	Note
Reference Differential Output Impedance	Zd		100		Ω	
Termination Mismatch	ΔZM			5	%	
Output AC Common Mode Voltage				15	mV (RMS)	
Differential Output Return Loss	SDD22				dB	4, 0.01-4.1 GHz 5, 4.1 – 11.1 GHz

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Common Mode Output Return Loss	SCC22			dB	6, 0.01-2.5 GHz
			-3	dB	2.5-11.1 GHz
Output Rise and Fall time (20% to 80%)	tRH, tFH	24		ps	
Deterministic Jitter	DJOUT		0.38	UI	7
Total Jitter	TJOUT		0.64	UI	7

Note(4): Reflection coefficient given by equation  $SDD22(dB) < -12 + 2 * \sqrt{f}$ , with f in GHz.

Note(5): Reflection coefficient given by equation  $SDD22(dB) < -6.3 + 13 \log_{10}(f/5.5)$ , with f in GHz.

Note(6): Reflection coefficient given by equation  $SCC22(dB) < -7 + 1.6 * f$ , with f in GHz.

Note(7): When transmitter input jitter specs are met.