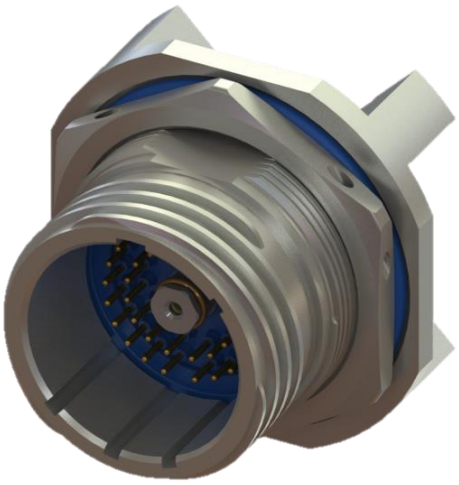
0500-3004

D38999 Series III Transmitter or Receiver
1 Size #8 Electro-Optical Contact and 28 Size #22

REV	DESCRIPTION	DATE	APPROVED
1	Preliminary	06/01/2018	RAS/GC
2	Add Recommended Interface Circuits	06/04/2018	RAS/GC
3	General Update	07/09/2018	GC
4	Add contact options for 050-399 and 0500-3015	10/04/2018	RAS/GC
5	Update the 050-301 contacts P/Ns. Add FO Inspection and Cleaning Tools	03/11/2019	YA

BF 18U2-2817

Single Channel Transmitter or Receiver Hybrid Connector



Glenair 0500-3004 is a D38999 Series III hybrid connector in the 17-2 arrangement with one Size 8 Opto-Electronic contact and 28 Size 22 electrical contacts. The connector features a PC tail interface with standoffs to fasten a PCBA securely to the back of the connector. The opto-electronic performance parameters of the 0500-3004 are defined by the performance of the size 8 contact that is incorporated**. For example, if one incorporates a 4.25Gbps contact into the connector then each of the contacts will be 4.25Gbps capable.

0500-3004 is compatible for data rates from 1.25 Gbps to 5.00 Gbps. See part number development for options.

KEY FEATURES/BENEFITS

- 1.25-4.25 Gbps Transmitter built into connector
- Potted to seal up to 10^{-4} Helium leak rate
- One 050-301 Size 8 TX/RX which mates with an ARINC 801 Fiber Optic Contact
- 28 Size #22 Electrical Contacts
- Butyl Environmental O-RING Panel Mount Seal
- Built in standoffs for secure PCB installation
- Size 8 Contact: Standard CML (100Ω differential)
- -40°C to +85°C case operating temperature

APPLICATIONS

- Harsh Environment, High Vibration Airborne

How To Order

Basic PN		Optical Device Type		38999 Polarization		
0500-3004	NF	-	T	A1	-	N
	Material/Finish			Contact Type		

Material/Finish
ZR = Zinc Nickel, Black
M = Aluminum, Electroless Nickel
NF = Aluminum, Cadmium Olive Drab

Optical Device Type
T = Transmitter
R = Receiver

38999 Polarization
A, B, C, D, E
N = Normal

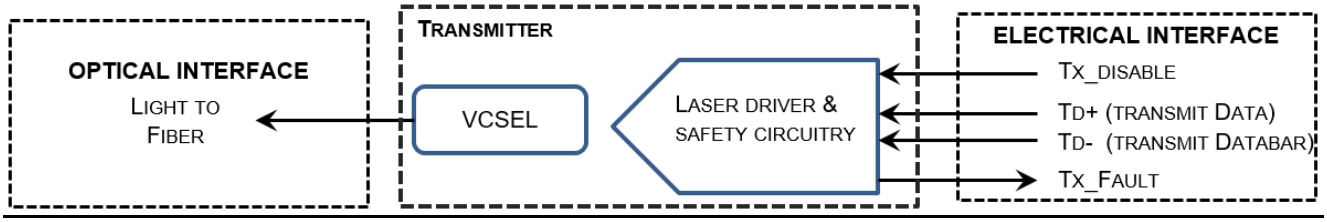
Contact Type
(See Table I)

** Note: For electrical ratings and specifications, please refer to 050-301, 050-367, 050-399, or 0500-3015 datasheets

Table II: Contact Type				
Contact Type	**Contact Option**	**Contact P/N**	**Description**	**Contact Type Description**
A (Multimode 50/125 & 62.5/125)	1	050-301-01-T	1.25 Gbps Transmitter	050-301 series opto-electronic size #8 contact, 100Mbps – 5.00Gbps, 850nm VCSEL Transmitter or PIN/TIA Receiver, 1.25mm LuxCis optical interface that mates with ARINC 801 terminus**
		050-301-01-R	1.25 Gbps Receiver	
	2	050-301-02-T	2.50 Gbps Transmitter	
		050-301-02-R	2.50 Gbps Receiver	
	3	050-301-03-T	3.20 Gbps Transmitter	
		050-301-03-R	3.20 Gbps Receiver	
	4	050-301-04-T	4.25 Gbps Transmitter	
		050-301-04-R	4.25 Gbps Receiver	
	5	050-301-05-T	5.00 Gbps Transmitter	
		050-301-05-R	5.00 Gbps Receiver	
C (Multimode 50/125 & 62.5/125)	1	050-367-1-T	HD-SDI Transmitter	050-367 series opto-electronic size 8 contact, HD-SDI and 3G-SDI, 1.25mm LuxCis optical interface that mates with ARINC 801 terminus
		050-367-1-R	HD-SDI Receiver	
	2	050-367-T	3G-SDI Transmitter	
		050-367-R	3G-SDI Receiver	
D (Multimode 50/125 & 62.5/125)	1	050-399-01-TX	DC to 1 Mbps TX	050-399 series opto-electronic size 8 contact, DC to 1 Mbps, 1.25mm LuxCis optical interface that mates with ARINC 801 terminus
		050-399-01-RX	DC to 1 Mbps RX	
E (Multimode 50/125 & 62.5/125)	1	0500-3015-01-TX	DC to 50 Mbps TX	050-399 series opto-electronic size 8 contact, DC to 50 Mbps, 1.25mm LuxCis optical interface that mates with ARINC 801 terminus
		0500-3015-01-RX	DC to 50 Mbps RX	
X	X	N/A	No Contact, Empty	

Functional Block Diagram

Transmitter Functional Block Diagram per cavity

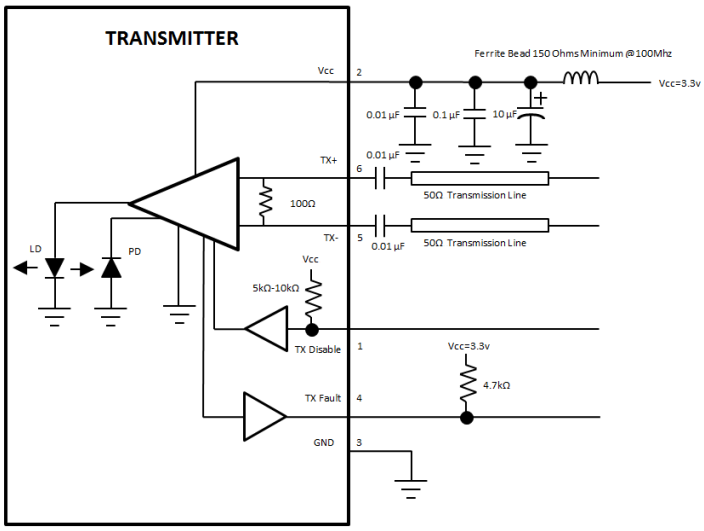


Receiver Functional Block Diagram per cavity

Recommended Interface Circuit

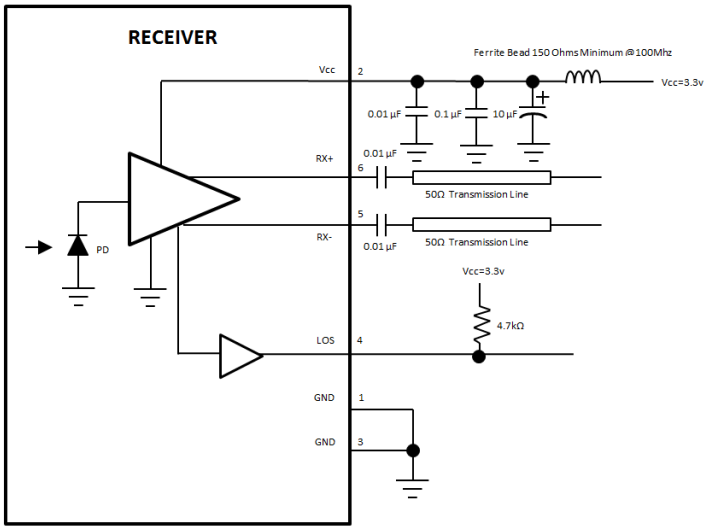
Transmitter (050-301)

RECOMMENDED INTERFACE CIRCUIT



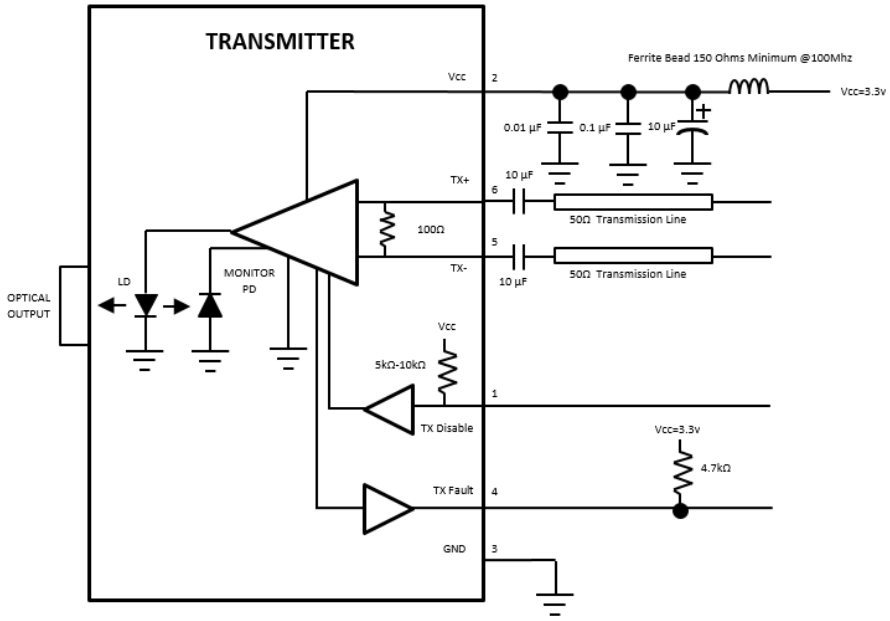
Receiver (050-301)

RECOMMENDED INTERFACE CIRCUIT

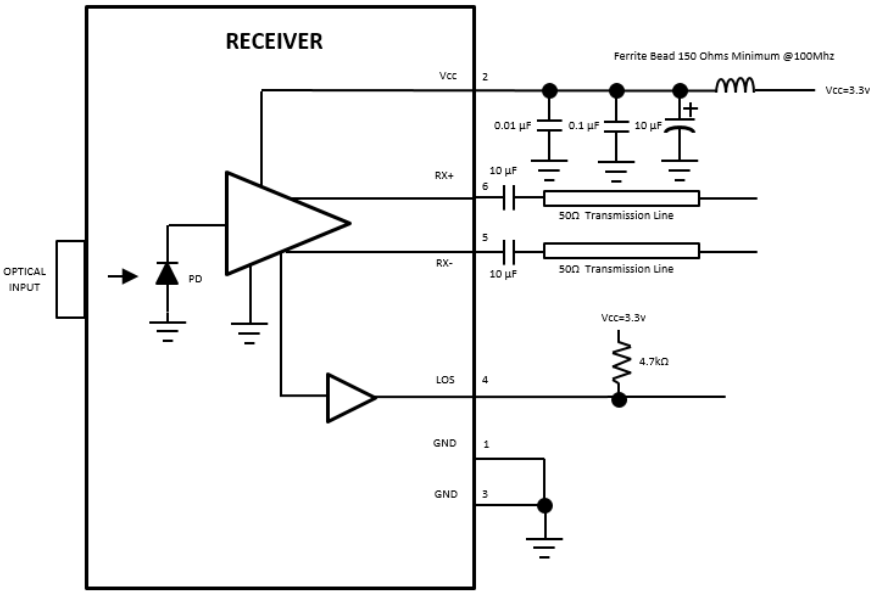


Recommended Interface Circuit (continued)

Transmitter (050-367)

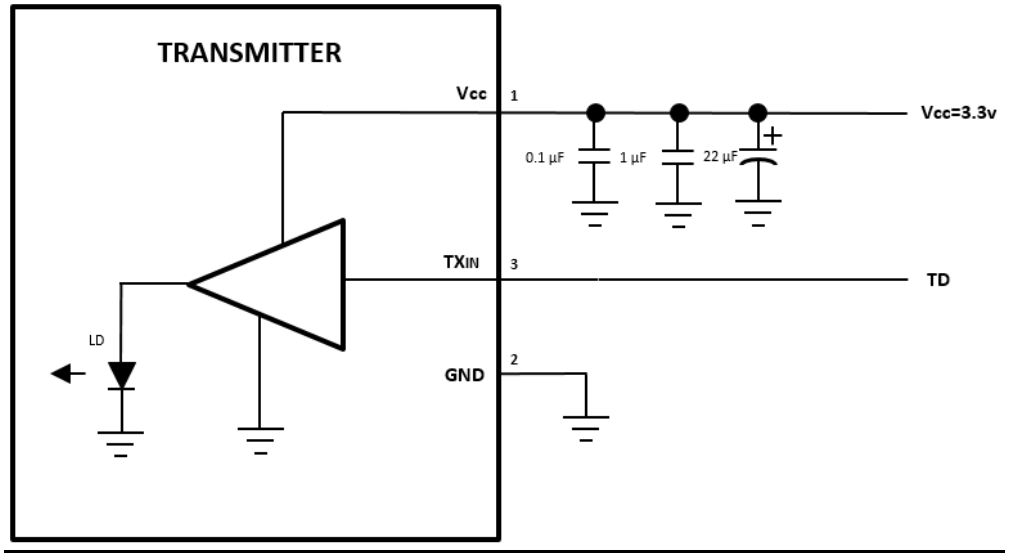


Receiver (050-367)

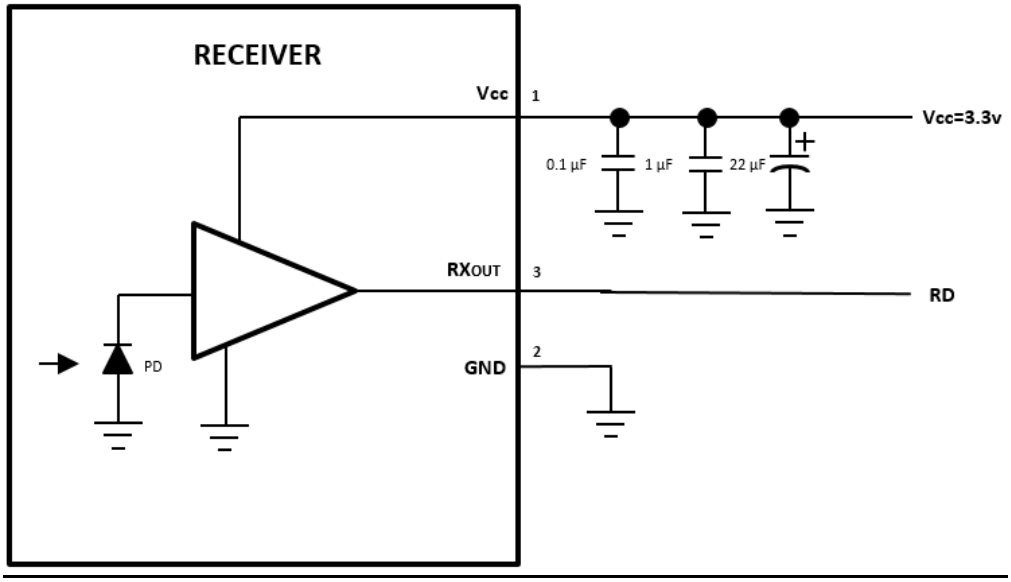


Recommended Interface Circuit (continued)

Transmitter (050-399)

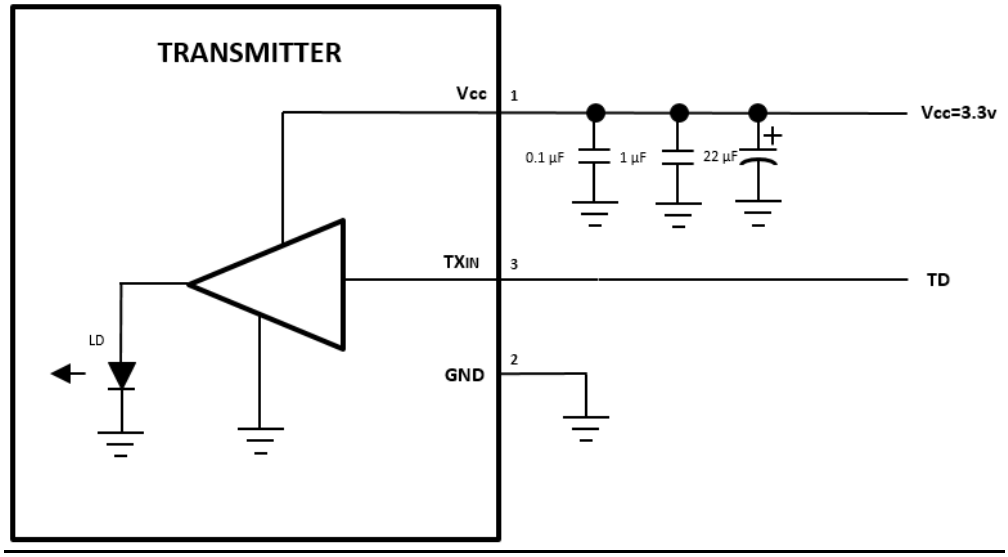


Receiver (050-399)

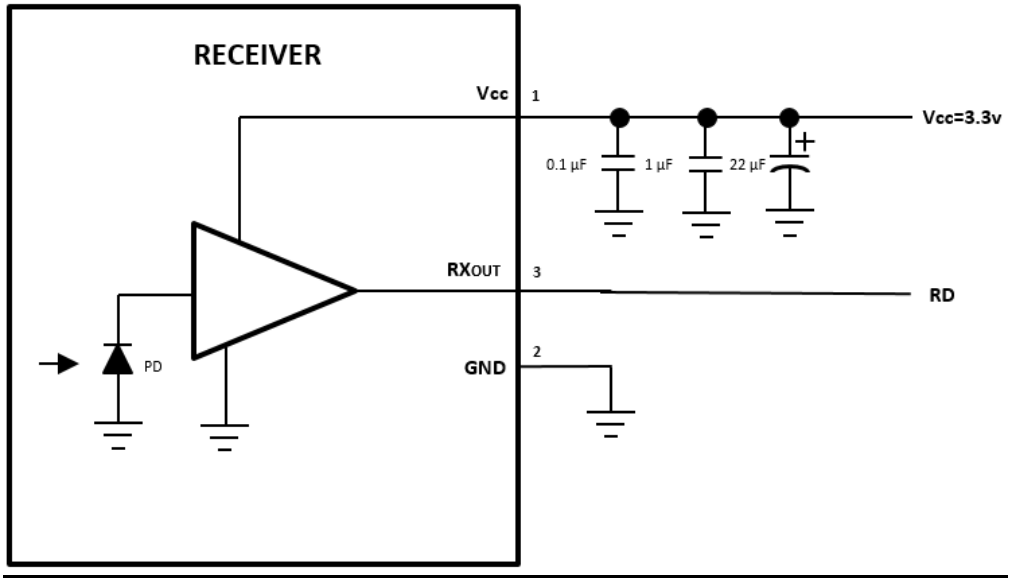


Recommended Interface Circuit (continued)

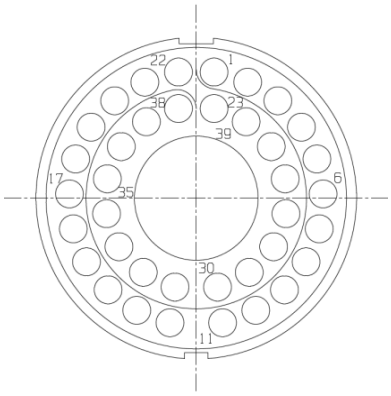
Transmitter (0500-3015)



Receiver (0500-3015)



Connectors

NAME	Insert Arrangement	Function	Receptacle OE Converter	Mating Connector
J1	 **D38999 17-2 Arrangement Pin Face Shown**	Fiber Optic Transmitter and Power/Electrical Signals	Contacts are contained within the connector	Glenair Connector: 233-217-G6#17-2BN Generic Connector: D38999/26#E2SN Recommended Contacts: 1x 059-0001 (Fiber) 38x 850-018-22 (Electrical)

Note: # = Environmental Class (Material/Finish)

Note: For electrical ratings and specifications, please refer to 050-301, 050-367, 050-399, or 0500-3015 datasheets.

Ratings and Specifications

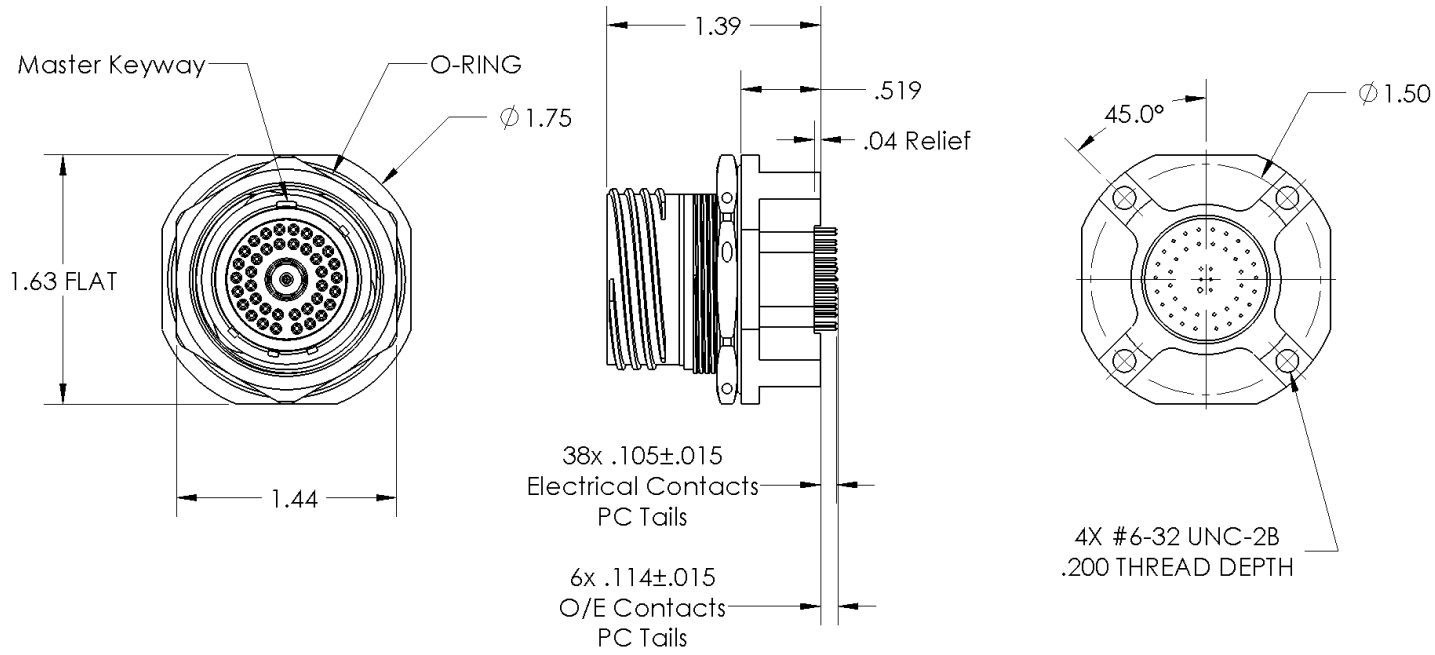
COMPLIANCE SPECIFICATIONS

CHARACTERISTIC	Standard	Condition	Notes
Functional Shock	TBD	TBD	
Mechanical Vibration	DO-160D	Category S, Curve E, Amp factor 3x	Fixed-Wing
Transit Drop Shock	TBD	TBD	
Crash Shock	TBD	TBD	
ESD	MIL-STD-883		1000V HBM
Eye Safety	CDRH and IEC-825	Class 1 Laser Product	
Sealing			The connector shall be environmentally sealed to a helium leak rate of less than 10^{-4} atm*cc/sec

Material/Finish

Item	Material/Finish
Housing & Connector Shell	Aluminum
Plating Finish: M	Nickel
Plating Finish: ZR	Zinc Nickel, Black
Plating Finish: NF	Olive Drab Cadmium
Contacts	Copper alloy, 50 µInch gold plated (preliminary)
Interfacial Seal	Elastomer, Fluorosilicon
Optical Ferrules & Sleeves	Zirconia, Ceramic
Insulators	Liquid crystal polymer (LCP)
Contact retention clip	Beryllium copper alloy
Seal, O-ring front panel	Butyl
Contact Springs	Beryllium copper
Encapsulant	EP-38 Glenair Proprietary two-part flexible epoxy
Solder Type	RoHS compliant Sn95/Sb5 (232°C melting temp) & RoHS compliant Sn96.5/Ag3.0/Cu0.5 (217°C melting temp)

OUTLINE DRAWING

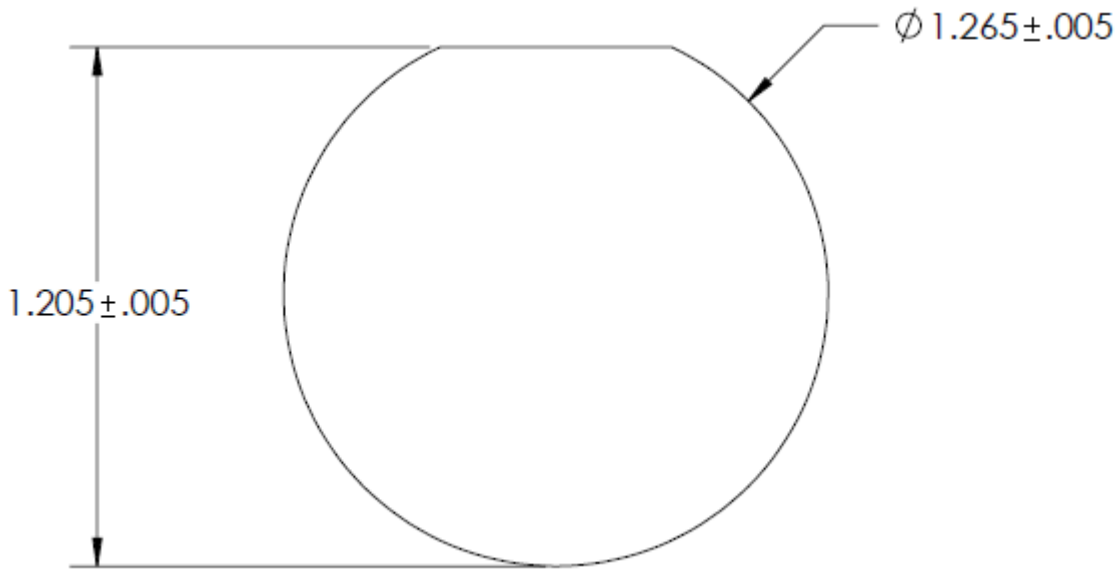


Dimensional Tolerances Unless specified otherwise:
0.x ± 0.1"
0.xx ± 0.03"
0.xxx ± 0.015"

Estimated Weight: 50g ± 10%

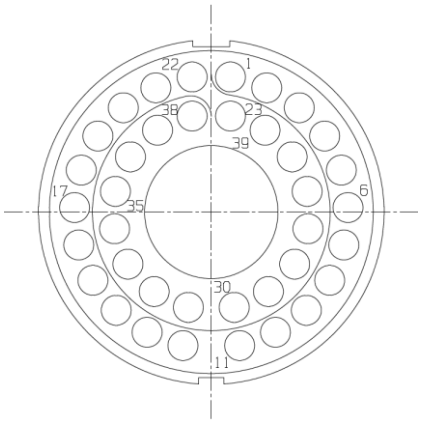
PANEL CUT OUT

RECOMMENDED PANEL CUT OUT



Input/Output Definition

J1 – CONNECTOR (OUTSIDE THE BOX)

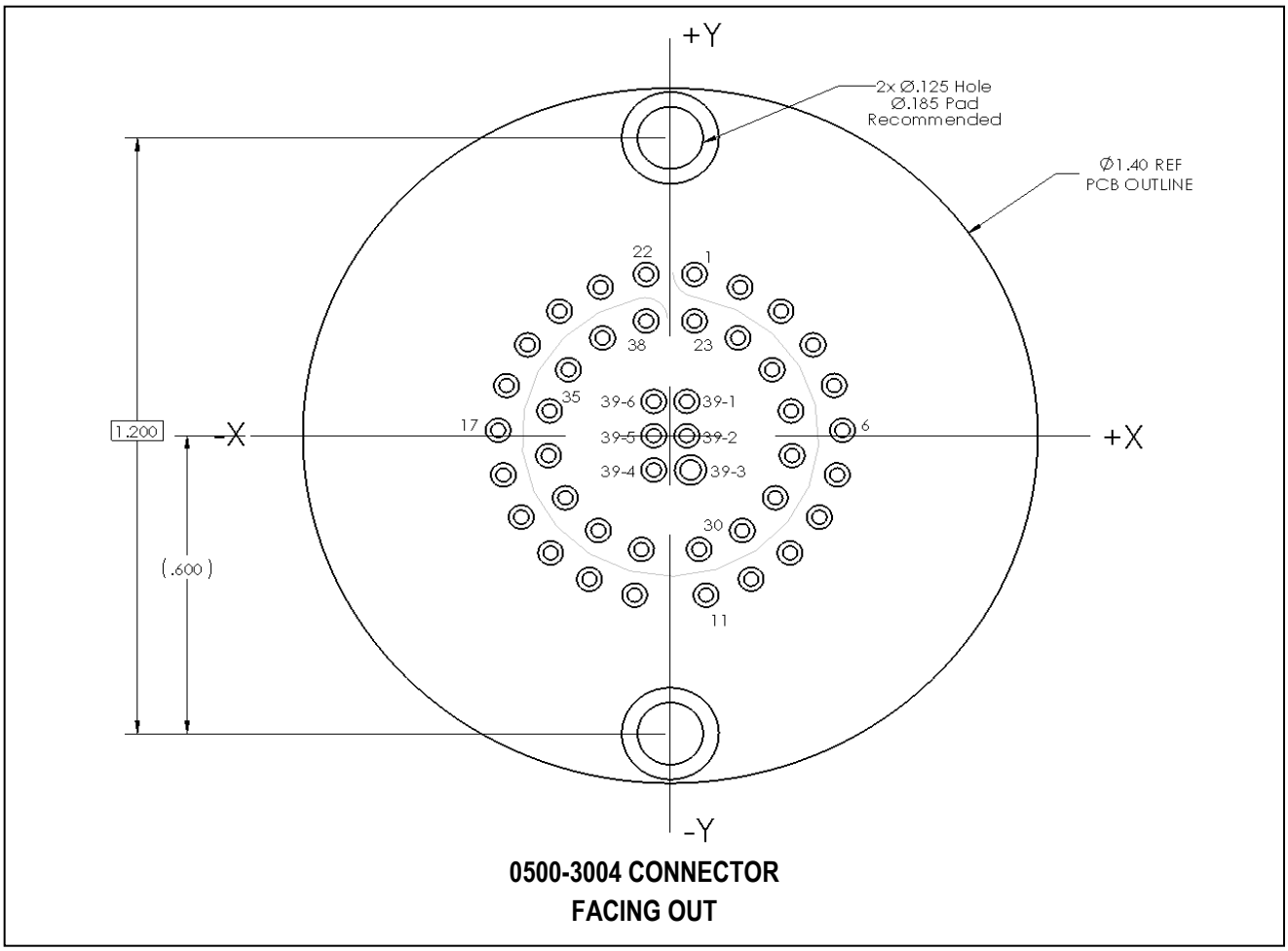


D38999 17-2 Arrangement
Pin Face Shown

PIN	NAME	DESCRIPTION	NOTES
1		#22 Electrical Signal/Power	
2		#22 Electrical Signal/Power	
3		#22 Electrical Signal/Power	
4		#22 Electrical Signal/Power	
5		#22 Electrical Signal/Power	
6		#22 Electrical Signal/Power	
7		#22 Electrical Signal/Power	
8		#22 Electrical Signal/Power	
9		#22 Electrical Signal/Power	
↓		↓	
↓		↓	
15		#22 Electrical Signal/Power	
16		#22 Electrical Signal/Power	
17		#22 Electrical Signal/Power	
18		#22 Electrical Signal/Power	
19		#22 Electrical Signal/Power	
20		#22 Electrical Signal/Power	
↓		↓	
↓		↓	
25		#22 Electrical Signal/Power	
26		#22 Electrical Signal/Power	
27		#22 Electrical Signal/Power	
28		#22 Electrical Signal/Power	
29		#22 Electrical Signal/Power	
30		#22 Electrical Signal/Power	
31		#22 Electrical Signal/Power	
32		#22 Electrical Signal/Power	
33		#22 Electrical Signal/Power	
34		#22 Electrical Signal/Power	
35		#22 Electrical Signal/Power	
36		#22 Electrical Signal/Power	
37		#22 Electrical Signal/Power	
38		#22 Electrical Signal/Power	
39		Size 8 O/E Contact	

Note: For electrical pinout of Size 8 contact, please refer to 050-301 or 050-367 datasheets.

RECOMMENDED PCB LAYOUT



0500-3004 CONNECTOR
FACING OUT

PIN	THRU HOLE DIA.	PAD DIA.
1	Ø.028	Ø.048
↓	↓	↓
38	Ø.028	Ø.048
39-1	Ø.028	Ø.048
39-2	Ø.028	Ø.048
39-3	Ø.040	Ø.060
39-4	Ø.028	Ø.048
39-5	Ø.028	Ø.048
39-6	Ø.028	Ø.048

Recommended Inspection & Cleaning Tools/Kits

The following recommendations are suggested for this product:

- **GBS-1001 Inspection Kit which includes GIT-003 tip for ARINC 801 fiber contacts.**
- **GCLT-H200 or GCLT-HA125 cleaning tool for ARINC 801 system.**

GBS1001 Inspection Probe with USB Adapter and Fiber Chek 2 Software

How To Order

GBS1001

Basic Part Number Includes:
- *Inspection probe with USB adapter*
- *Fiber Chek 2 Software*

Comes with
(installed on the probe):
GIT-003 Universal 1.25mm patch cord

The GBS1001 is the only inspection probe today with a high resolution, all digital sensor and USB2 video stream which delivers high-resolution uncompressed images directly to your personal computer.

GBS1001 Specifications	
Weight	.11 Kg / .25 lb
Resolution	Better than 1.5 Microns
Cable	Integrated USB 2.0 coil cable 2.5' relaxed, 10.5' fully extended
Certification	CE
Warranty	1 year

Fiber Chek Software
Fiber Optic Analysis Program

Fiber Chek is an integrated hardware/software package engineered with the single purpose of critically and consistently grading fiber end-faces. Works hand in hand with the Quick Capture Analog Probe for visual inspection, taking pictures and testing fibers.

- Automatic debris and defect detection, including fine scratches
- Measures epoxy ring for out-of-tolerance conditions
- Inspection results, including image data, can be printed or archived
- Utilizes industry standards or user defined threshold settings

Recommended Inspection & Cleaning Tools/Kits – (Continued)

Dry action cleaning tool for ARINC 801 systems

Dry action cleaning tool for ARINC 801 test adapters

- **A simple push motion engages tool**
- **Audible click when tool is fully engaged**
- **Durable — over 525 engagements per tool**
- **Crush resistant to over 250N**
- **Impact resistant to survive drops over 1.5M**