

DESCRIPTION

The SH51-02C Corvette is an optical communication subsystem that transmits up to 24 Gbps of data (4 x 6 Gbps) PLUS includes a bidirectional side-band channel for control and communication, all on a **single multimode fiber**. The module has a simple plug-down design and accepts a standard SC optical connector. With integrated drivers and amplifiers, the SH51-02C eliminates the need for in-house optical design expertise for all your DVI, HDMI, machine vision and other high-speed solutions.



FEATURES

- Compatible with Displayport 1.2 and HDMI 2.0 signals
- Four TX lanes at 6 Gbps each for 24 Gbps data links
- Bidirectional side-band channel supports up to 1.25 Gbps full-duplex communication
- All data multiplexed onto a single multimode fiber
- Accepts standard SC-terminated 50-micron fiber
- Allows FCC Class B compliance at customer end product level

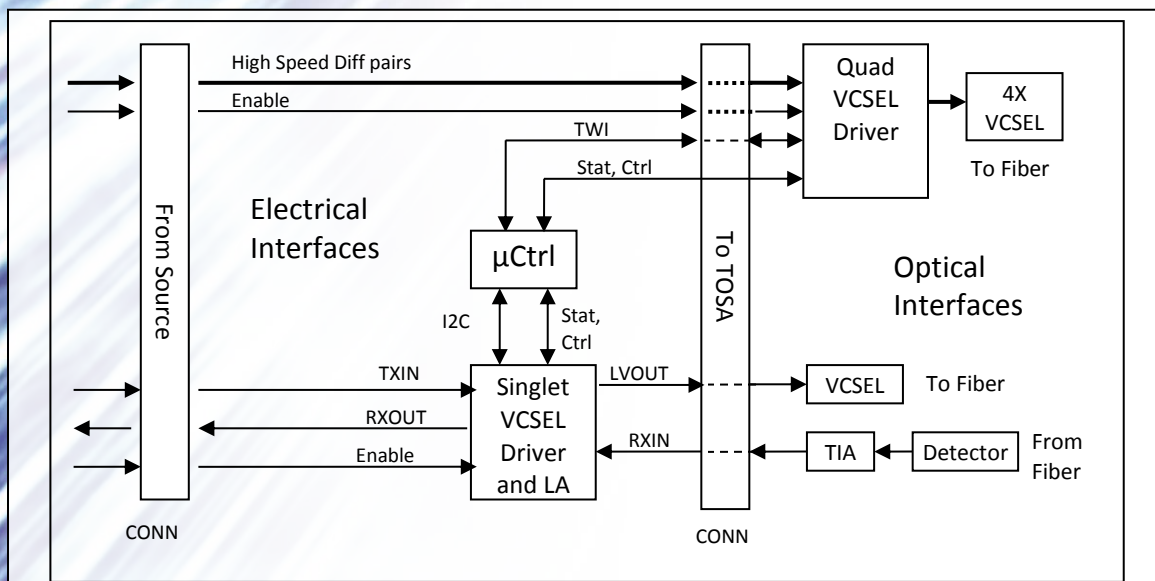
APPLICATIONS

- HDMI™, Display Port Matrix switches
- Optical Extenders
- Machine Vision Camera Bus

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
TX6E-SH51-02C	Board-pluggable Transmitter Module, 4x 6 Gbps, 1.25 Gbps Bi-di
RX6E-SH51-02C	Board-pluggable Receiver Module, 4x 6 Gbps, 1.25 Gbps Bi-di (see corresponding data sheet)
EK1-SH51-02C	Evaluation Board for Transmitter or Receiver module

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNITS
Storage Temperature Range	T_S	-40	85	°C
Supply Voltage	V_{CC}	-0.3	3.6	V
Relative Humidity	RH		80	%
ESD Protection (HBM)			2	kV

MAXIMUM OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	MAX	UNITS
Supply Voltage	V_{CC}	3.15	3.45	V
Supply Current	I_{CC}		350	mA
Operating Temperature Range	T_C	0	65	°C

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	MIN	MAX	UNITS
High Speed Data Rate, Lanes 0 – 3	DR1		6.0	Gbps
Low Speed Data Rate, Lanes 4 & 5	DR2		1.25	Gbps
Input Voltage Swing, Differential p-p Lanes 0 – 3	V_{IN-HS}	350	1380	mV
Input Voltage Swing, Differential p-p Lane 4	V_{IN-LS}	320	2000	mV
Output Voltage, Lane 5	V_{OUT-LS}	400	900	mV
Rise/ Fall Time (20%-80%), Lane 5	T_r/T_f		100	ps
LVTTTL Input Low Voltage	V_{IL}	-0.3	0.8	V
LVTTTL Input High Voltage	V_{IH}	2.0	$V_{CC}+0.3$	V
LVTTTL Output Low Voltage	V_{OL}	0	0.4	V
LVTTTL Output High Voltage	V_{OH}	$V_{CC}-0.5$	V_{CC}	V

Notes:

1. AC coupling is recommend for all differential inputs

OPTICAL SPECIFICATIONS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
Transmit Wavelength Lane 0	λ_0		778		nm
Transmit Wavelength Lane 1	λ_1		801		nm
Transmit Wavelength Lane 2	λ_2		824		nm
Transmit Wavelength Lane 3	λ_3		850		nm
Transmit Wavelength Lane 4	λ_4		911		nm
Receive Wavelength Lane 5	λ_5		980		
Optical Modulation Amplitude, Lanes 0 – 4	OMA	-6.0			dBm
Transmit Average Optical Power, Lanes 0 – 4	P_{avg}	-4.5	-2.0		dBm
Peak Optical Output Power, Lanes 0-4	P_{PEAK}			3.0	dBm
Rise/Fall time (20%-80%), Lanes 0 – 3	T_r/T_f			77	ps
Rise/Fall time (20%-80%), Lane 4	T_r/T_f			300	ps
OMA Sensitivity, BER=10 ⁻¹² , Lane 5	SEN		-14.5	-12.5	dBm
Total RMS Jitter, BER=10 ⁻¹² , Lanes 0-3	TJ_{RMS}			10	ps
Total P-P Jitter, BER=10 ⁻¹² , Lanes 0-3	TJ_{P-P}			45	ps
SD Guaranteed Off, Lane 5				-24	dBm
SD Guaranteed On, Lane 5		-13			dBm
SD Hysteresis, Lane 5		1.0			dB

FIBER INTERFACE

- Connector type: SC
- Fiber type: OM4 or OM3 Multimode fiber (MMF), Simplex Fiber Cable

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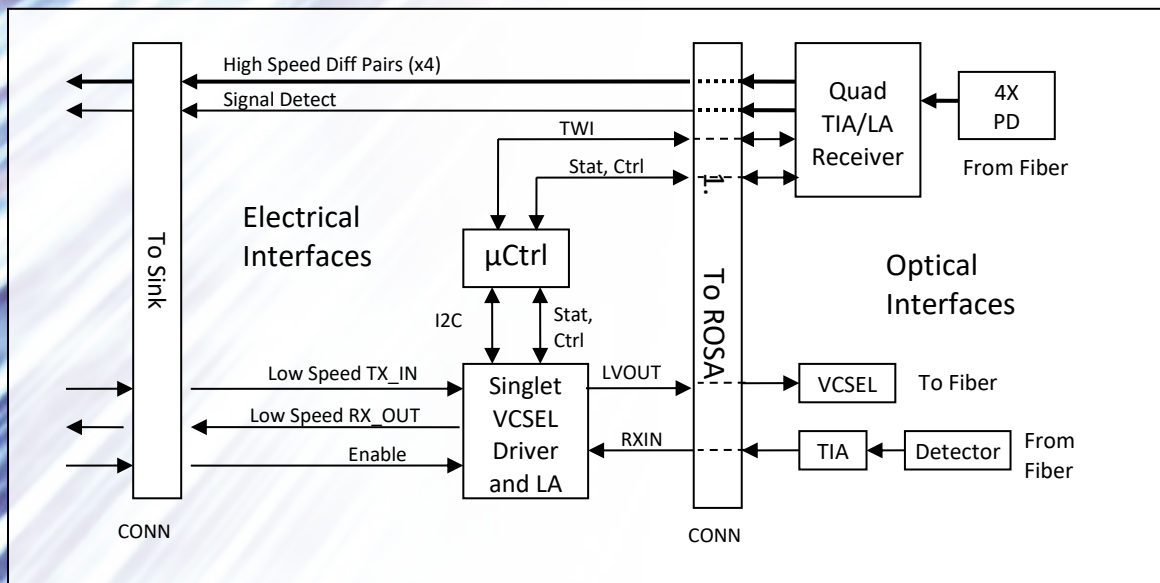
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OMA Sensitivity, 1.25 Gbps BER=10 ⁻¹² , Lane 4	SENS		-14.5	-12.5	dBm
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SD Guaranteed Off, Lanes 0–3	SD _{OFF-HS}			-24	dBm
SD Guaranteed On, Lanes 0–3	SD _{ON-HS}	-13			dBm
SD Guaranteed Off, Lane 4	SD _{OFF-LS}			-24	dBm
SD Guaranteed On, Lane 4	SD _{ON-LS}	-13			dBm
SD Hysteresis – All Lanes		1.0			dB

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