

## ET4205-SX

### 1Gbps Multimode Optical Transceiver

### Wide Operating Temperature: -40°C~85°C



#### Product Overview

The Edgecore ET4205-SX transceiver is a small form-factor pluggable (SFP) module with a standard duplex connector for fiber communications. This cost-effective module is designed for multimode fiber (MMF) and operates at a nominal wavelength of 850 nm with high performance. The module supports an SFP 20-pin connector for hot-plug capability.

#### Transmitter Section

The transmitter consists of a high-performance 850 nm Vertical Cavity Surface Emitting Laser (VCSEL) laser in the optical subassembly (OSA), which is housed within a plastic barrel package. In addition, this component is a Class 1 Laser compliant with International Safety Standard IEC-825. The component also complies with EN60825-1 FDA 21 CFR 1040.10, and 1040.11

#### Receiver Section

The receiver consists of a GaAs PIN photodiode coupled to a high-sensitivity transimpedance amplifier (TIA) in an OSA. This OSA combination is mated to a post amplifier IC that provides the post amplification SD (Signal Detection) or LOS (Loss of Signal) indication circuit, which provides logic high-state output when an unusable input optical signal level is detected.

#### Key Features and Benefits

- Single + 3.3 V power supply
- Differential inputs and outputs
- Small Form Factor Pluggable MSA compliant.
- Compliant with SFF-8472 MSA Digital Diagnostic Monitor (DDM), Internal Calibration. (SJ Series)
- Class 1 Laser International Safety Standard IEC 825 compliant.
- Complies with EN60825-1, FDA 21 CFR 1040.10, and 1040.11
- Commercial Operation Temperature: 0°C to +70°C
- Industrial Operation Temp.: -40°C to +85°C
- RoHS compliant

#### Application

- ATM switch, multimode fiber media converters, multimode fiber backbone links
- Bridges/routers/intelligent hub and concentrators
- Fast Ethernet

## Features

### Performance Specifications Absolute Maximum Ratings

Parameter		Symbol	Minimum	Type	Maximum	Unit
Supply Voltage		$V_{CC}$	0	-	4	V
Storage Temperature		$T_S$	-40	-	85	°C
Operating Temperature	Commercial	$T_{OP-com}$	0	-	70	°C
	Industrial	$T_{OP-ind}$	-40	-	85	°C

### General Specifications

Parameter		Symbol	Minimum	Type	Maximum	Unit
Data Rate		B	0.80	1.25	1.50	Gbps
Supported Link Length on 50/125µm MMF		L	0.5	-	-	Km
Supply Current		$I_{TX}+I_{RX}$	-	-	300	mA
Power Dissipation		$P_{Dis}$	-	-	1000	mW

### Transmitter Electrical Characteristics

Parameter		Symbol	Minimum	Type	Maximum	Unit
Supply Voltage		$V_{CC}$	3.15	3.3	3.45	V
Data Differential Input Voltage		$V_{in,pp}$	400	-	2000	mV
Disable Input Voltage		$V_{IL} - V_{CC}$	-1.81	-	-1.48	V
Enable Input Voltage		$V_{IH} - V_{CC}$	-1.16	-	-0.88	V
TX Fault Voltage-High (Fault)		$V_{TF}$	2.0	-	$V_{CC}$	V
TX Fault Voltage-Low (Normal)		$V_{TN}$	0	-	0.8	V

### Transmitter Optical Characteristics

Parameter		Symbol	Minimum	Type	Maximum	Unit
Output Optical Power on 62.5µm MMF		$P_O$	-10	-	-3	dBm
Center Wavelength		$\lambda_C$	830	850	870	nm
Spectral Width (RMS)		$\Delta\lambda$	-	-	0.85	nm
Optical Rise Time (20%-80%)		$t_r$	-	-	0.26	ns
Optical Fall Time (20%-80%)		$t_f$	-	-	0.26	ns
Extinction Ratio		ER	8.2	-	-	dB
POut@TX Disable Asserted		$P_{OFF}$	-	-	-45	dBm

## Features

### Receiver Electrical Characteristics

Parameter	Symbol	Minimum	Type	Maximum	Unit
Supply Voltage	$V_{CC}$	3.15	3.3	3.45	V
Data Differential Output Voltage	$V_{out, pp}$	500	-	1200	mV
Receiver LOS/SD Output Voltage-High	$V_{RH}$	2.0	-	$V_{CC}$	V
Receiver LOS/SD Output Voltage-Low	$V_{RL}$	0	-	0.8	V
Data Output Rise Time (20%-80%)	$t_r$	-	-	0.35	ns
Data Output Fall Time (20%-80%)	$t_f$	-	-	0.35	ns

### Receiver Optical Characteristics

Parameter	Symbol	Minimum	Type	Maximum	Unit
Maximum Receiver Power	$P_{in}$	-3	-	-	dBm
Receiver Sensitivity	$P_S$	-	-	-20	dBm
Operating Wavelength	$\lambda_C$	770	-	870	nm
Optical Return Loss	$P_R$	-	-	12	dB
Signal Detect-Asserted	$P_A$	-	-	-20	dBm avg.
Signal Detect-Deasserted	$P_D$	-36	-	-	dBm avg.
Signal Detect-Hysteresis	$P_A-P_D$	0.5	-	-	dB

### For More Information

To find out more about Edgecore Networks Corporation products and solutions, visit [www.edge-core.com](http://www.edge-core.com).

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