

PART NUMBER	DESCRIPTION
2307052-1 TX	Broadband Chip Scale Package Fiber Optic Transmitter (100 Mbps to 4.25 Gbps)
2307042-1 RX	Broadband Chip Scale Package Fiber Optic Receiver (100 Mbps to 4.25 Gbps)

Teledyne's family of optical communication devices provides reliability when it is needed the most. Our Chip Scale Package (CSP) Fiber Optic Transmitters and Receivers are ideal for harsh environment networking and critical communication applications requiring high data rates, in a very lightweight, low profile form factor.

PRODUCT DESCRIPTION

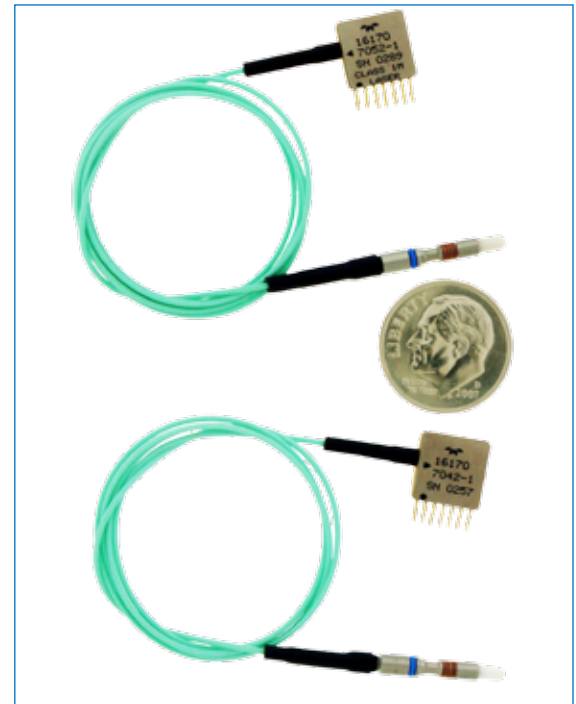
The 2307052-1 TX and 2307042-1 RX are miniaturized fiber optic transmitters and receivers for data communication applications in the high reliability industrial, aviation and military market segments.

PERFORMANCE FEATURES

- Broadband performance range of 100 Mbps up to 4.25 Gbps
- Operating temperature range from -40°C to +95°C
- Withstands shock and vibration in harsh environments
- Single 3.3V power supply and low nominal power consumption
- Transmitter disable function
- Receiver signal detect monitor
- Receiver GaAs PIN photodetector

PACKAGE AND FIBER FEATURES

- Small package size .38 x .38 x .1"
- Rugged Kovar housing
- Readily scalable for higher data rate requirements
- Easily arrayed for multi-channel applications
- Moisture resistant
- Pigtailed with MM fiber cable (Corning® ClearCurve® OM3 for improved bend performance)
- Flexible terminus with standard fiber connectors or customer specified termination



COMPATIBLE WITH NETWORK PROTOCOLS:

Fibre Channel – 1GFC, 2GFC, 4GFC
 Fast Ethernet – 100 Mbps (100 Base-SX)
 Gigabit Ethernet – 1000 Mbps (1000 Base-SX)
 sFPDP – 1.0625 Gbps, 2.125 Gbps, 2.5 Gbps

FACILITY ACCREDITATIONS:

AS9100, ISO 9001:2008
 MIL-PRF-38534, Class H and K
 DoD Microelectronics Trusted Source for
 Microelectronics Packaging, Assembly and Test
 Services

For custom high-reliability fiber optic devices for the military, aerospace and space markets, we offer innovative design capabilities, optical/microwave modeling, production and testing.

With our extensive expertise in beam profiling and fiber lensing, processing of fiber arrays, electronics to optical measurement and testing, as well as optoelectronics to microwave integration, we provide a complete optical communications solution.

2307052-1 TX
2307042-1 RX
BROADBAND CHIP SCALE PACKAGE FIBER OPTIC
TRANSMITTER AND RECEIVER (100 Mbps to 4.25 Gbps)

CSP ELECTRICAL/OPTICAL SPECIFICATIONS

Parameters	Symbol	TRANSMITTER			RECEIVER			Units	Notes
		Min	Typ	Max	Min	Typ	Max		
Operating Temperature	T_{op}	-40		+95	-40		+95	°C	
Supply Voltage	V_{cc}	3.0	3.3	3.6	3.0	3.3	3.6	V	
Supply Current (per channel)	I_{cc}		55	100		78	100	mA	
Input Differential Impedance	Z_{diff}	90	100	120		NA		Ω	1
Data Rate	BR	0.100		4.25	0.100		4.25	GBPS	
Single Ended Data Input Swing	$V_{in, PP}$	250		1200		NA		mV	
Single Ended Data Output Swing	$V_{out, PP}$		NA		300	375	600	mV	
Transmitter Disable Voltage	V_D	$V_{cc} - 1.3$		V_{cc}		NA		V	
Transmitter Enable Voltage	V_{EN}	0		+0.8		NA		V	2
Signal Detect Assert	SD		NA			-17.5	-16	dBm	
Signal Detect De-Assert	SD		NA		-31	-19.5		dBm	
Bit Error Rate	BER			10^{-12}			10^{-12}		3
Optical Output Power	P_{out}	-4.0	-2.0	0		NA		dBm	4, 7
Optical Wavelength	λ	830	850	860		NA		nm	
Optical Modulation Amplitude	OMA	414	650	1400		NA		μW	5, 8
Receiver Sensitivity	R_{Sens}		NA			-18	-16	dBm	3
Total Jitter Contribution	ΔDJ		20	40		30	50	ps	6, 8
Extinction Ratio	ER	5.0	8.0	12.0		NA		dB	3

NOTES:

1. AC coupled
2. Or open circuit
3. Tested with PRBS 2⁷ - 1 test pattern
4. Class I Laser Safety per FDA/CDRH, EN (IEC) 60825 laser safety regulations
5. Equivalent extinction ratio specification for Fiber Channel. Allows smaller ER at higher average power
6. If measured with DJ-free data input signal, 10^{-12} BER. In actual application, output TJ will be given by:
 $TJ_{out} = DJ_{in} + \Delta DJ + \sqrt{[(TJ_{in} - DJ_{in})^2 + (\Delta TJ - \Delta DJ)^2]}$
7. Specifications are for standard 50 micrometer or 62.5 micrometer fiber multimode fiber
8. @ 4.25 Gbps

ENVIRONMENTAL QUALIFICATION

Teledyne's CSP Fiber Optic products are screened and qualified to our High Reliability Industrial Part (HRIP) Plan that is comparable to the RTCA DO-160 and MIL-STD-883 standards:

- Temperature cycling from -55°C to +125°C for 110 cycles
- Mechanical shock of 5 shocks in positive and negative direction for each X, Y, and Z axis (1500g level peak, 0.5 ms pulse duration, half-sine pulse)
- Variable frequency vibration from 20 to 2,000 Hz with a peak acceleration of 20g's
- Moisture resistance testing for 10 continuous cycles at >90% humidity
- Steady state life test biased for 1000 hours at +95°C

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