smiths interconnect

NXS Connector Series

September 2021 | Product Introduction

BEYOND CONNECTIVITY

Table of Content

Product Summary

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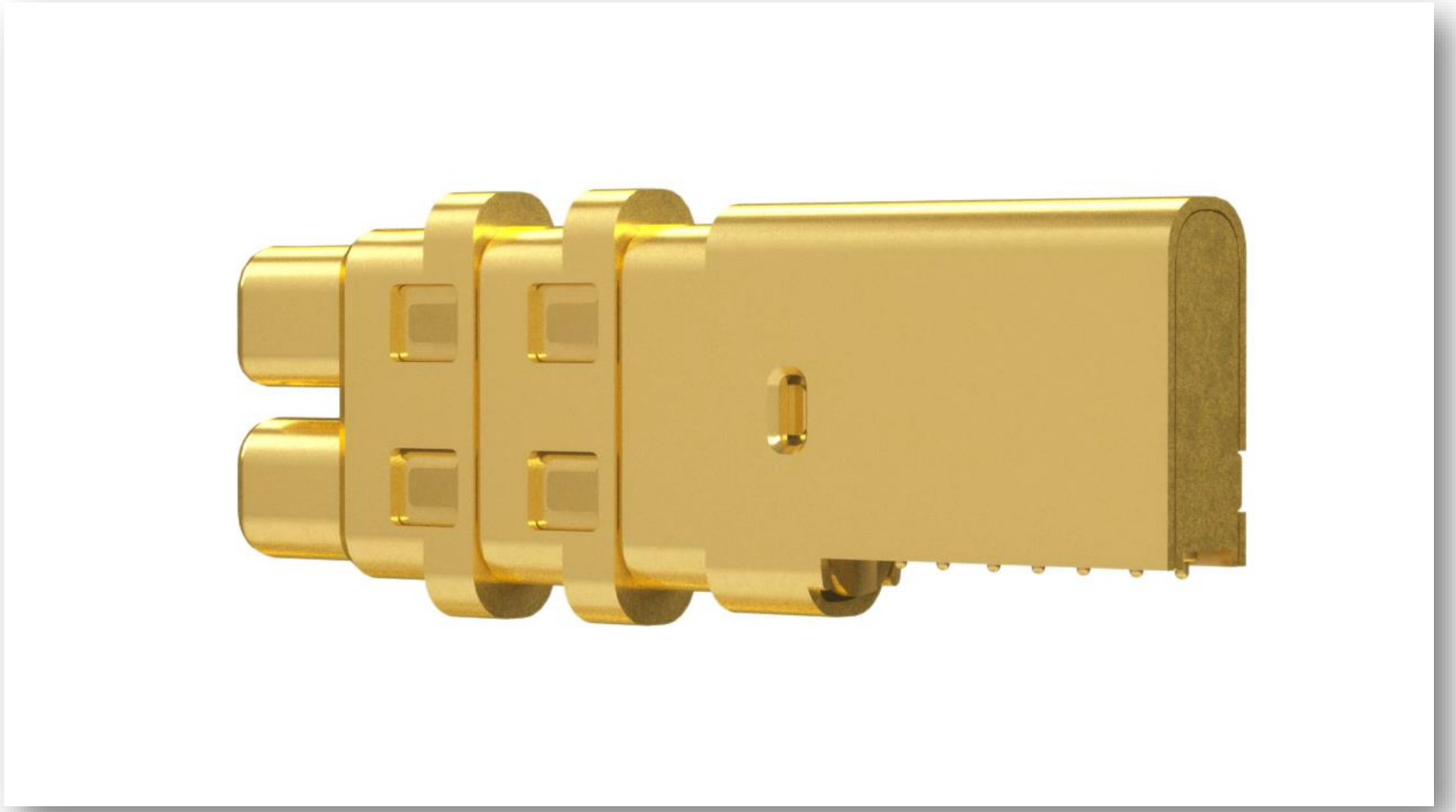
NXS Series | Ultra High Density, Space Qualified Interconnect



NXS Series | Value Proposition

The solderless PCB mount reduces customer risk and cost of ownership. The connector is mounted after reflow and has no impact on nearby components

Ultra high contact density and compact form factor allows the customer to make a 90˚ transition within a very small footprint

Gold plated, low mass composite shell minimises cost of launch

Signal integrity through a 90˚ transition qualified up to 10Gbps per channel

Qualified to space standards with heritage in GEO applications. Withstands shock up to 2100G

Manufactured to the highest space standards in our site, Dundee UK

Future modularity built in. Additional NXS modules on the technology roadmap will complement the Quadrax module

Technical Overview

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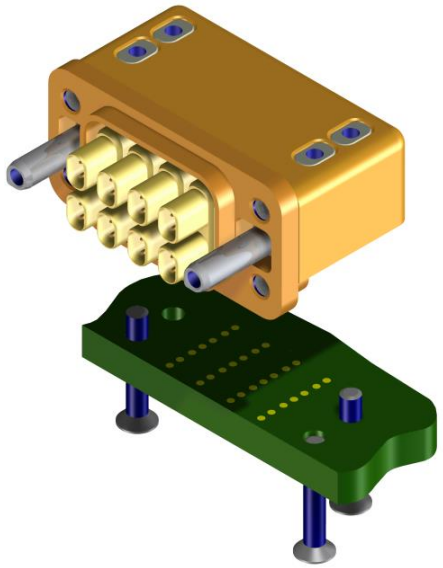
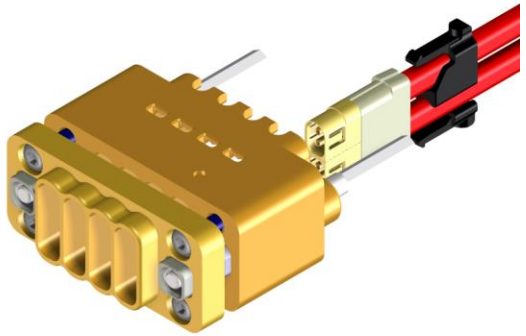
NXS Series | Product Construction

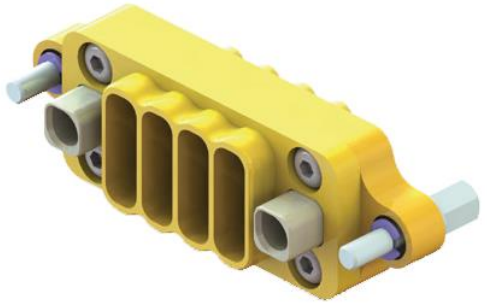
Receptacle



Plug, cable assembly



Saver

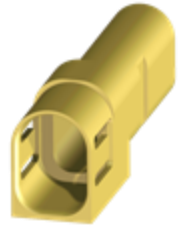


Saver receptacle

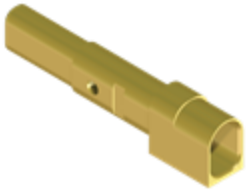
Saver plug

Accessories

Socket contact



Contact outer shell



Cavity filler

Clip retention

Insulator

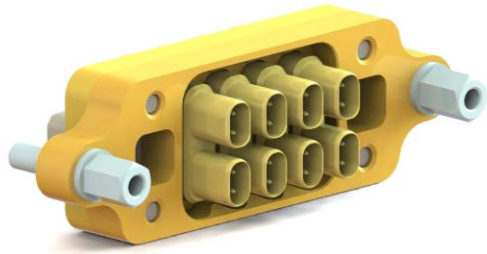
Spacer

NXS Series | 4-bay and 12-bay configurations

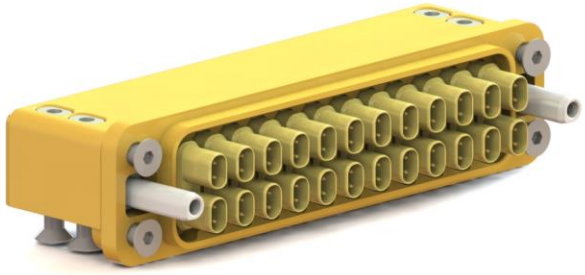
4-bay, receptacle

4-bay, plug

4-bay, saver plug

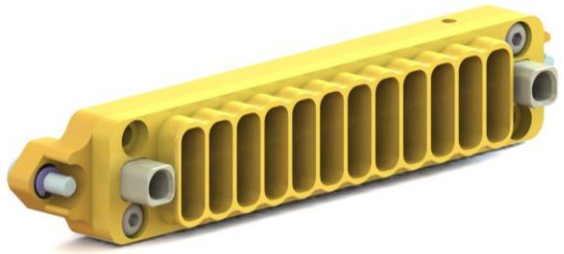


4-bay, saver receptacle

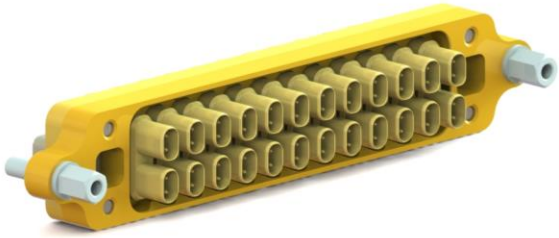


12-bay, receptacle

12-bay, plug



12-bay, saver plug



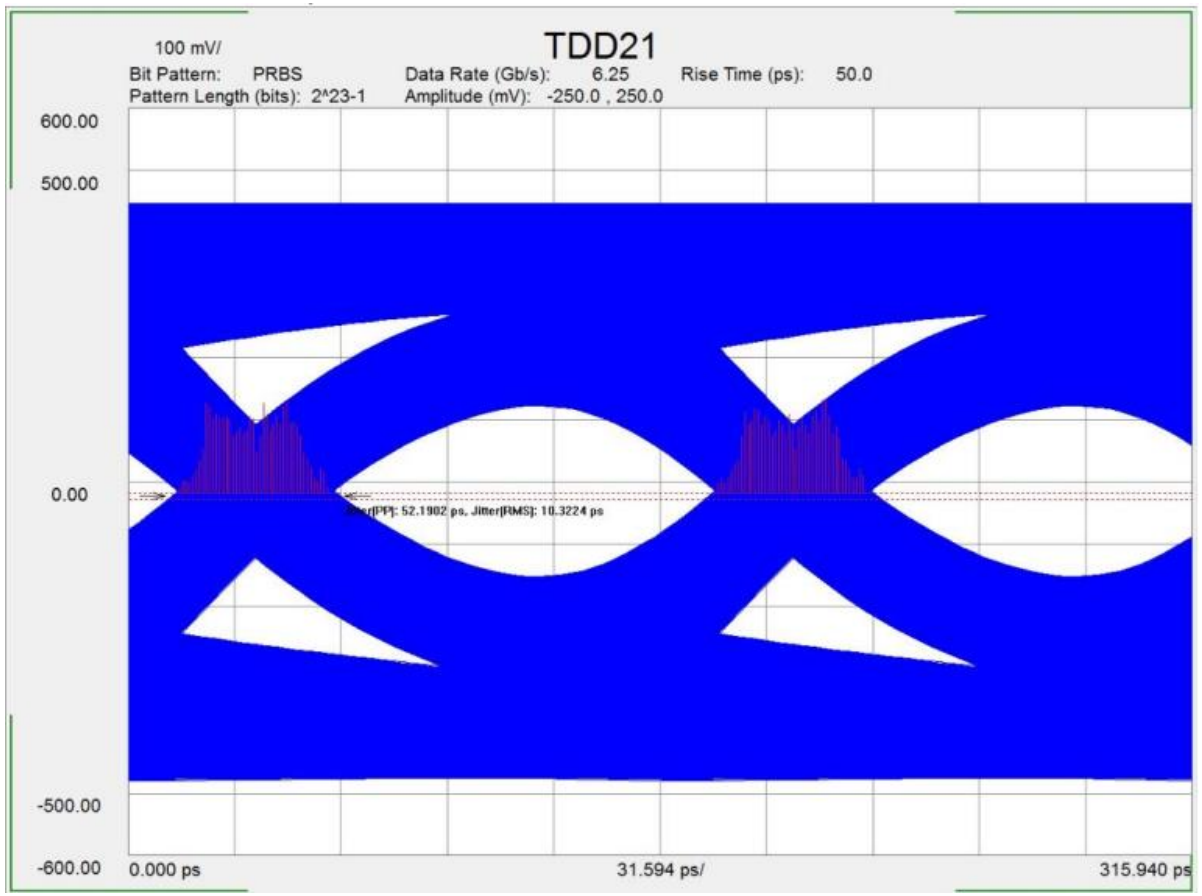
12-bay, saver receptacle

NXS Series | Product Characteristics

Mechanical & Environmental		Electrical	
Insulation Resistance	1 GΩ	**Current Rating**	1A
Contact Resistant	150 mΩ	**Withstanding Voltage**	10V RMS
Temperature Rating	-40°C to 125°C	**Data Transmission Rate**	Up to 10Gbps per channel
Durability (mate/unmate with saver fitted)	500 cycles	**Impedance**	100 Ω ±10%

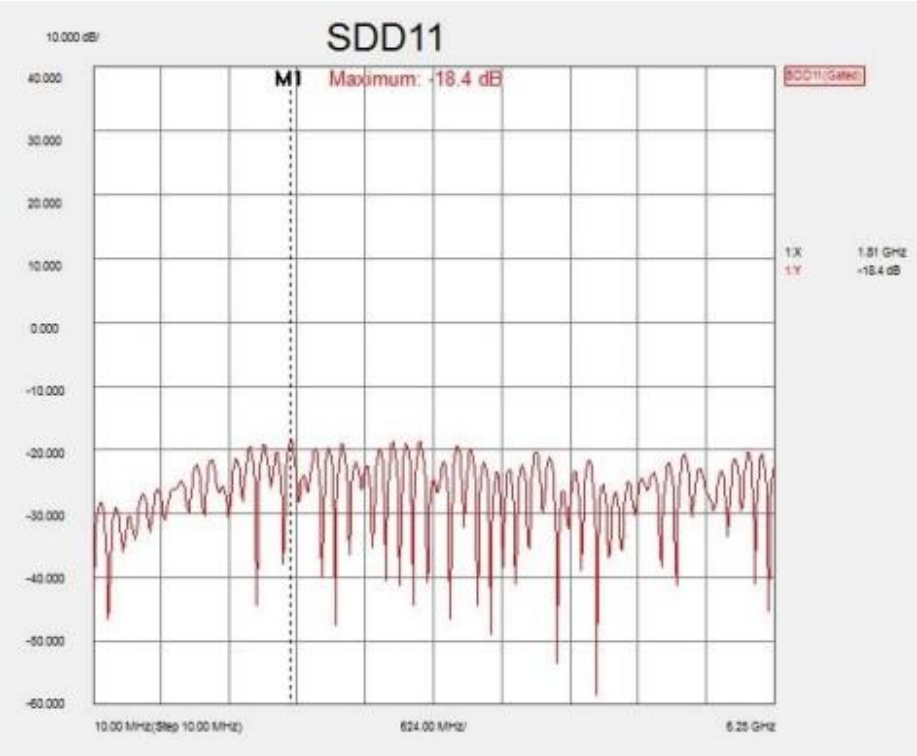
Materials & Finishes	
Connector Plug/Receptacle Shells	Composite - (base material: PEEK 30% carbon filled) Finish: Gold over nickel
Inner Shell (Quad module)	Aluminium alloy Finish: Gold over nickel
Saver Shells	Aluminium alloy Finish: Gold over nickel
Contacts	Copper alloy Finish: Gold over nickel
Insulators/Dielectric	PEEK
Guide Hardware	Stainless steel and titanium alloy
Fasteners	Stainless steel

NXS Series | Eyes Pattern

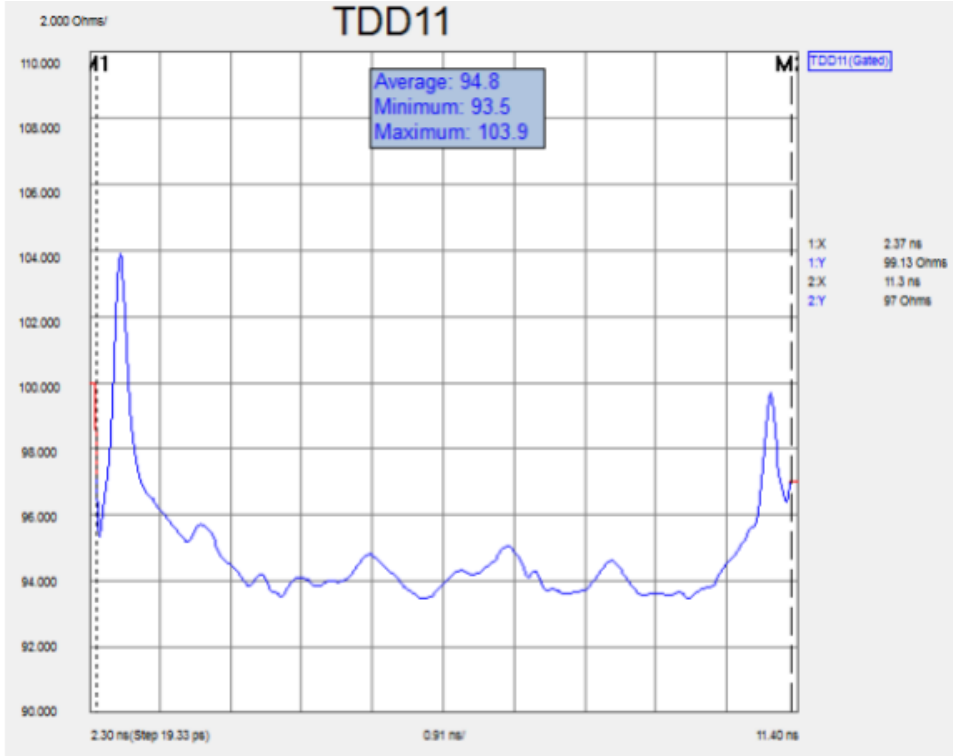


Eye jitter (PP) = 53.5ps
Post high temp' storage, connected to 1.0m length of cable (with bend)

NXS Series | Return Loss & Impedance



NXS: Typical Return Loss, frequency range up to 6.25GHz



NXS: Typical Impedance measurement (rise time 100ps),

Image shows TDR trace (TDD11) of the signal entering the connector, going through the cable, and exiting from a different part of the connector

NXS Series | Qualified to ESCC Standards

Test Activity	Affected Samples	Related Specifcation(s)	Section	Date Tested	Qual Result
SCREENING			8.1		
First Article Inspection	All	-	8.1.1	-	Pass
Mating / Unmating Forces	All	ESCC 3401 par 9.20	8.1.2	18-Mar 21	Pass
Low Level Contact Resistance	All	ESCC 3401 par 9.1.3	8.1.3	19-Mar	Pass
Insulation Resistance	All	EIA 363-21E	8.1.4	22-Mar	Pass
Dielectric Withstand Voltage	All	EIA 364-20E	8.1.5	22-Mar	Pass
Mated Shell Conductivity	All	ESCC 3401 Par 9.1.1.4	8.1.6	23-Mar	Pass
Voltage Standing Wave Ratio	All	ESCC 3402 Par 9.16	8.1.7	25-Mar	Pass
Insertion Loss	All	ESCC 3401 Par 9.1.1.6	8.1.8	26-Mar	Pass
Test Group I			8.2		
Screw Torque Force	Sample #1	-	8.2.1	29-Mar	Pass
Low Level Sine Sweep (Con Monitor)	Sample #1	ESCC 3401 9.11.1(b)	8.2.2	01-Apr to 07-Apr	Pass
Sine Vibration (Con Monitor)	Sample #1	ESCC 3401 Par 9.11.2	8.2.3	06-Apr to 07-Apr	Pass
Random Vibration (Con Monitor)	Sample #1	ESCC 3401 Par 9.11.3	8.2.4	06-Apr to 07-Apr	Pass
Low Level Sine Sweep (Con Monitor)	Sample #1	ESCC 3401 9.11.1(b)	8.2.5	06-Apr to 07-Apr	Pass
External Visual Inspection	Sample #1	IEC512-2 Test 1a	8.2.6	07-Apr	Pass
Low Level Contact Resistance	Sample #1	ESCC 3401 par 9.1.3	8.2.7	08-Apr	Pass
Screw Torque Force Drift	Sample #1	-	8.2.8	08-Apr	Pass
1/2 Sine Mechanical Shock (Con Monitor)	Sample #1	ESCC 3401 Par 9.12.1	8.2.9	08-Apr	Pass
External Visual Inspection	Sample #1	IEC512-2 Test 1a	8.2.10	08-Apr	Pass
Low Level Contact Resistance	Sample #1	ESCC 3401 par 9.1.3	8.2.11	09-Apr	Pass
Screw Torque Force Drift	Sample #1	-	8.2.12	09-Apr	Pass
Dry Heat (with Insulation Resistance)	Sample #1	ESCC 3401 9.13.2 IEC 60068-2-2	8.2.13	13-Apr	Pass
Damp Heat (Cycle 1)	Sample #1	ESCC 3401 9.13.3 IEC 60068-2-30	8.2.14	14-Apr to 15-Apr	Pass
Cold Test	Sample #1	ESCC 3401 9.13.4 IEC 60068-2-1	8.2.15	15-Apr	Pass
Low Air Pressure (with DWV)	Sample #1	ESCC 3401 9.13.5 IEC 60068-2-13	8.2.16	16-Apr	Pass
Damp Heat (Remaining Cycles)	Sample #1	ESCC 3401 9.13.6 IEC 60068-2-30	8.2.17	16-Apr to 21-Apr	Pass
Insulation Resistance	Sample #1	EIA 363-21E	8.2.18	21-Apr	Pass
Recovery & Visual Inspection	Sample #1	ESCC 3401 Par 9.13.7 IEC 512-2 Test 1a	8.2.19	22-Apr	Pass
Insulation Resistance	Sample #1	EIA 363-21E	8.2.20	26-Apr	Pass
Dielectric Withstand Voltage	Sample #1	EIA 364-20E	8.2.21	26-Apr	Pass

Test Activity	Affected Samples	Related Specifcation(s)	Section	Date Tested	Qual Result
Test Group II			8.3		
Rapid Change of Temperature (5 Cycles - 55C, +125C)	Sample #2	ESCC 3401 Par 9.16	8.3.1	26-Mar	Pass
External Visual Inspection	Sample #2	IEC 512-2 Test 1a	8.3.2	29-Mar	Pass
Low Level Contact Resistance	Sample #2	ESCC 3401 par 9.1.3	8.3.3	29-Mar	Pass
Mated Shell Conductivity	Sample #2	ESCC 3401 Par 9.1.1.4	8.3.4	29-Mar	Pass
Insulation Resistance	Sample #2	EIA 363-21E	8.3.5	29-Mar	Pass
Dielectric Withstand Voltage	Sample #2	EIA 364-20E	8.3.6	29-Mar	Pass
Voltage Standing Wave Ratio	Sample #2	ESCC 3402 Par 9.16	8.3.7	30-Mar	Pass
Insertion Loss	Sample #2	ESCC 3401 Par 9.1.1.6	8.3.8	31-Mar	Pass
Contact Retention	Sample #2	ESCC 3401 Par 9.17	8.3.9	09-Apr to 13-Apr	Pass
Mated Shell Conductivity	Sample #2	ESCC 3401 Par 9.1.1.4	8.3.10	13-Apr	Pass
Low Level Contact Resistance	Sample #2	ESCC 3401 par 9.1.3	8.3.11	14-Apr	Pass
Mating / Unmating Forces	Sample #2	ESCC 3401 par 9.20	8.3.12	14-Apr	Pass
Endurance (500 Cycles)	Sample #2	ESCC 3401 Par 9.18	8.3.13	14-Apr	Pass
Mating / Unmating Forces	Sample #2	ESCC 3401 par 9.20	8.3.14	15 Apr	Pass
Low Level Contact Resistance	Sample #2	ESCC 3401 par 9.1.3	8.3.15	15-Apr	Pass
Mated Shell Conductivity	Sample #2	ESCC 3401 Par 9.1.1.4	8.3.16	15-Apr	Pass
Insulation Resistance	Sample #2	EIA 363-21E	8.3.17	16-Apr	Pass
Dielectric Withstand Voltage	Sample #2	EIA 364-20E	8.3.18	16-Apr	Pass
Voltage Standing Wave Ratio	Sample #2	ESCC 3402 Par 9.16	8.3.19	19-Apr	Pass
Insertion Loss	Sample #2	ESCC 3401 Par 9.1.1.6	8.3.20	19-Apr	Pass
Destructive Physical Analysis	Sample #2	-	8.3.21	27.05.21	Pass

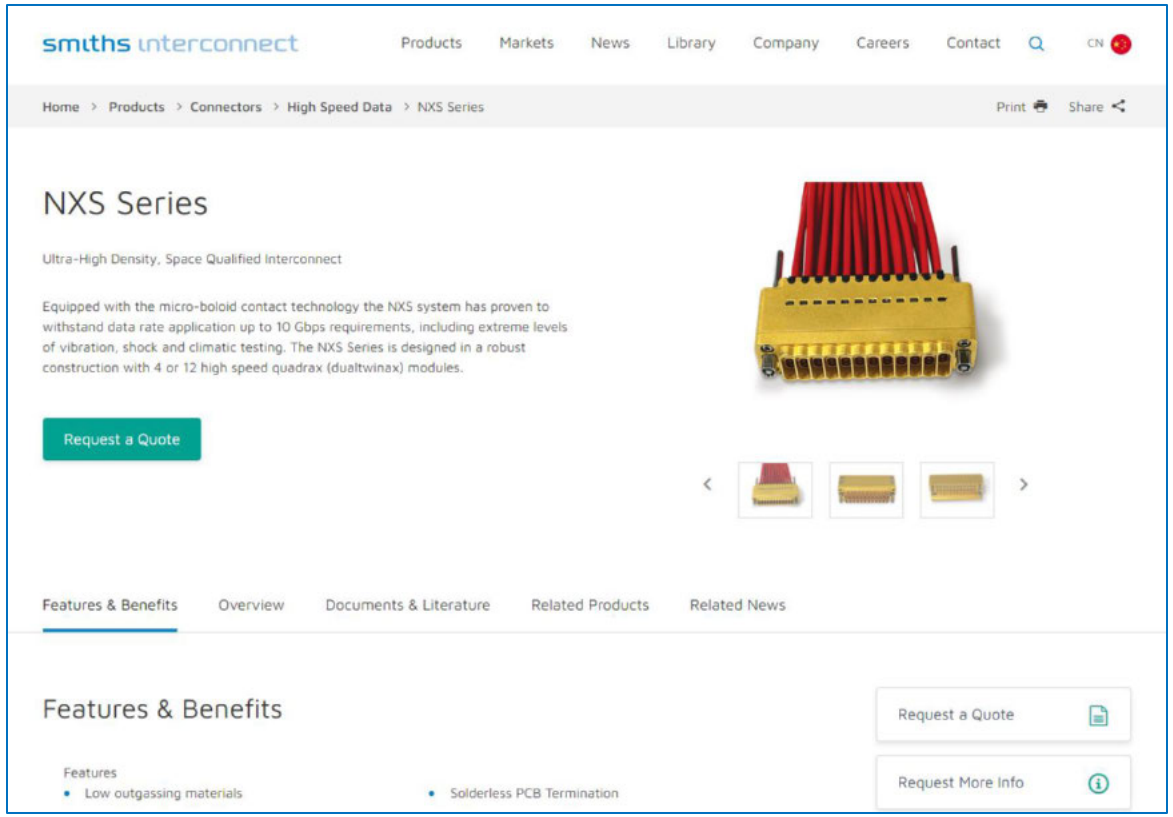
NXS Series | How to Order

1	Series	N X S	(Series -fixed)
2	No. of ways	0 0 4	4-Bay high speed quadrax (dual twinax)
		0 1 2	12-Bay high speed quadrax (dual twinax)
3	Shell gender	R 0	Receptacle
		P 0	Plug
		R S	Saver (Receptacle mount)
		P S	Saver (Plug mount)
4	Termination style	R A	Right angle solderless PC (Receptacle only)
		0 0	Supplied without contacts (Plug)
		1 1	Connector Saver's
5	Shell material/Finish	C	Composite shell (PEEK 30% carbon filled / gold over nickel)
		M	Aluminium alloy / gold over nickel (std for savers)
6	Polarising/Guides	A	Guide position A
		B	Guide position B
		C	Guide position C
		D	Guide position D
		1	Guide position 1
		2	Guide position 2
		3	Guide position 3
		4	Guide position 4
7	Custom variations	0	Standard

Collateral

3

NXS Series | Website Product Page and Landing Page

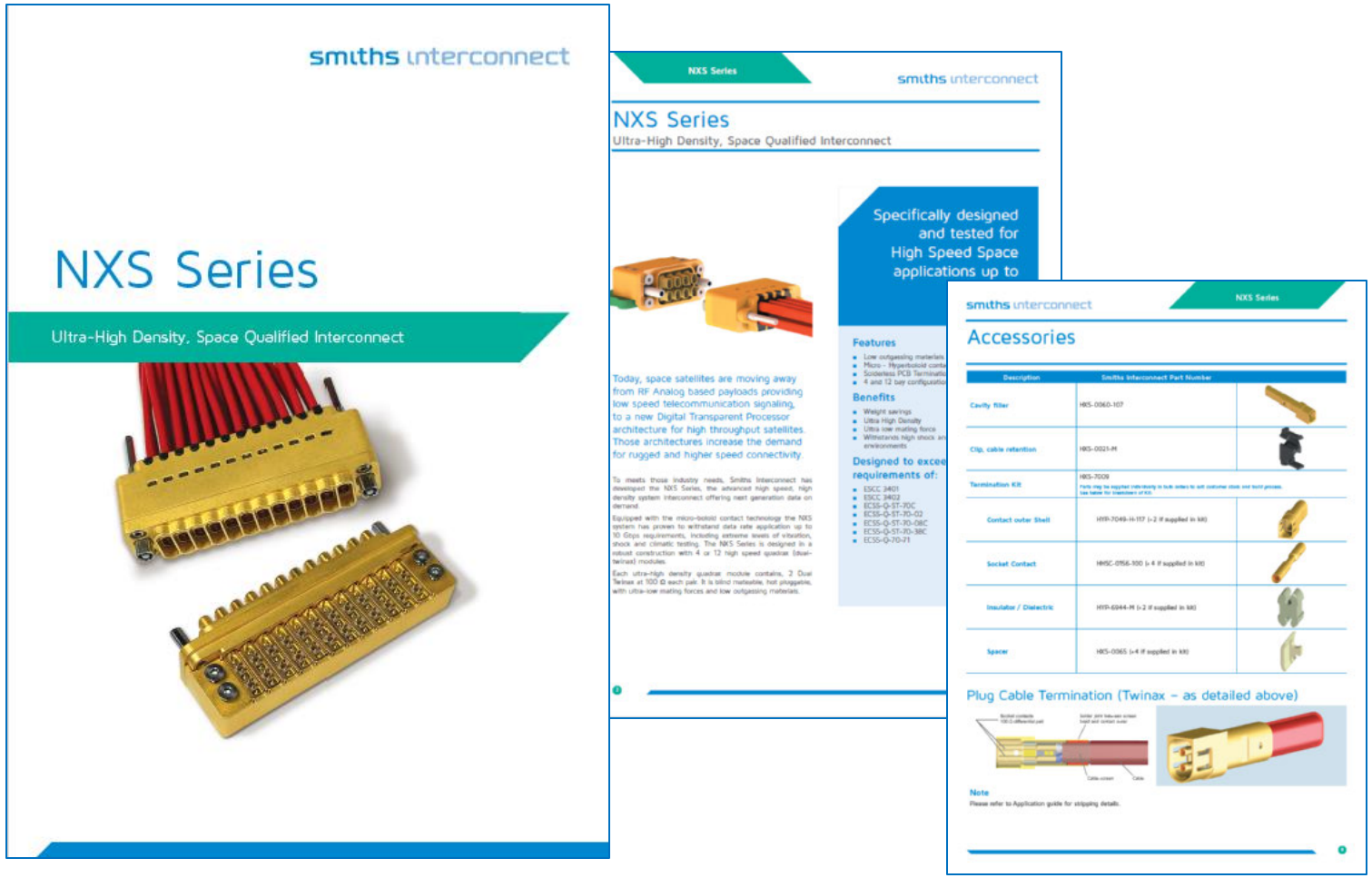


Smiths Interconnect - NXS Series – Ultra high density, space qualified interconnect

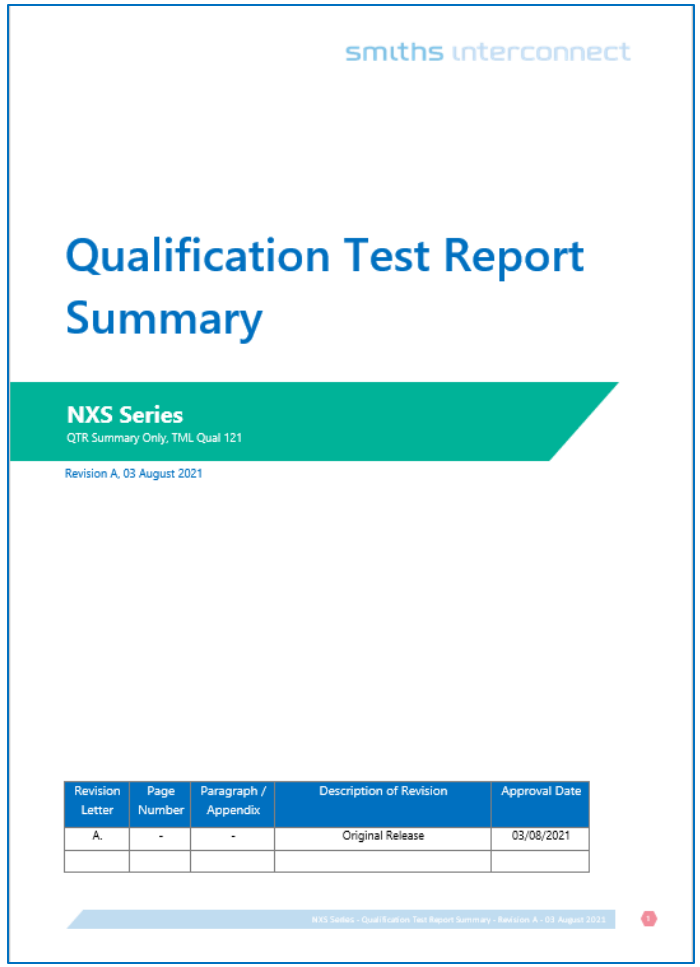
3D animation, exploded view, in the webpage

NXS Series | Marcom Collateral

Brochure

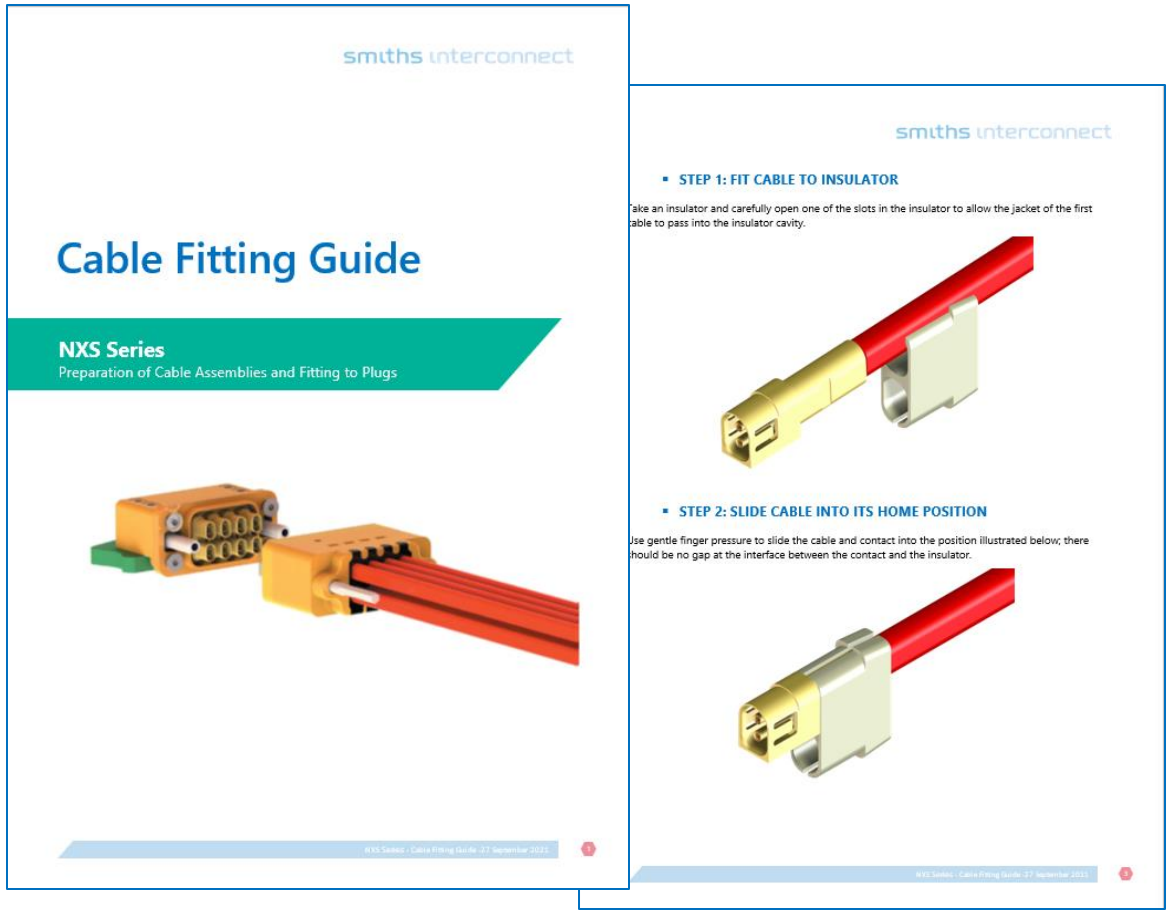


Test Report



NXS Series | Related Documents

Cable Fitting Guide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Cable Fitting Guide

NXS Series
Preparation of Cable Assemblies and Fitting to Plugs

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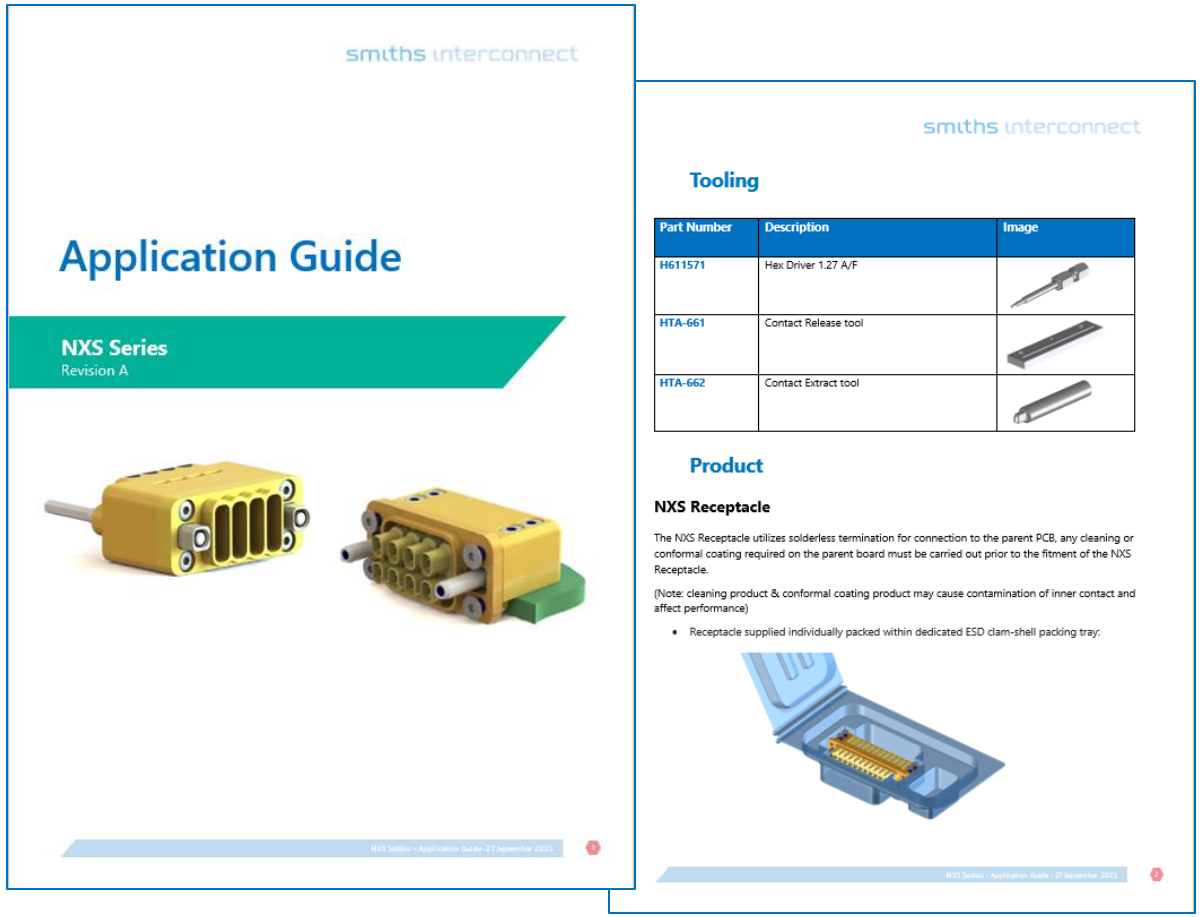
▪ STEP 1: FIT CABLE TO INSULATOR

Take an insulator and carefully open one of the slots in the insulator to allow the jacket of the first cable to pass into the insulator cavity.

▪ STEP 2: SLIDE CABLE INTO ITS HOME POSITION

Use gentle finger pressure to slide the cable and contact into the position illustrated below; there should be no gap at the interface between the contact and the insulator.

Application Guide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Application Guide

NXS Series
Revision A

smiths interconnect

Tooling

Part Number	Description	Image
H611571	Hex Driver 1.27 A/F	
HTA-661	Contact Release tool	
HTA-662	Contact Extract tool	

Product

NXS Receptacle

The NXS Receptacle utilizes solderless termination for connection to the parent PCB, any cleaning or conformal coating required on the parent board must be carried out prior to the fitment of the NXS Receptacle.

(Note: cleaning product & conformal coating product may cause contamination of inner contact and affect performance)

- Receptacle supplied individually packed within dedicated ESD clam-shell packing tray:

more > smithsinterconnect.com

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