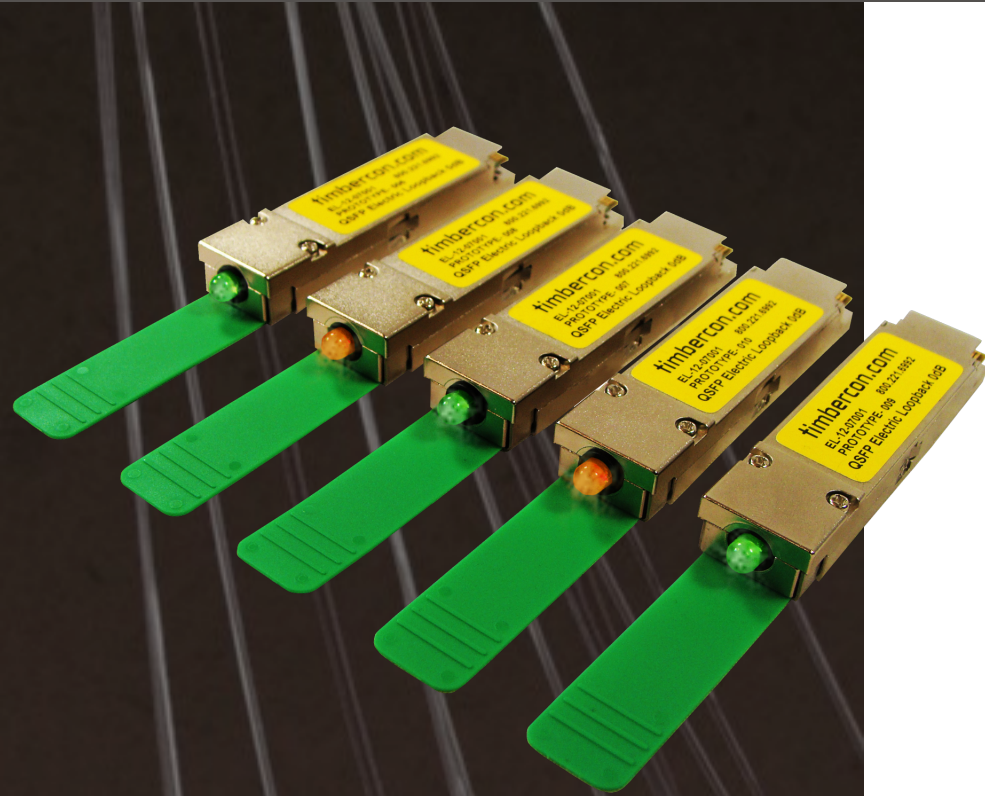


# QSFP/QSFP+ Passive Electrical Loopbacks (EL-12-07001)

timbercon



## BENEFITS

- Economical QSFP/QSFP+ Port Testing
- Custom Memory Maps
- Board Level System Testing
- Power On Validation
- Excellent Signal Integrity with 26mm Average
- Loopback Trace Length

## APPLICATIONS

- QSFP Port/System Testing
- ITU-T Recommendation G.957 (STM-1, 4 & 16)
- Ethernet IEEE 802.3 (Gigabit, 10 Gigabit and 40 Gigabit Ethernet)
- SDR, DDR and QDR
- SONET, SDH, GBE, FC Support, Infiniband

## QSFP/QSFP+ Electrical Loopbacks

The Timbercon EL-12-07001 QSFP/QSFP+ passive electrical loopback is used for testing QSFP/QSFP+ transceiver ports in board level test. By substituting for a full-featured QSFP/QSFP+ transceiver, the electrical loopback provides a cost effective low loss method for QSFP/QSFP+ port testing.

The EL-12-07001 is packaged in a standard MSA housing compatible with all QSFP/QSFP+ ports. Transmit data from the host is electrically routed (internal to the loopback module) to the receive data outputs and back to the host. Since the loopback module does not contain laser diodes, photodiodes, laser driver or transimpedance amplifier chips, etc., it provides an economical way to exercise QSFP/QSFP+ ports during R&D validation, production testing, and field testing. The EL-12-07001 provides QSFP/QSFP+ power Class 1, 2, 3 (standard) or 4 loading using a customer supplied +3.3V voltage supply.

## PREMIUM SOLUTIONS

## FEATURES

- Customizable power consumption
- Dual LED indicator
- Custom Memory Maps
- Built in diagnostic functions
- Supports 40Gbps total data rate
- Host-pluggable MSA footprint
- Full SFF-8436 MSA Compliant
- Temperature range from 0° to 80°C
- No reference clock required
- Compliant with SONET, SDH, GBE, FC
- MSA Compliant EEPROM

# QSFP/QSFP+ Passive Electrical Loopbacks

## ▶ RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Notes/Conditions	Min	Type	Max	Units
Operating Temperature	$T_A$	Note 1*	0		80	°C
+3.3V Supply Voltage	VCC	Main Supply Voltage	3.00	3.3	3.60	V
Data Rate	$R_b$		0		40	Gbps
Input/Output Load Resistance	$R_l$	AC-Coupled, Differential	90	100	110	$\Omega$
Eye Height		Note 2*		140mA		
Jitter		Note 2*		33mA		
Power Consumption		Class 3 Standard; Class 1, Class 2, or Class 4 (available upon request)			3.5	W

\*Note 1. Ambient temperature with a minimum of 100 linear feet per minute of air flow

\*Note 2. Pattern generator (VSC8248) 10.3125 Gbps, 156.25 MHz differential signaling

## ▶ LED INDICATORS

**Amber (Solid)** - Signifies the module in full plugged in and operating in low power permitted mode as defined by the QSFP/QSFP+ MSA.

**Green (Solid)** - Signifies the module is fully plugged in and operating in high power mode as defined by the QSFP/QSFP+ MSA.

**Green/Amber (Blinking)** - Signifies the module is deselected by the host. The module will not respond to host commands in this host selected state.

## ▶ MEMORY MAP

In addition to the electrical loopback function, the EL-12-07001 provides an MSA standard 2-wire serial communication interface to digital diagnostics and pre-loaded EEPROM memory maps; both standard and custom memory maps are available.

## ▶ ABOUT

Founded in 1997, Timbercon, Inc. is a fiber optic product and solution manufacturing company providing a wide array of connectivity solutions to the data storage, telecommunications, military, industrial, medical, broadcast and networking industries. In addition to standard fiber optic patch cords and attenuated test cables, Timbercon has pioneered proprietary products, many of which are now considered to be an industry benchmark.

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Photonic design at the speed of light