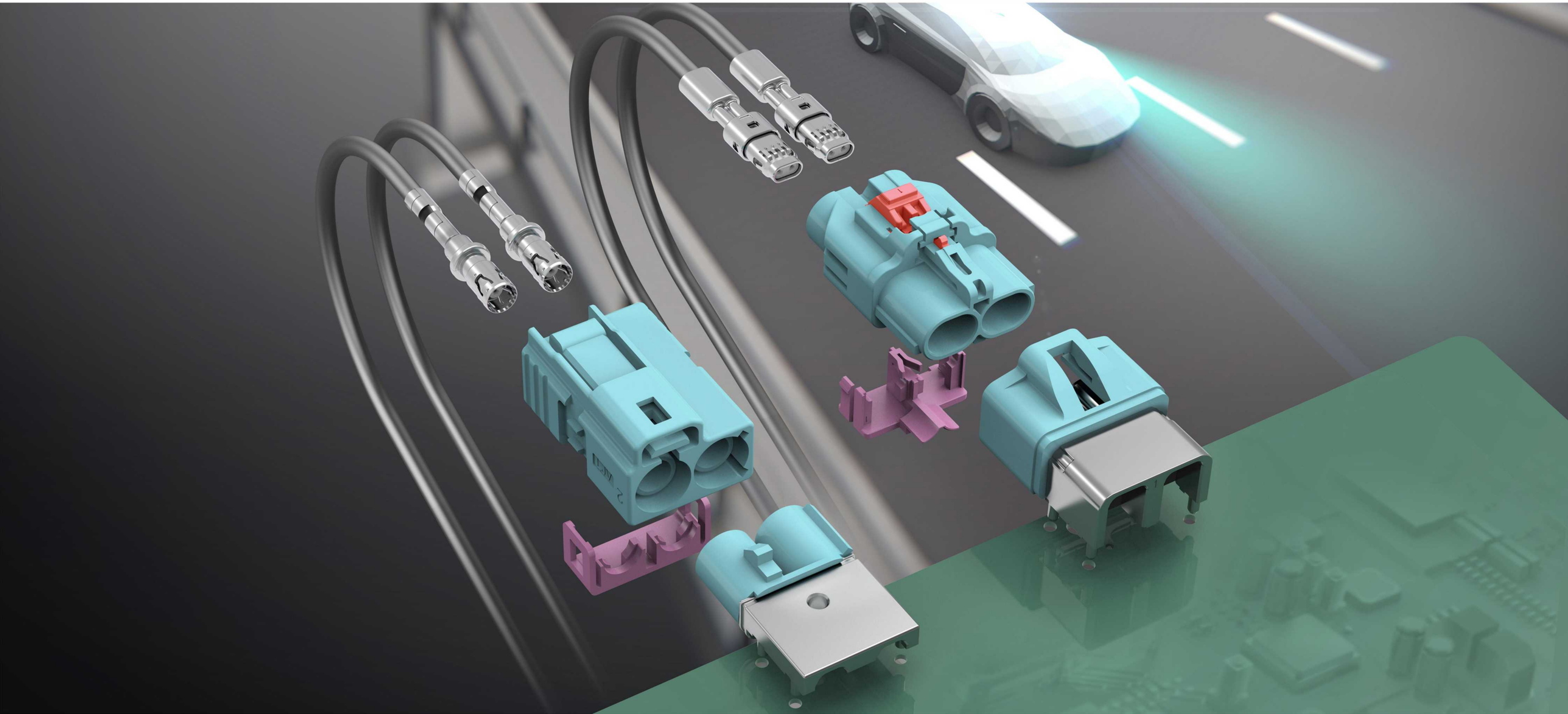
LJV
TECHNOLOGY

Automotive Connector

& Cable Assemblies Solutions



High-Speed RF Connector

and Cable Assembly Solutions
for Intelligent Connected Vehicle

CONTENTS

About Us

100,000m^2 Facility

Supports diverse operations
and efficient manufacturing.

3 Product Segments

- Automotive High-Speed
  & RF Connector and Cable Assembly
- Switch Module & Electronic Product
- Precision Component

3 Market Segments

- Automotive
- Home Appliance
- 3C

Founded in 2009 and headquartered in Xiegang Town, Dongguan, Guangdong Province, Dongguan LJV Technology Co., Ltd. (LJV) is a highly competitive High and New-Technology Enterprise (HNTE). We specialize in the integration of R&D, mold design, component manufacturing, final assembly, and testing validation.

Focusing on in-vehicle connectors, we offer automotive high-speed data and RF connectivity solutions. Our products including FAKRA,X-FAKRA(mini-FAKRA),SMB&VSMP,HSD, USB(HSL/Type-C),HSN(Ethernet)series—support intelligent cockpits, connected vehicles, and autonomous driving applications, such as instrument clusters, HD displays, LiDAR, and ADAS cameras.

We serve OEMs and Tier 1 suppliers, providing full-process capabilities:

- Design & Development
- Precision Component Manufacturing (Stamping, Injection Molding, Die Casting,Cold Forming)
- Automated Assembly
- Connector harness assembly
- Testing & Validation

Leverage

Joint

Value

Core Competitive Advantages

Engineering & R&D Capabilities

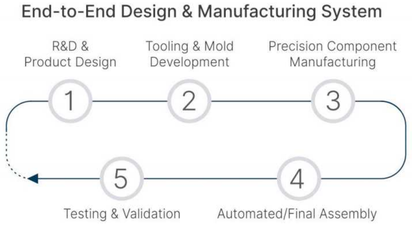
Certified as a High and New Technology Enterprise (HNTE), LJV is committed to driving innovation in connector technologies through continuous R&D investment. Backed by multiple patents, strong in-house engineering expertise, and vertically integrated manufacturing, we deliver a full range of products—from precision components to connectors and cable assemblies—providing global OEMs and Tier 1 suppliers with reliable, high-performance solutions.

Vertically Integrated Manufacturing

LJV has established a full-process design and manufacturing system covering R&D, tooling, component production, assembly, testing, and validation. With in-house production of core components and seamless collaboration across product lines, we ensure full control over critical manufacturing stages.

Our highly flexible vertically integrated capability allows us to respond quickly to customer needs and deliver high-quality connectors, cable assemblies, precision components, and customized solutions.

End-to-End Design & Manufacturing System



Customer-Oriented & Customized Solutions

LJV closely follows market and customer needs, driving continuous R&D and innovation. We provide practical, professional solutions from product development and prototyping to manufacturing and system integration, delivering efficient, high-quality next-generation electronic products and end-to-end services.

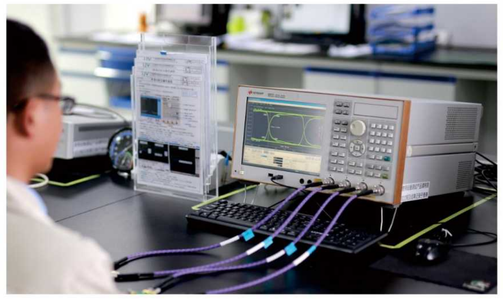
Manufacturing Execution System(MES)

LJV's MES integrates information and material flows across the entire production process, ensuring real-time, accurate, and traceable data. KPIs such as quality, delivery, and efficiency are continuously monitored, supporting lean continuous improvement.

For cable assemblies, each unit is assigned a unique QR code for single-piece tracking, enabling precise monitoring of critical processes and quality inspection data.

Testing & Validation

LJV's in-house standardized laboratory provides comprehensive testing for RF connectors and cable assemblies, including electrical, mechanical, environmental, and dimensional inspection. Compliant with IATF16949, ISO9001, ISO14001, ISO45001,and QC-080000, we ensure reliable, high-quality, and high-performance products while shortening development cycles.



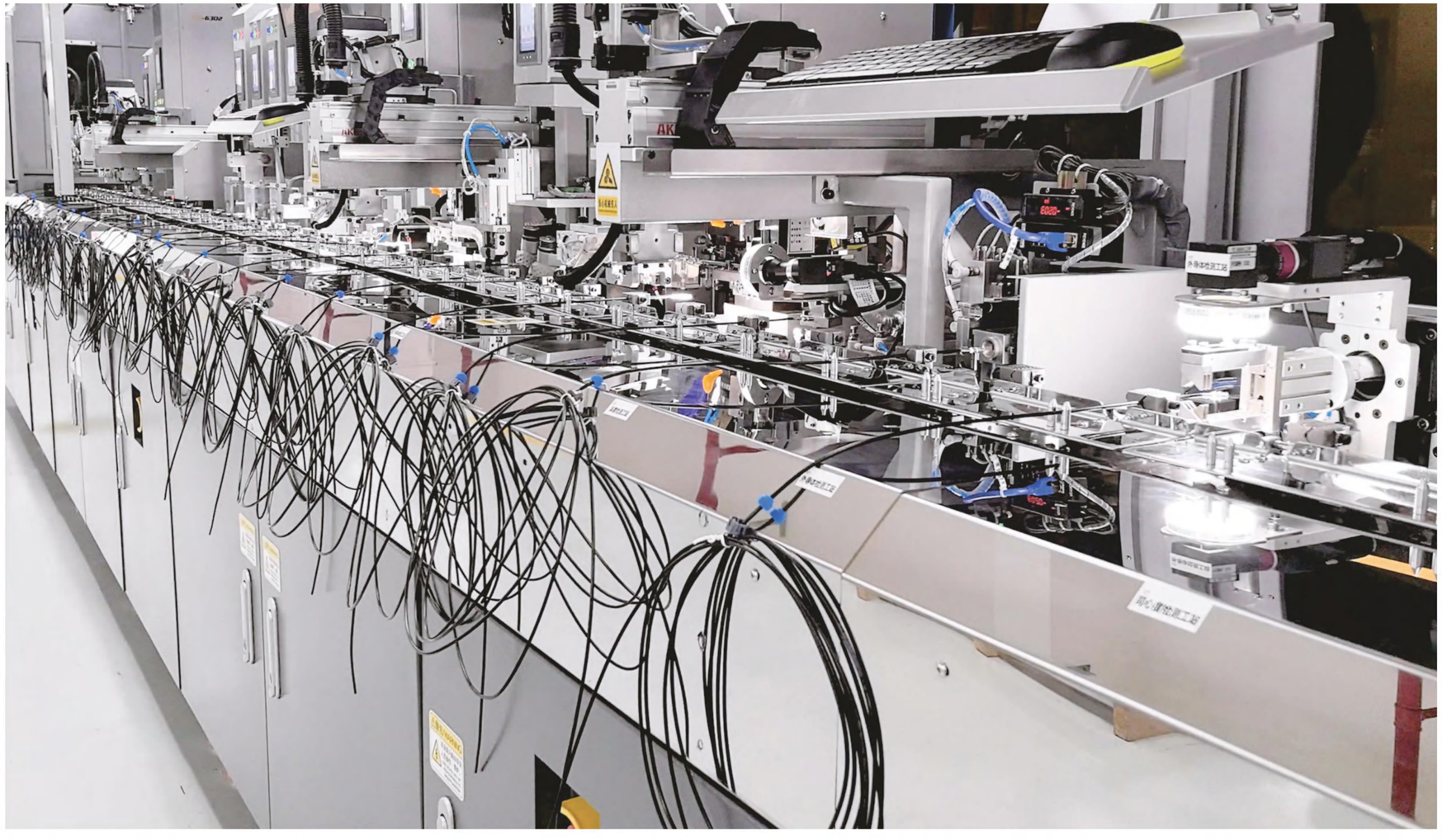
Core Competitive Advantages-
Automation Focus

LJV's internal R&D team equipped with automation and full-process assembly lines enable high-quality, high-performance, and efficient manufacturing with short lead times.

Our modular connector and cable assembly lines integrate wire feeding, cutting, stripping, crimping, and housing assembly, with built-in inspections such as CCD visual checks, pneumatic tests, and electrical testing.

Intelligent Manufacturing Initiatives

LJV focuses on intelligent manufacturing, continuously investing in automated production and upgrading equipment. Increasing R&D investment enhances automation capabilities, optimizes production and testing processes, ensures product performance and quality, and improves efficiency and customer satisfaction.

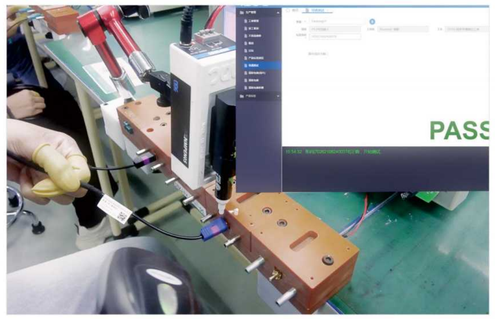


Core Competitive Advantages-
Manufacturing Execution System

MES System Overview

LJV's fully implemented MES digitizes production, logistics, and quality processes, providing real-time data and full traceability to ensure product quality and support agile service.

- **MES** (Manufacturing Execution System)
- **WMS** (Warehouse Manage System)
- **QIS** (Quality Information System)



Full-Process Product Traceability

1. All production stages—from raw materials and components to semi-finished and final products—can be traced forward and backward via barcodes or batch numbers, including assembly equipment, tooling, and inspection records (IQC, PQC, FQC, OQC).

2. The system logs and displays key test results, equipment/mold data, and process checkpoints.station records.

Data-Driven Operations

Key processes in production, quality, and logistics are managed through a data-driven approach. Work tasks and alerts in each workshop are automatically triggered via mobile devices. Unresolved issues are escalated through the app until they are properly closed.

Equipment Networking & Data Acquisition

LJV uses industrial WiFi and SCADA to monitor stamping, injection molding, and die-casting machines in real time, tracking status, production, and exceptions to support lean manufacturing and cost optimization.

QR Code-Based Full-Process Logistics

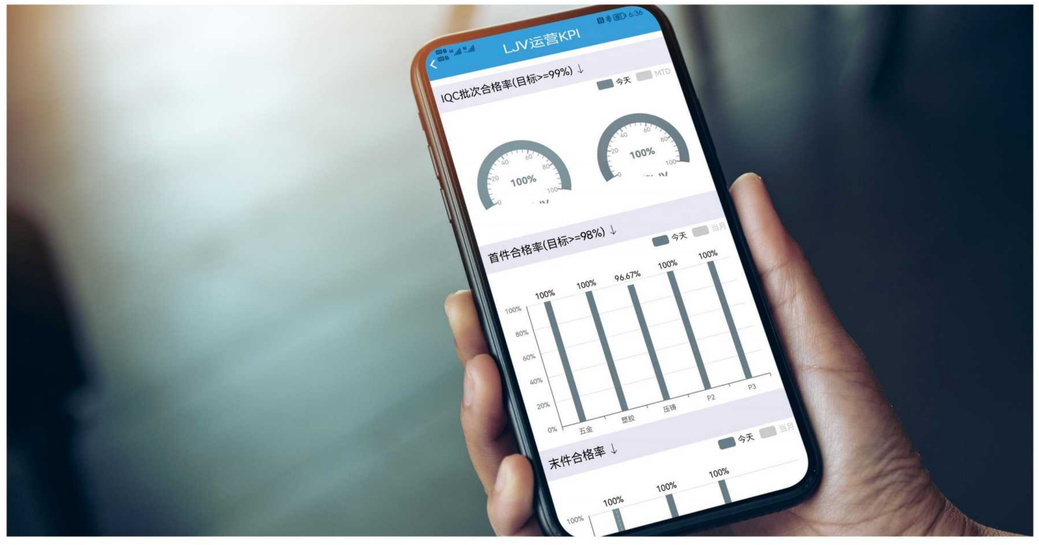
LJV uses QR codes to track materials and products throughout the entire logistics process, with error-proofing controls like correct feeding, FIFO, and shelf-life management, ensuring accurate traceability and high-quality delivery.

Systematic Mold Management

LJV uses QR codes to track molds and automatically record usage, maintenance, and inspections, ensuring full lifecycle management and consistent component quality.

Multi-Dimensional Electronic Kanban

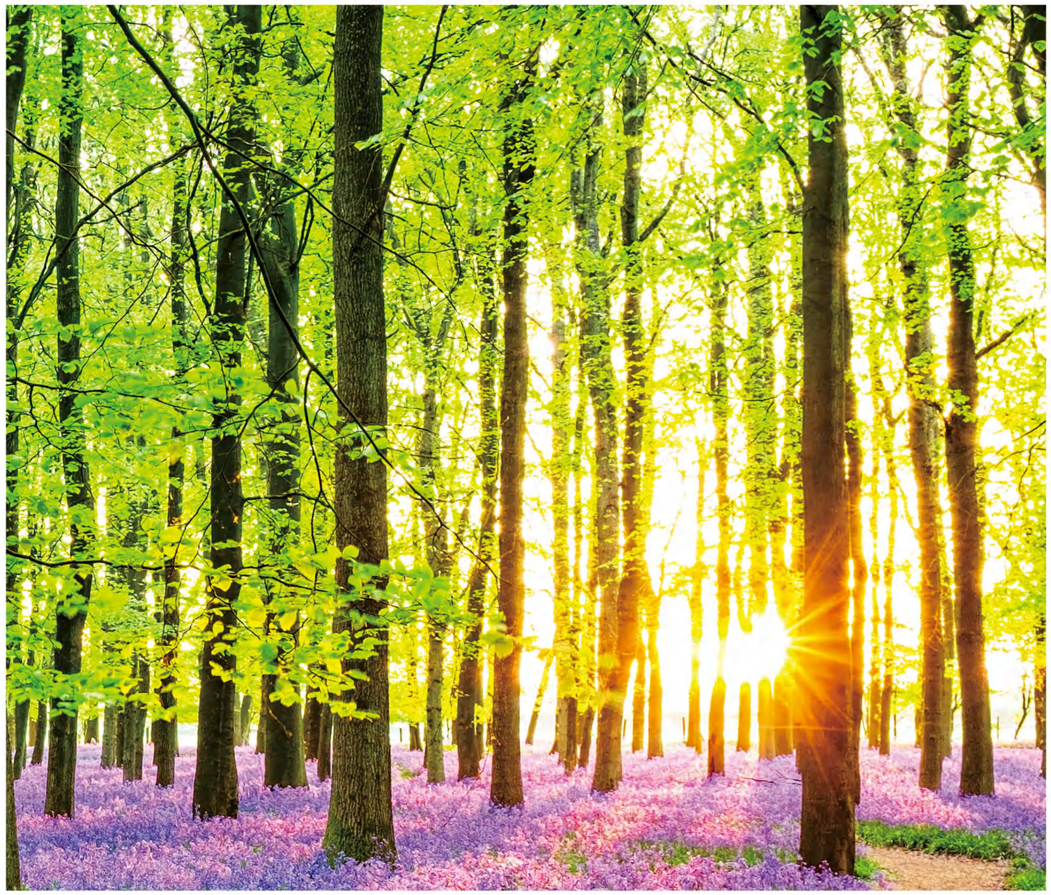
LJV's MES-driven electronic kanbans provide real-time, visual monitoring of all production stages, enabling transparent, safe, and efficient operations.



Digital Operations

LJV provides real-time KPI monitoring on mobile devices, covering production, quality, sales, and logistics, with BI-driven reports supporting data-driven decisions and continuous improvement.

LJV Culture & Vision



DNA

Vision

Be A Valuable Strategic
Partner in Electronics Industry.

Philosophy

Professional Focus; Harmonious
Coexistence.

Mission

Creating Values For All;
Especially For Customers,
Business Partners and Our Employees.

Culture

Sustainable Innovation; Passion
to Win; Team Collaboration.

Value

Complete Each Matter Attentively;
Treat Everyone with Sincerity.

Our Commitments

Competitive Advantages

We leverage in-house R&D, customized solutions, and vertically integrated manufacturing with smart automation to deliver high-quality products and services. We continuously enhance competitiveness, stay ahead in the market, and create value for our customers.

Compliance & Integrity

LJV operates in full compliance with national laws and regulations, conducting business with integrity and professionalism to create value for customers, partners, employees, and society.

Health & Safety

LJV ensures a safe and healthy environment for employees, customers, and end users, providing full protection throughout work and product use.

Social Responsibility

LJV promotes equal opportunity, employee development, environmental stewardship, and community engagement, supporting sustainable business and societal well-being.

Customer Satisfaction

3 Core Values to Ensure Customer Satisfaction

1. **Efficiency:** Rapidly respond to customer needs.
   Service: On-time delivery is a top priority at LJV.
2. **Lean Cost:** Lean manufacturing delivers competitive products that meet market and customer demands.
   Quality First: Strict standards and rigorous controls ensure high product quality and compliance.
3. **Vision:** Further support strategic customers' urgent and cost requirement.
   Flexibility: Market- and customer-oriented operations ensure satisfaction through agile responses.

Quality System

Quality Policy

Quality First, Management by Scientific Approach;
Efficiency Enhancement by Standardization;

Act Real, Do Thorough, Make Solid, Be Strong.

IATF 16949 | 9001 | 14001 | 45001 | IECQ QC 080000

Full Engagement

Full engagement is the foundation of LJV's quality management system and continuous improvement. Senior management actively participates, supports, and supervises, while all employees are encouraged to contribute, with a constant focus on customer needs.

Performance-Oriented

Performance reflects system implementation and continuous improvement. LJV applies the Turtle Diagram and 5M1E (Man, Machine, Material, Method, Measurement, Environment) to monitor processes, identify gaps, and drive sustainable improvement.

Industry Standards

Standards are the means and methods for successful system implementation. LJV follows IATF16949, ISO9001, ISO14001, ISO45001, and QC080000 requirements, applying process-based management, systematic approaches, and fact-based decision-making.

Excellent Service

Excellence extends beyond products to service. Customer satisfaction and responsibility are central to LJV's operations, and we are committed to continuously improving satisfaction by delivering superior products and services.

◎ Product Selection Guide

Series	Type	Interface	Ports	Structure	Page
FAKRA	PCB Connectors	Plug	1	Straight	18
				Right Angle	
			2	Right Angle	19
	Cable Connectors	Plug	1	Straight	20
			2	Straight	20-21
			4	Straight	21
		Jack	1	Straight	21
				Right Angle	22
			2	Straight	21-22
			4	Straight	22
	Cable Assemblies				24
SMB/VSMP	SMB Connectors				26-27
	SMB Cable Connectors				28-29
	Floating VSMP Connectors				32
	Housing Assemblies				33
X-FAKRA	PCB Connectors	Plug	1	Straight	40-41
			2		
			4		
			2	Right Angle	
			4		
	Cable Connectors	Plug	1	Straight	41-42
			4		
		Jack	1	Straight	
			2		
			4		
	Cable Assemblies				44
HSD	PCB Connectors	Plug	1	Straight	50
				Right Angle	
			2	Straight	51
				Right Angle	
	Cable Connectors	Plug	1	Straight	52
		Jack	1	Straight	52-53
				Right Angle	
	Cable Assemblies				54
USB	HSL Cable Connectors				60
	HSL PCB Connectors				
	Type-A/Type-C Cable Connectors				61-62
	Type-C PCB Connectors				62
	HSL/USB Cable Assemblies				64
HSN	PCB Connectors	Plug	1	Right Angle	70-71
			2		
			4		
			6		
			10		
		Plug	1	Straight	72
			6		
	Cable Connectors	Plug	1	Straight	70-72
		Jack	1	Straight	70-72
			2		
			4		
			6		

Standard FAKRA SERIES

FAchKReis Automobile

Features & Advantages

- Compliant with USCAR/ISO standards for high-performance and secure RF transmission;
- Color-coded housings for error-proof mating;
- Primary and secondary lock design for secure and easy assembly;
- Snap-lock mechanism for fast and reliable connection;
- Full-molded design supports RF applications up to 6Ghz;
- Optimized design and materials for high durability and reliability;
- Dual- and quad-port housings for space savings and improved efficiency;

Applications

GPS navigation / Radio antenna / V2X antenna / RF Bluetooth / Wireless communication / In-vehicle infotainment system / Telematics system / Autonomous driving system / 360° surround-view camera / Advanced Driver Assistance System (ADAS) / Vehicle electronic instrument cluster

Number Guide

E.G.

- **FKPPSNZD01T**

  FK(FAKRA); **P**(Plug); P(PCB); **S**(Straight); **N**(North); **Z**(Code); **D**(PCB_Wave Soldering); **01**(Serial Number); **T**(Tray Packaging)

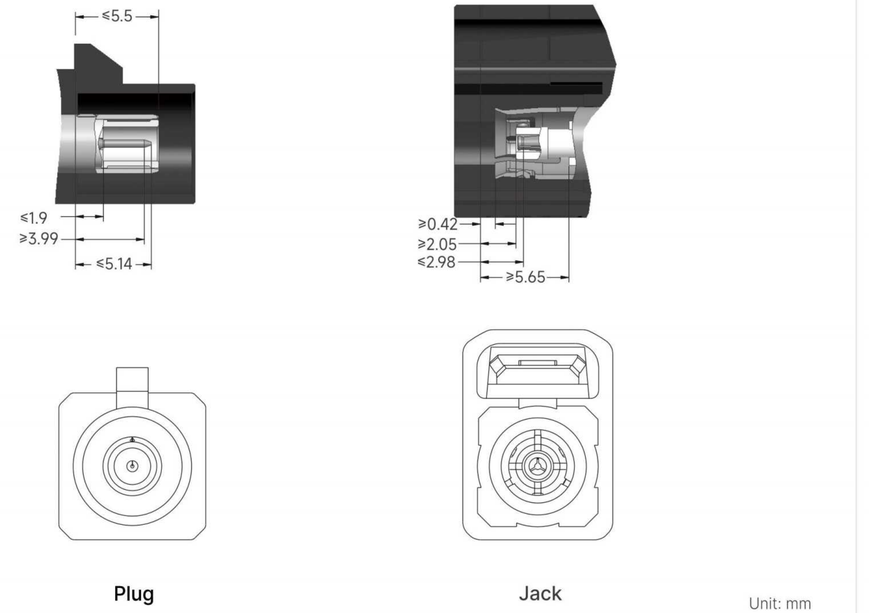
FK	P	P	S	N	Z	D	01	T

Series	FK: FAKRA
Interface	P: Plug
	J: Jack
Type	P: PCB
	C: Cable
Angle	R: Right Angle
	S: Straight
Orientation	N: North
	S: South
	0: No Orientation
Coding	A: Jet Black
	B: Cream White
	C: Signal Blue
	D: Claret Violet
	E: Leaf Green
	F: Nut Brown
	G: Blue Grey
	H: Heather Violet
	I: Beige
	K: Curry
	L: Carmine Red
	M: Pastel Orange
	N: Pastel Green
	Z: Water Blue
Mounting/Cable Type	D: PCB_Wave soldering
	S: PCB_Reflow soldering
	3: Cable_RG58 or equivalent
	2: Cable_RG174/RG316/1.5DS or equivalent
	1: Cable_RTK031/DACAR302-3 or equivalent
	0: Customized Cable
Serial Number	01~99 (Used to differentiate products of the same specification with different accessories)
Packaging Type	C: Carrier Tape
	U: Tube
	T: Blister Tray

Key Code/Color

Coding	Plug		Jack		Color/RAL (Similar)	Application
	Single-Port	Double-Port	Single-Port	Double-Port		
A					Jet Black/9005	Radio
B					Cream White/9001	Wireless Audio
C					Signal Blue/5005	GPS Navigation
D					Claret Violet/4004	Mobile Communication
E					Leaf Green/6002	TV-1
F					Nut Brown/8011	TV-2
G					Blue Grey/7031	Remote Control Door Lock
H					Heather Violet/4003	Navigation
I					Beige/1001	Wireless Heating Controls
K					Curry/1027	Medium Frequency Radio
L					Carmine Red/3002	Undefined
M					Pastel Orange/2003	Undefined
N					Pastel Green/6019	Undefined
Z					Water Blue/5021	Neutral

Interface Dimensions



Technical Specifications

Electrical Performance

Impedance	50Ω
Frequency Range	DC-6GHz
Dielectric Withstanding Voltage	800 Vrms
Operating Current	1A DC Max(Depending on cable specifications)
Center Contact Resistance	10mΩ Max(Initial)
Outer Contact Resistance	5mΩ Max(Initial)
Return Loss	18dB Min
Insertion Loss	≤0.1× $\sqrt{fGHz}$ dB
Insulation Resistance	1000mΩ Min
RF Leakage	-45dB @ up to 3GHz, -40dB @ up to 6GHz

Mechanical Performance

Mating Cycles	25 Cycles Min
Retention Force Latch	110N Min
Disengagement Force	2N Min
Engagement Force(Non-Waterproof)	25N Max
Engagement Force(Waterproof)	45N Max

Environmental Performance

Operating Temperature	-40°C ~ +105°C
Thermal/Humidity Cycling	USCAR-2, Paragraph 5.6.2/ISO 20860-2 Clause 9.3
Vibration & Mechanical Shock	USCAR-2, Paragraph 5.4.6/ISO 20860-2 Clause 9.1
Thermal Shock	USCAR-2, Paragraph 5.6.1/ISO 20860-2 Clause 9.2
RoHS	RoHS Compliance

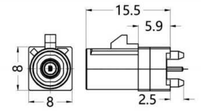
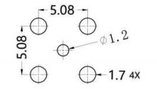
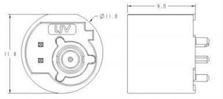
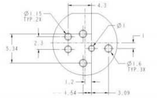
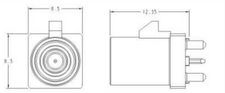
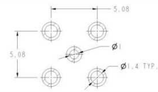
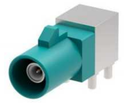
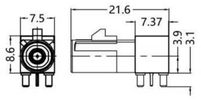
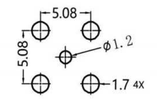
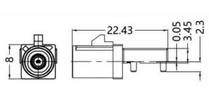
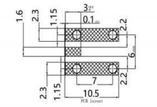
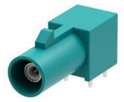
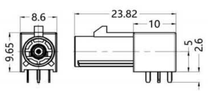
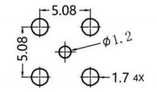
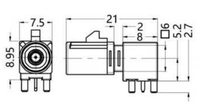
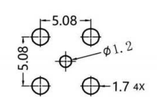
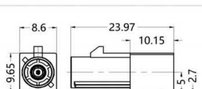
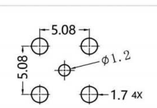
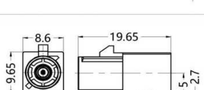
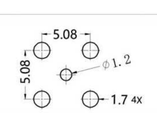
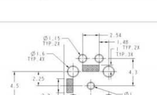
Materials

Housing	PA, PBT, PPE
Outer Contact	Zn, CuZn, CuSn, Stainless Steel
Insulator	LCP, PA, PTFE
Inner Contact	CuBe, CuZn, CuSn
Retaining Cap	PA, PBT, PPE
Crimping Ferrule	Cu
TPA	PA, PBT, PPE

Contact Finish

Outer Contact	Au, Sn, Ni
Inner Contact	Au

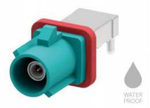
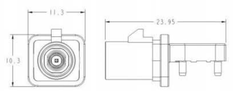
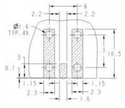
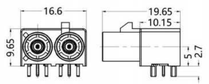
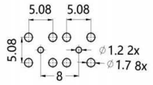
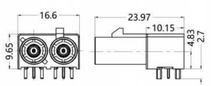
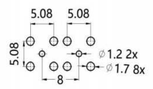
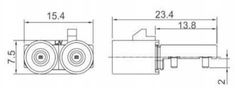
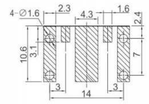
PCB Connector

Part No.	Interface	Ports	Structure	Product	Outline Dimensions	PCB Layout
FKPPSNXD01X	Plug	1	Straight			
FKPPS0XD104X	Plug	1	Straight			
FKPPSNXS103X	Plug	1	Straight			
FKPPRNXD02X	Plug	1	Right Angle			
FKPPRNXS63X	Plug	1	Right Angle			
FKPPRNXD03X	Plug	1	Right Angle			
FKPPRNXD07X	Plug	1	Right Angle			
FKPPRNXD13X	Plug	1	Right Angle			
FKPPRNXD15X	Plug	1	Right Angle			
FKPPR0XD87C	Plug	1	Right Angle			

Coding : See coding diagram (**Page 15**). Options available per customer requirements.

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

PCB Connector

Part No.	Interface	Ports	Structure	Product	Outline Dimensions	PCB Layout
FKPPRNS118	Plug	1	Right Angle			
FKPPRNXD17X	Plug	2	Right Angle			
FKPPRNXD18X	Plug	2	Right Angle			
FKPPRNXD19X	Plug	2	Right Angle			

Coding : See coding diagram (**Page 15**). Options available per customer requirements.

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

Standard **FAKRA**

Cable Connectors

Part No.	Interface	Ports	Structure	Cable Type	Product
FKPCS0X103	Plug	1	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X201	Plug	1	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X113	Plug	1	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X202	Plug	1	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X115	Plug	1	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X215	Plug	1	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X119	Plug	1	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X138	Plug	1	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X167	Plug	1	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X267	Plug	1	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X110	Plug	1	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X210	Plug	1	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X160	Plug	1	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X260	Plug	1	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X134	Plug	1	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X237	Plug	1	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X186	Plug	1	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X286	Plug	1	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X199	Plug	1	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X299	Plug	1	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X133	Plug	2	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X205	Plug	2	Straight	RG174/RG316/1.5DS or equivalent	

Cable Connectors

Part No.	Interface	Ports	Structure	Cable Type	Product
FKPCS0X136	Plug	2	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X236	Plug	2	Straight	RG174/RG316/1.5DS or equivalent	
FKPCS0X159	Plug	4	Straight	RTK031/DACAR302-3 or equivalent	
FKPCS0X259	Plug	4	Straight	RG174/RG316/1.5DS or equivalent	
FKJCS0X172	Jack	1	Straight	RTK031/DACAR302-3 or equivalent	
FKJCS0X272	Jack	1	Straight	RG174/RG316/1.5DS or equivalent	
FKJCS0X104	Jack	1	Straight	RTK031/DACAR302-3 or equivalent	
FKJCS0X204	Jack	1	Straight	RG174/RG316/1.5DS or equivalent	
FKJCS0X121	Jack	1	Straight	RTK031/DACAR302-3 or equivalent	
FKJCS0X221	Jack	1	Straight	RG174/RG316/1.5DS or equivalent	
FKJCS0X144	Jack	1	Straight	RTK031/DACAR302-3 or equivalent	
FKJCS0X126	Jack	1	Straight	RG174/RG316/1.5DS or equivalent	
FKJCS0X115	Jack	1	Straight	1.5DS or equivalent	
FKJCS0X122	Jack	1	Straight	RG174/RG316	
FKJCS0X107	Jack	1	Straight	RTK031/DACAR302-3 or equivalent	
FKJCS0X207	Jack	1	Straight	RG174/RG316/1.5DS or equivalent	
FKJCS0X160	Jack	1	Straight	RTK031/DACAR302-3 or equivalent	
FKJCS0X260	Jack	1	Straight	RG174/RG316/1.5DS or equivalent	
FKJCS0X105	Jack	2	Straight	RTK031/DACAR302-3 or equivalent	
FKJCS0X205	Jack	2	Straight	RG174/RG316/1.5DS or equivalent	
FKJCS0X150	Jack	2	Straight	RTK031/DACAR302-3 or equivalent	
FKJCS0X250	Jack	2	Straight	RG174/RG316/1.5DS or equivalent	

Standard **FAKRA**

Cable Connectors

Part No.	Interface	Ports	Structure	Cable Type	Product
FKJCS0X173	Jack	4	Straight	RTK031/DACAR302-3 or equivalent	
FKJCS0X248	Jack	4	Straight	RG174/RG316/1.5DS or equivalent	
FKJCS0X232	Jack	1	Straight	RG174/RTK031 or equivalent	
FKJCS0X197	Jack	1	Straight	RG174/RTK031 or equivalent	
FKJCS0X198	Jack	1	Straight	RG174/RTK031 or equivalent	
FKJCS0X199	Jack	1	Right Angle	RG174/RTK031 or equivalent	
FKJCR0X251	Jack	1	Right Angle	RG174/RG316/1.5DS or equivalent	
FKJCR0X173	Jack	1	Right Angle	RTK031/DACAR302-3 or equivalent	
FKJCS0X209	Jack	2	Straight	RG174/RTK031 or equivalent	
FKJCR0X289	Jack	2	Right Angle	RG174/RG316/1.5DS or equivalent	

Coding : See coding diagram (**Page 15**). Options available per customer requirements.

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

FAKRA
SMB / VSMP
X-FAKRA
HSD
USB
HSN

Number Guide | Single-to-Single Configuration

E.G.

- **C1-FJSZ-FPSZ-2150-001**

  C(Cable Assembly); **1**(Cable Type 1); **FJSZ**(Side A: FAKRA, Jack, Straight, Z Code); **FPSZ**(Side B: FAKRA, Plug, Straight, Z Code); **2150**(Cable Length); **001**(Serial Number)

C 1 - F J S Z - F P S Z - 2150 - 001

Cable Assembly Identification	C: Cable Assemblies
Cable Type	1: DACAR302/RTK031 or equivalent
	2: RG174/RG316/1.5DS or equivalent
	3: RG58 or equivalent
	4: DACAR535 or equivalent
	Other types refer to the *Cable Group(C*)*
Side A Connector Series	F: FAKRA
	XF: X-FARKA
	D: HSD
	L: HSL
	U: USB
	N: HSN
Side A Interface	P: Plug
	J: Jack
Side A Angle	R: Right Angle
	S: Straight
Side A Coding	A: A code
	B: B code
	Z: Z code
	Configurable per series coding and customer requirements.
Side B Connector Series	F: FAKRA
	XF: X-FARKA
	D: HSD
	L: HSL
	U: USB
	N: HSN
	E: Indicates no connector.
Side B Interface	P: Plug
	J: Jack
	0: Indicates no connector at Side B.
Side B Angle	R: Right Angle
	S: Straight
	0: Indicates no connector at Side B.
Side B Coding	A: A code
	B: B code
	Z: Z code
	0: Indicates no connector at Side B.
	Configurable per series coding and customer requirements.
Cable Length	XXXX (Unit: mm)
Serial Number	YYY (For distinguishing different accessories of the same specification.)

Standard **FAKRA**

Cable Assemblies

Part No.	Side A	Side B	Product
C*-FJSX-FJSX-XXXX-YYY	Jack, Straight, Stamping/ Die-casting	Jack, Straight, Stamping/ Die-casting	
C*-FPSX-FPSX-XXXX-YYY	Plug, Straight, Stamping/ Die-casting	Plug, Straight, Stamping/ Die-casting	
C*-FPSX-FJSX-XXXX-YYY	Plug, Straight, Stamping/ Die-casting	Jack, Straight, Stamping/ Die-casting	
C*-FJSX-FJSX-XXXX-YYY	Jack,Straight, Stamping/ Die-casting	Jack,Straight, Stamping/ Die-casting	
C*-FPSX-FPSX-XXXX-YYY	Plug,Straight, Stamping/ Die-casting	Plug,Straight, Stamping/ Die-casting	
C*-FPSX-FJSX-XXXX-YYY	Plug,Straight, Stamping/ Die-casting	Jack,Straight, Stamping/ Die-casting	

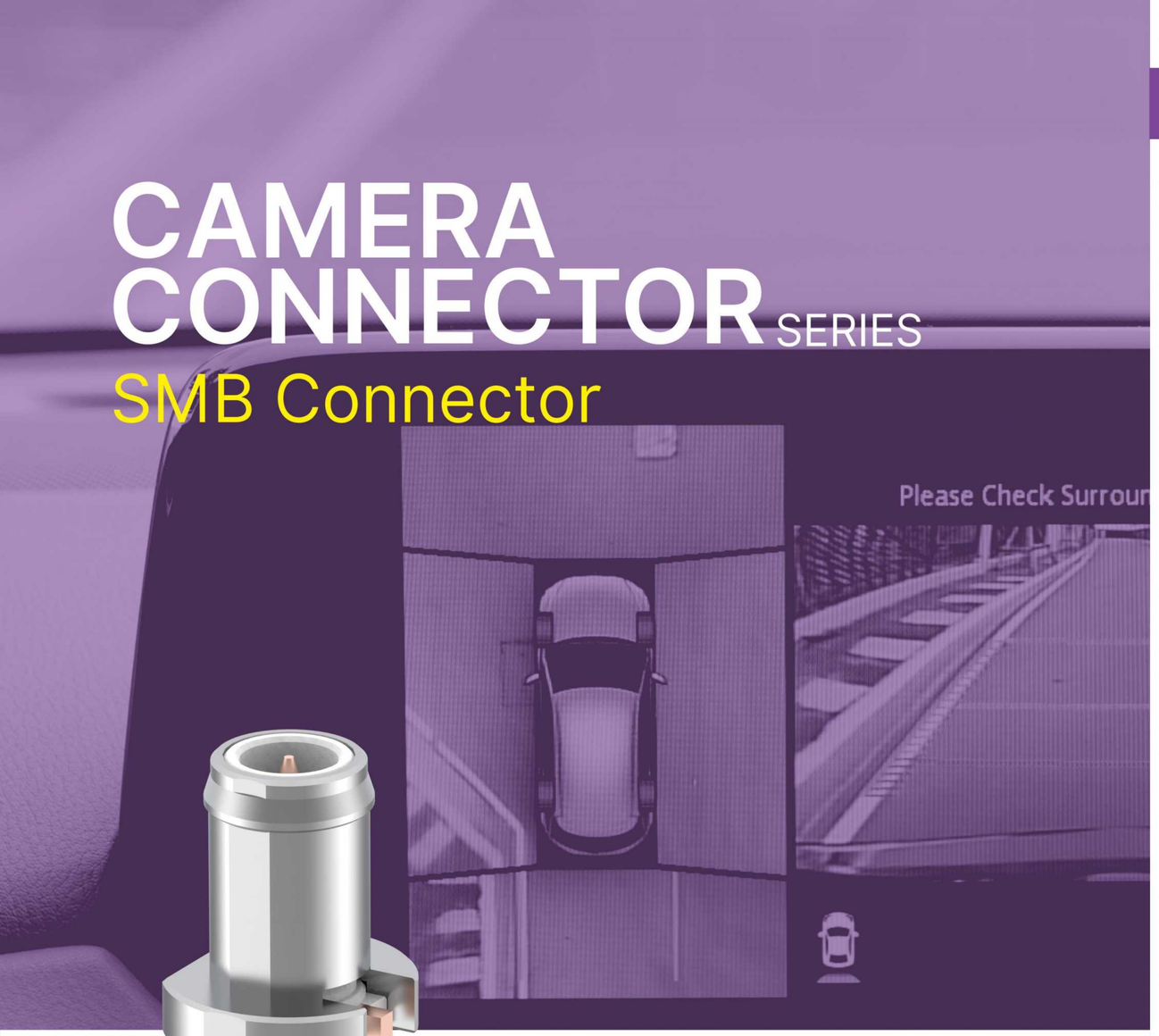
Cable Group (C*)

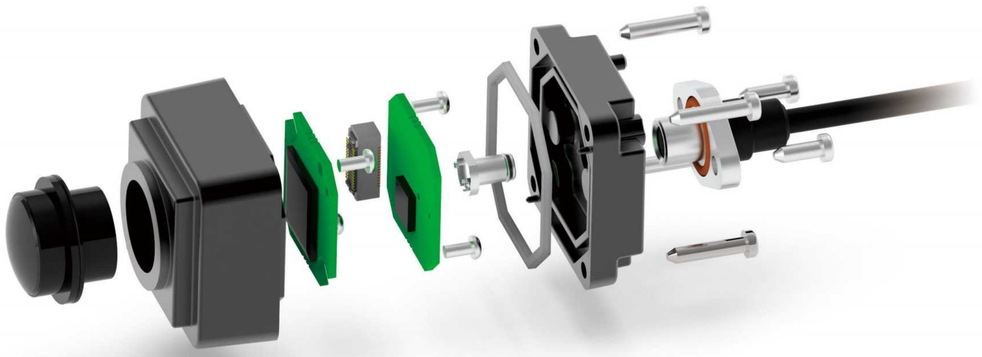
Cable Type	Remarks
DACAR302/RTK031	Low-loss Coaxial Cable
RG174/RG316/1.5DS/1.5C	Coaxial Cable
RG58	Low-loss Coaxial Cable
DACAR535	HSD Star-quad Cable
1P*20AWG+2C*26AWG-MYLAR+AL.Mylar+Braid 1P*24AWG+2C*24AWG-MYLAR+AL.Mylar+Braid	USB2.0 Cable
QFP12GD100-B-5G NX-Q22A0018 DACAR647	1000M Ethernet Cable
NOUL 22AWG 44/0.100D1.3mm (-40°C~105°C)	Flexible Cable

FAKRA
SMB / VSMP
X-FAKRA
HSD
USB
HSN

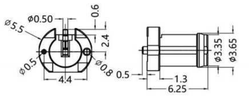
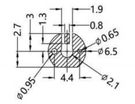
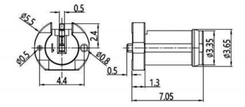
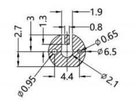
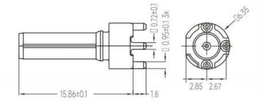
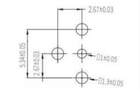
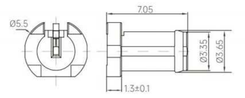
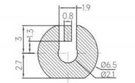
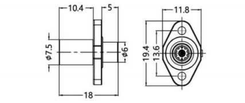
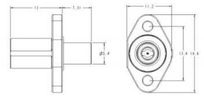
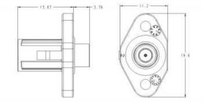
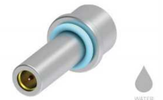
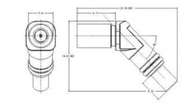
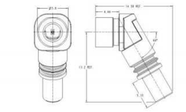
CAMERA CONNECTOR SERIES

SMB Connector

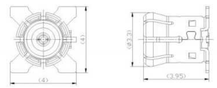
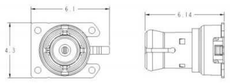
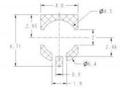
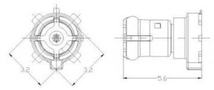
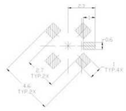
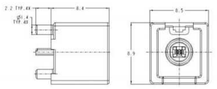




SMB/VSMP Connector

Part No.	Interface	Structure	Product	Outline Dimensions	PCB Layout
FKPPS0002C	Plug	Straight			
FKPPS0003C	Plug	Straight			
FKPPS00D27	Plug	Straight			
FKPPS0043C	Plug	Straight			
FKPPS0X014T	Plug	Straight			–
FKPPS0X058T	Plug	Straight			–
FKPPS0X078T	Plug	Straight			–
FKPPS00D98X	Plug	Straight			–
VSMPPPRCWP-006-T	Plug	Right Angle			–
VSMPPPRCWP-007-T	Plug	Right Angle			–

SMB Connector

Part No.	Interface	Structure	Product	Outline Dimensions	PCB Layout
FKPPS00D35X	Jack	Straight			
FKPPS00D30C	Jack	Straight			
FKPPS00D99C	Jack	Straight			
FKPPS00D72X	Jack	Straight			—

SMB/VSMP Cable Connector

Part No.	Interface	Ports	Structure	Cable Type	Product
FKPCR0X129	Plug	/	Right Angle	RG174/RG316/1.5DS or equivalent	
FKPCR00278	Plug	/	Right Angle	RG174/RG316/1.5DS or equivalent	
FKJCS0X255	Jack	1	Straight	1.5DS or equivalent	
FKJCS0X256	Jack	1	Straight	RG174/RG316 or equivalent	
FKJCS0X231	Jack	1	Straight	1.5DS or equivalent	
FKJCS0X112	Jack	1	Straight	1.5DS or equivalent	
FKJCS0X120	Jack	1	Straight	1.5DS or equivalent	
FKJCS0X137	Jack	1	Straight	1.5DS or equivalent	
VSMPPCSCWP17-C02-P	Plug	/	Straight	RG174/RG316/1.5DS or equivalent	
VSMPPCRCWP23-C02-P	Plug	/	Right Angle	RG174/RG316/1.5DS or equivalent	
VSMPPCSCWP24-CO2-P	Plug	1	Straight	1.5DS or equivalent	
VSMPPCSCWP25-CO2-P	Plug	1	Straight	1.5DS or equivalent	

SMB Cable Connector

Part No.	Interface	Ports	Structure	Cable Type	Product
FKJCR0X114	Jack	1	Right Angle	1.5DS or equivalent	
FKJCR0X116	Jack	1	Right Angle	1.5DS or equivalent	
FKJCR0X117	Jack	1	Right Angle	1.5DS or equivalent	
FKJCR00275	Jack	/	Right Angle	RG174/RG316/1.5DS or equivalent	
FKJCR0X279	Jack	/	Right Angle	RG174/RG316/1.5DS or equivalent	

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

SMB/VSMP

Structural Type

Type	SMB(Straight,Metal)	SMB (Straight,Plastic)	SMB(Right Angle,Plastic)	SMB(Right Angle,Metal)
Image				
Frequency	6GHz			

Type	SMB (Adapter)	SMB (Assembly Type)	SMB (Integrated Type)
Image			
Frequency	6GHz		

FAKRA
SMB / VSMP
X-FAKRA
HSD
USB
HSN

CAMERA CONNECTOR SERIES

Floating VSMP Connector

Features & Advantages

The **VSMP** series is a miniaturized high-frequency RF connector developed by **LJV** based on **SMP**. Designed specifically for in-vehicle cameras and ADAS systems, it delivers high-frequency performance up to 9GHz and features an optimized floating tolerance design.
The design ensures XYZ ±0.5mm floating tolerance and a stress-free mating Features:
No axial pressure after connector mating, ensuring stress-free engagement.

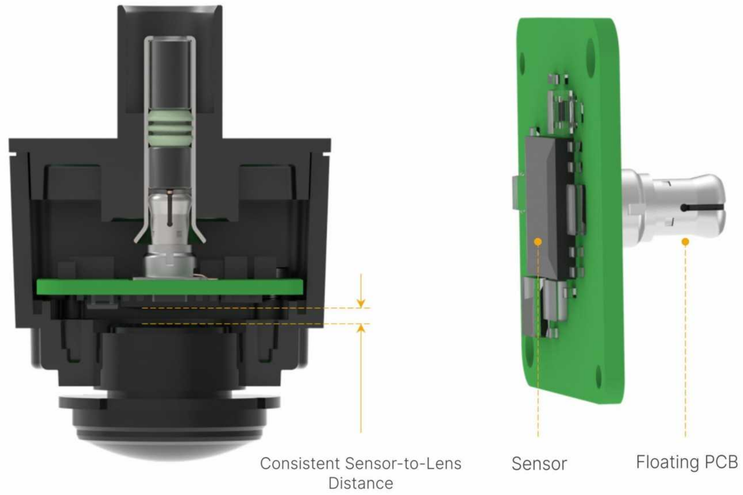
Radial forces are controlled by friction, with no external load applied, effectively preventing PCBA deformation and positional displacement.

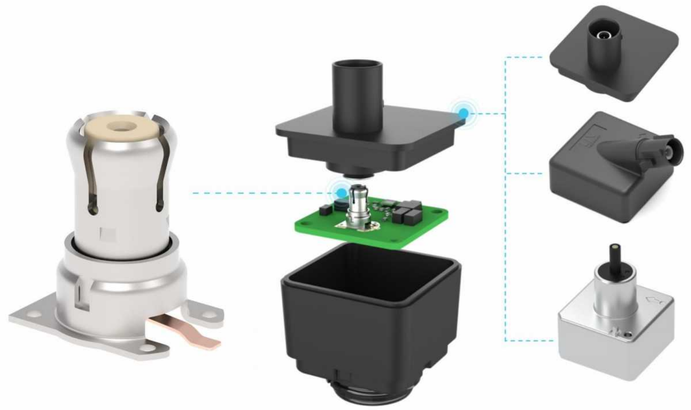
Floating VSMP Connector

Floating VSMP Connector Solution
Floating Articulated Tolerance Design – Effectively Addresses Tolerance & **Stress Challenges**

Key Features:

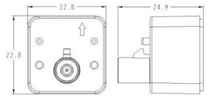
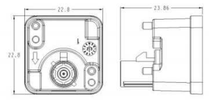
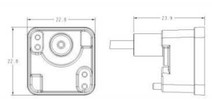
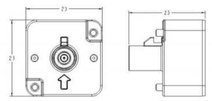
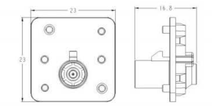
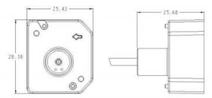
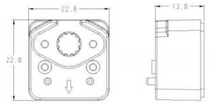
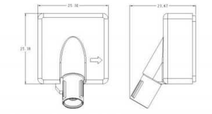
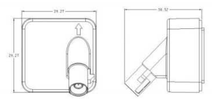
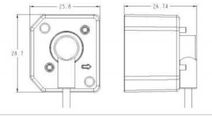
- No axial pressure after connector mating, ensuring stress-free engagement.
- Radial forces are controlled by friction, with no external load applied, effectively preventing PCBA deformation and positional displacement.
- Enhanced reliability through tolerance compensation and reduced mechanical stress.





- Compact and Modular Design
- Multiple housing assemblies accommodate various mounting configurations.
- Ensures high durability and reliability under harsh automotive environments.

Housing Assembly

Part No.	Interface	Ports	Structure	Cable Type	Product	Outline Dimensions
FKPPS0X038X	Plug	1	Straight	/		
FKPPS0X075T	Plug	1	Straight	/		
FKPPS00076T	Plug	1	Straight	RG174/RG316/1.5DS or equivalent		
FKPPS0X091T	Plug	1	Straight	/		
FKPPS0X096T	Plug	1	Straight	/		
VSMPPCSCWP2-C02-T	Plug	1	Straight	RG174/RG316/1.5DS or equivalent		
FKPPS0X049X	/	/	Straight	/		
VSMPPPRCWP-005-T	Plug	1	Right Angle	/		
VSMPPPRCWP-004-T	Plug	1	Right Angle	/		
VSMPPCRCWP21-C02-T	Plug	1	Right Angle	RG174/RG316/1.5DS or equivalent		

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

Structural Type

Type	Rear Housing (Assembly Type)	Rear Housing (Integrated Type)	Rear Housing,Right Angle (Integrated Type)	Rear Housing With Cable, Straight (Assembly Type)
Image				
Frequency	6GHz			
Floating Range	XYZ: ±0.5mm			

Type	Rear Housing With Cable,Right Angle (Assembly Type)	Rear Housing with cable, Plastic structure (Integrated Type)
Image		
Frequency	6GHz	
Floating Range	XYZ: ±0.5mm	

X-FAKRA SERIES

Four in One(X)-FAKRA (mini-FAKRA)

Features & Benefits

- Saves up to 75% installation space and reduces weight by up to 32% compared to standard FAKRA connectors.
- Available in two interface versions (Type A and Type B), compatible with different X-FAKRA connector types in the market.
- Optimized design supports frequencies up to 15Ghz.
- Quad-port and dual-port designs enable flexible routing with multiple keying options for error-proof mating.
- Supports cold-crimp terminal connections and housing metal crimp connections.
- Compatible with multiple cable types including RTK031, RTK044, and RG174.
- Suitable for both sealed and unsealed applications.

Applications

Advanced Driver Assistance Systems (ADAS) / 4K Camera Systems / In-Vehicle Infotainment Systems
Autonomous Driving Systems / GPS Navigation / Broadcast Antennas
Automotive Electronic Instrumentation

Number Guide

E.G.

- **FKPPRNZD16T**

  FK(X-FAKRA); **P**(Plug); **P**(PCB); **R**(Right Angle); **N**(North); **Z**(Code); **D**(PCB_Wave Soldering);**16**(Serial Number); **T**(Tray Packaging)

FK	P	P	R	N	Z	D	16	T

Series	FK: X-FAKRA
Interface	P: Plug
	J: Jack
Type	P: PCB
	C: Cable
Angle	R: Right Angle
	S: Straight
Orientation	N: North
	S: South
	0: No Orientation
Coding	A: Jet Black
	B: Cream White
	C: Signal Blue
	D: Claret Violet
	E: Leaf Green
	F: Nut Brown
	Z: Water Blue
Mounting/Cable Type	D: PCB_Wave soldering
	S: PCB_Reflow soldering
	3: Cable_RG58 or equivalent
	2: Cable_RG174/RG316/1.5DS or equivalent
	1: Cable_RTK031/DACAR302-3 or equivalent
	0: Customized Cable
Serial Number	01~99 (Used to differentiate products of the same specification with different accessories)
Packaging Type	C: Carrier Tape
	U: Tube
	T: Blister Tray

Key Code/Color

Type A

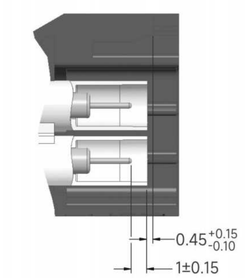
Coding	Plug	Jack	Color/RAL (Similar)
A			Jet Black/9005
B			Cream White/9001
C			Signal Blue/5005
D			Claret Violet/4004
E			Leaf Green/6002
F			Nut Brown/8011
G			Platinum Gray/7036

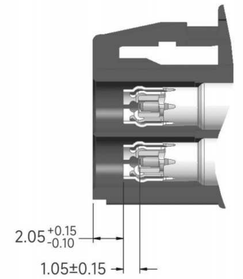
Coding	Plug	Jack	Color/RAL (Similar)
Z			Water Blue/5021

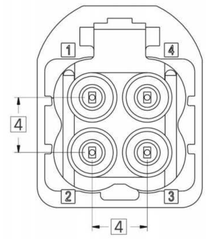
Type B

Coding	Plug	Jack	Color/RAL (Similar)
A			Jet Black/9005
B			Cream White/9001
C			Signal Blue/5005
D			Claret Violet/4004
E			Leaf Green/6002
F			Nut Brown/8011
Z			Water Blue/5021

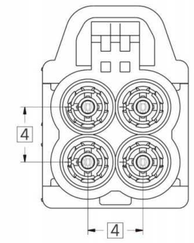
Interface Dimensions







Plug



Jack

Unit: mm

Technical Specifications

Electrical Performance

Impedance	50Ω
Frequency Range	DC-15GHz
Dielectric Withstanding Voltage	800 Vrms
Operating Current	1A DC Max(Depending on cable specifications)
Center Contact Resistance	15mΩ Max(Initial)
Outer Contact Resistance	5mΩ Max(Initial)
Return Loss	23dB Min @ DC~1GHz, $\leq 10\frac{\log f\,(GHz)}{\log 9}$ -23dB Min @ 1~9GHz
Insertion Loss	$\leq 0.1\times\sqrt{fGHz}$ dB
Insulation Resistance	1000mΩ Min
RF Leakage	-62dB @ DC to 2GHz, -55dB @ DC 2~5Ghz, -50dB @ 5~9GHz

Mechanical Performance

Mating Cycles	25 Cycles Min
Retention Force Latch	110N Min
Disengagement Force(Quad-Port)	5N Min
Engagement Force(Quad-Port)	75N Max (Non-Sealed, Single-Port)

Environmental Performance

Operating Temperature	-40°C ~ +105°C
Thermal/Humidity Cycling	USCAR-2, Paragraph 5.6.2/ISO 20860-2 Clause 9.3
Vibration & Mechanical Shock	USCAR-2, Paragraph 5.4.6/ISO 20860-2 Clause 9.1
Thermal Shock	USCAR-2, Paragraph 5.6.1/ISO 20860-2 Clause 9.2
RoHS	RoHS Compliance

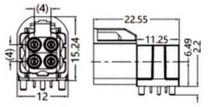
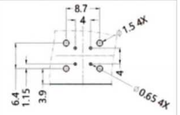
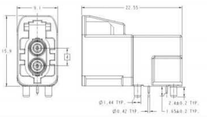
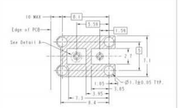
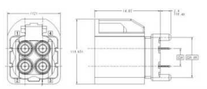
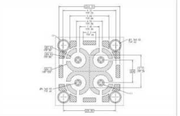
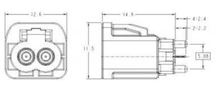
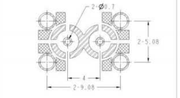
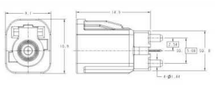
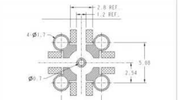
Materials

Housing	PA, PBT, PPE
Outer Contact	Zn, CuZn, CuSn, Stainless Steel
Insulator	LCP, PA, PTFE
Inner Contact	CuBe, CuZn, CuSn
Retaining Cap	PA, PBT, PPE
Crimping Ferrule	Cu,SUS
TPA	PA, PBT, PPE

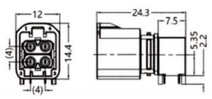
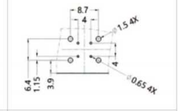
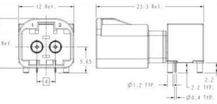
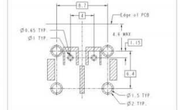
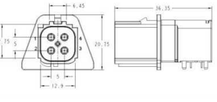
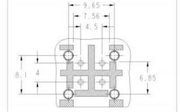
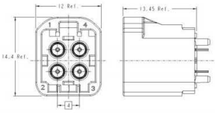
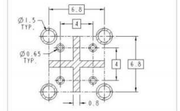
Contact Finish

Outer Contact	Au, Sn, Ni
Inner Contact	Au

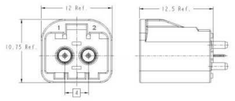
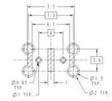
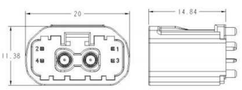
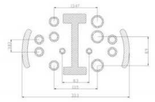
PCB Connector(A)

Part No.	Interface	Structure	Ports	Product	Outline Dimensions	PCB Layout
FKPPRNXD109X	Plug	Right Angle	4			
FKPPRNXS65X	Plug	Right Angle	2			
FKPPSNXD97X	Plug	Straight	4			
FKPPS0XS101X	Plug	Straight	2			
FKPPS0XS89C	Plug	Straight	1			

PCB Connector(B)

Part No.	Interface	Ports	Structure	Product	Outline Dimensions	PCB Layout
FKPPRNXD46X	Plug	Right Angle	4			
FKPPRNXS54X	Plug	Right Angle	2			
FKPPRNXS94X	Plug	Right Angle	4			
FKPPSNXS56X	Plug	Straight	4			

PCB Connector(B)

Part No.	Interface	Ports	Structure	Product	Outline Dimensions	PCB Layout
FKPPSNXS55X	Plug	Straight	2			
FKPPSNXS102X	Plug	Straight	2			

Cable Connectors(A)

Part No.	Interface	Structure	Ports	Cable Type	Product
FKPCS0X184	Plug	Straight	1	RTK031/RG174 or equivalent	
FKPCS0X284	Plug	Straight	4	RTK031/RG174 or equivalent	
FKJCS0X210	Jack	Straight	2	RTK031/RG174 or equivalent	
FKJCS0X206	Jack	Straight	2	RTK031/RG174 or equivalent	
FKJCS0X193	Jack	Straight	1	RTK031/RG174 or equivalent	

Cable Connectors(B)

Part No.	Interface	Structure	Ports	Cable Type	Product
FKPCS0X288	Plug	Straight	4	RTK031/RG174 or equivalent	
FKJCS0X167	Jack	Straight	4	RTK031/DACAR302-3 or equivalent	
FKJCS0X223	Jack	Straight	4	RG174/RG316/1.5DS or equivalent	
FKJCS0X182	Jack	Straight	2	RTK031/RG174 or equivalent	
FKJCS0X229	Jack	Straight	4	RTK031/DACAR302-3 or equivalent	
FKJCS0X213	Jack	Straight	2+4pins	RTK031/DACAR302-3 or equivalent	

Coding : See coding diagram (**Page 37**). Options available per customer requirements.

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

Number Guide | Single-to-Multi Configuration

E.G.

Side A Side B

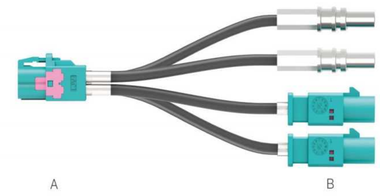
- **C1-XFJSA-FPSAB00-001**

  C(Cable Assembly); **1**(Cable Type 1); **XFJSA**(Side A：X-FAKRA, Jack，Straight，A Code); **FPSAB00**(Cable 1 ,Side B: FAKRA, Plug, Straight, A Code; Cable 2, Side B: FAKRA, Plug, Straight, B Code; Cables 3 & 4, Side B: FAKRA,Plug, Straight, No Housing); **001**(Serial Number)

C 1 - X F J S A - F P S AB00 - 001

Cable Assembly Identification	C: Cable Assemblies
Cable Type (*)	1: DACAR302/RTK031 or equivalent
	2: RG174/RG316/1.5DS or equivalent
	Other types refer to the *Cable Group(C*)*
Side A Connector Series	XF: Multi-Port X-FAKRA
	XN: Multi-Port HSN
Side A Interface	P: Plug
	J: Jack
Side A Angle	R: Right Angle
	S: Straight
Side A Coding	A: A code
	B: B code
	.....
Side B Connector Series (Note: First cable at Side B)	F: FAKRA
	XF: X-FARKA
	D: HSD
	L: HSL
	U: USB
	N: HSN
	E: Indicates no connector.
Side B Interface	P: Plug
	J: Jack
	0:Indicates no connector at Side B.
Side B Angle	R: Right Angle
	S: Straight
	0: Indicates no connector at Side B.
Side B Coding (Codings are arranged per cable number; each side is assigned a corresponding position.)	A B C D
	B C D E
	A B 0 0
	0 0 0 0 (0: Indicates no connector at Side B.)
	Configurable per series coding and customer requirements.
Serial Number	YYY (For distinguishing different accessories of the same specification.)

Cable Assemblies

Part No.	Side A	Side B	Product
C*-XFJSX-XFJSXXXXX-YYY	Four in One(X)-FAKRA,Jack (Type A)	Four in One(X)-FAKRA,Jack (Type A)	 A B
C*-XFJSX-XFJSXXXXX-YYY	Four in One(X)-FAKRA,Jack (Type B)	Four in One(X)-FAKRA,Jack (Type B)	 A B
C*-XFJSX-FPSXXXX-YYY	Four in One(X)-FAKRA,Jack (Type B)	FAKRA/Plug	 A B
C*-XFJSX-FPSXX00-YYY	Four in One(X)-FAKRA,Jack (Type A)	FAKRA/Plug	 A B

Cable Group(C*)

Cable Type	Remarks
DACAR302/RTK031	Low-loss Coaxial Cable
RG174/RG316/1.5DS/1.5C	Coaxial Cable
RG58	Low-loss Coaxial Cable
RTK044	Low-loss Coaxial Cable
DACAR535	HSD Star-quad Cable
1P*20AWG+2C*26AWG-MYLAR+AL.Mylar+Braid 1P*24AWG+2C*24AWG-MYLAR+AL.Mylar+Braid	USB2.0 Cable
QFP12GD100-B-5G NX-Q22A0018 DACAR647	1000M Ethernet Cable
NOUL 22AWG 44/0.100D1.3mm (-40°C~105°C)	Flexible Cable

HSD SERIES

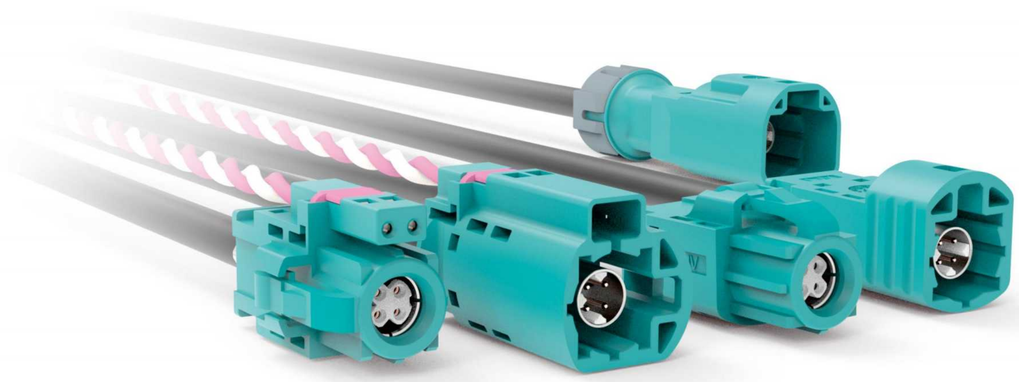
High Speed Data

Features & Benefits

- Compliant with USCAR requirements for high-speed, high-performance, and secure data transmission in automotive applications.
- Color-coded keying to efficiently prevent mismating.
- Dual-locking mechanism ensures assembly reliability.
- Excellent shielding and signal integrity.
- Data rates up to 6Gbps.
- Broad product portfolio, compatible with industry-standard equivalents.
- Unique fully-insulated center pin design.
- Suitable for both sealed and non-sealed applications.

Applications

360° surround-view cameras / In-vehicle infotainment systems / Instrument clusters
Touchscreens / High-definition displays / Bluetooth and USB connectivity
Dual-band Wi-Fi



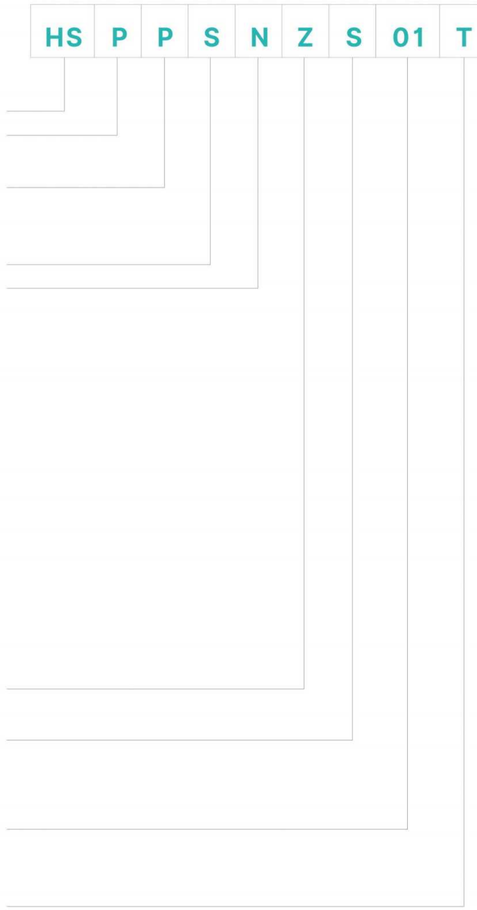
Number Guide

E.G.

- **HSPPSNZS01T**

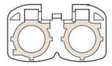
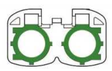
  HS(HSD); **P**(Plug); **P**(PCB); **S**(Straight); **N**(North); **Z**(Code); **S**(PCB_Reflow); **01**(Serial Number); **T**(Tray Packaging)

Series	HS: HSD
Interface	P: Plug
	J: Jack
Type	P: PCB
	C: Cable
Angle	R: Right Angle
	S: Straight
Orientation	N: North
	S: South
	W: West
	E: East
	0: No Orientation
Coding	A: Jet Black
	B: Cream White
	C: Signal Blue
	D: Claret Violet
	E: Leaf Green
	F: Nut Brown
	G: Blue Grey
	H: Heather Violet
	K: Curry
	M: Pastel Orange
	N: Pastel Green
	Z: Water Blue
Mounting/Cable Type	D: PCB_Wave soldering
	S: PCB_Reflow soldering
	1: Cable_DACAR535 or equivalent
	0: Customized Cable
Serial Number	01~99(Used to differentiate products of the same specification with different accessories)
Packaging Type	C: Carrier Tape
	U: Tube
	T: Blister Tray

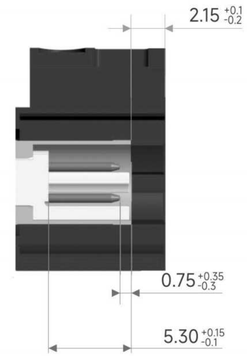


Key Code/Color

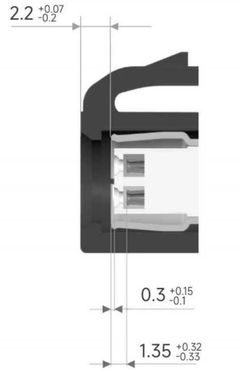
Coding	Plug	Jack	Color/RAL (Similar)
A			Jet Black/9005
B			Cream White/9001
C			Signal Blue/5005
D			Claret Violet/4004
E			Leaf Green/6002
F			Nut Brown/8011
G			Blue Gray/7031
H			Heather Violet/ 4003
I			Beige/1001
K			Curry/1027
L			Yellow Green/6018
M			Pastel Orange/2003
O			Light Green/6027
Z			Water Blue/5021

Coding	Plug	Color/RAL (Similar)
A(A+B)		Jet Black/9005
B(B+A)		Cream White/9001
C(C+D)		Signal Blue/5005
D(D+C)		Claret Violet/4004
E(E+F)		May Green/6017
F(F+E)		Nut Brown/8011
Z(Z+Z)		Water Blue/5021

Interface Dimensions



Plug



Jack

Unit: mm

Technical Specification

Electrical Performance

Impedance	100Ω
Frequency Range	DC-2GHz
Dielectric Withstanding Voltage	250 Vrms
Operating Current	≤3A DC @ 85°C Ambient Temperature(Power pin)
Center Contact Resistance	10mΩ Max(Initial)
Outer Contact Resistance	7.5mΩ Max(Initial)
Return Loss	≥20dB 1GHz
Insertion Loss	≤0.1dB, DC-2GHz
Intra-pair Skew	≤5ps
Inter-pair Skew	≤25ps
Near-End Crosstalk	≤30dB 1GHz
Far-End Crosstalk	≤35dB 1GHz
RF Leakage	1000mΩ Min

Mechanical Performance

Mating Cycles	25 Cycles Min
Coding Efficiency	80N Min
Retention Force Latch	110N Min
Disengagement Force	5N Min
Engagement Force(Single-Port)	30N Max
Engagement Force(Single-Port)	45N Max

Environmental Performance

Operating Temperature	-40°C ~ +105°C
Thermal/Humidity Cycling	USCAR-2, Paragraph 5.6.2
Vibration & Mechanical Shock	USCAR-2, Paragraph 5.4.6
Thermal Shock	USCAR-2, Paragraph 5.6.1
RoHS	RoHS Compliance

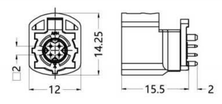
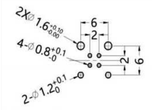
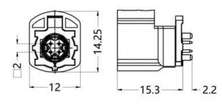
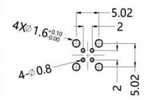
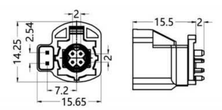
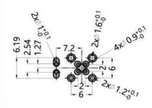
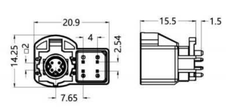
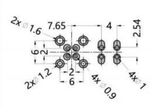
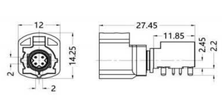
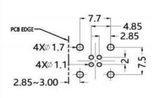
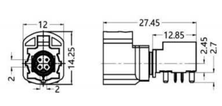
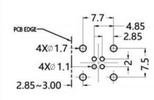
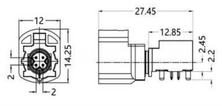
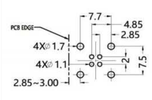
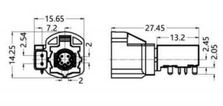
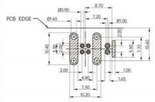
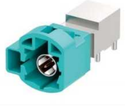
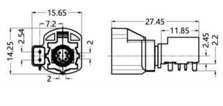
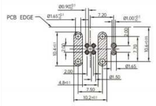
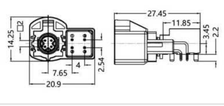
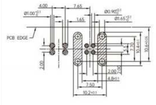
Materials

Housing	PA, PBT, PPE
Outer Contact	Zn, CuZn, CuSn, Stainless Steel
Insulator	LCP, PA, PTFE
Inner Contact	CuBe, CuZn, CuSn
Retaining Cap	PA, PBT, PPE
Crimping Ferrule	Cu,SUS
TPA	PA, PBT, PPE

Contact Finish

Outer Contact	Au, Sn, Ni
Inner Contact	Au

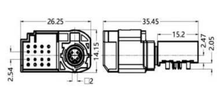
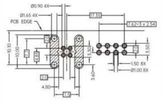
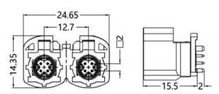
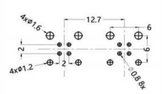
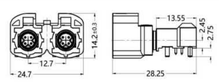
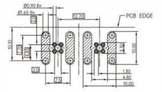
PCB Connector

Part No.	Interface	Ports	Structure	Pins	Product	Outline Dimensions	PCB Layout
HSPPSNXS01X	Plug	1	Straight	4			
HSPPSNXS08X	Plug	1	Straight	4			
HSPPSNXS02X	Plug	1	Straight	4+2			
HSPPSNXS03X	Plug	1	Straight	4+4			
HSPPRNXS01X	Plug	1	Right Angle	4			
HSPPRNXS11X	Plug	1	Right Angle	4			
HSPPRNXS12X	Plug	1	Right Angle	4			
HSPPRNXS02X	Plug	1	Right Angle	4+2			
HSPPRNXS13X	Plug	1	Right Angle	4+2			
HSPPRNXS07X	Plug	1	Right Angle	4+4			

Coding : See coding diagram (**Page 47**). Options available per customer requirements.

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

PCB Connector

Part No.	Interface	Ports	Structure	Pins	Product	Outline Dimensions	PCB Layout
HSPPRNXS05X	Plug	1	Right Angle	4+8			
HSPPSNXS04X	Plug	2	Straight	8			
HSPPRNXS04X	Plug	2	Right Angle	8			

Coding : See coding diagram (**Page 47**). Options available per customer requirements.

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

Cable Connectors

Part No.	Interface	Ports	Structure	Pins	Cable Type	Product
HSPCSNXX01	Plug	1	Straight	4	DACAR535 or equivalent	
HSPCSNXX03	Plug	1	Straight	4	DACAR535 or equivalent	
HSPCSNXX06	Plug	1	Straight	4+2	DACAR535 or equivalent	
HSPCSNXX04	Plug	1	Straight	4	DACAR535 or equivalent	
HSPCSNXX05	Plug	1	Straight	4	DACAR535 or equivalent	
HSPCSNXX02	Plug	1	Straight	4+2	DACAR535 or equivalent	
HSJCSNXX05	Jack	1	Straight	4+4	DACAR535 or equivalent	
HSJCSNXX03	Jack	1	Straight	4	DACAR535 or equivalent	
HSJCSNXX04	Jack	1	Straight	4	DACAR535 or equivalent	
HSJCSNXX01	Jack	1	Straight	4	DACAR535 or equivalent	

Coding : See coding diagram (**Page 47**). Options available per customer requirements.

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

Cable Connectors

Part No.	Interface	Ports	Structure	Pins	Cable Type	Product
HSJCRNXX01	Jack	1	Right Angle	4	DACAR535 or equivalent	
HSJCRNXX05	Jack	1	Right Angle	4	DACAR535 or equivalent	
HSJCRNXX03	Jack	1	Right Angle	4	DACAR535 or equivalent	
HSJCRNXX04	Jack	1	Right Angle	4+2	DACAR535 or equivalent	
HSJCRNXX02	Jack	1	Right Angle	4+2	DACAR535 or equivalent	
HSJCSNXX02	Jack	1	Straight	4+2	DACAR535 or equivalent	

HSD

Cable Assemblies

Part No.	Side A	Side B	Product
C*-DJSX-DJRX-XXXX-YYY	Straight, Jack	Right Angle, Jack	
C*-DJRX-DJRX-XXXX-YYY	Right Angle, Jack	Right Angle, Jack	
C*-DPSX-DJSX-XXXX-YYY	Straight, Plug	Straight, Jack	
C*-DJSX-DJSX-XXXX-YYY	Straight, Jack	Straight, Jack	
C*-DJRX-DPSX-XXXX-YYY	Right Angle, Jack	Straight, Plug	
C*-DPSX-DPSX-XXXX-YYY	Straight, Plug	Straight, Plug	
C*-DPSX-DJRX-XXXX-YYY	Straight, Plug+2Pins	Right Angle, Jack+2Pins	

Cable Group(C*)

Cable Type	Remarks
DCAR302/RTK031	Low-loss Coaxial Cable
RG174/RG316/1.5DS/1.5C	Coaxial Cable
RG58	Low-loss Coaxial Cable
DCAR535	HSD star-quad Cable
1P*20AWG+2C*26AWG-MYLAR+AL.Mylar+Braid 1P*24AWG+2C*24AWG-MYLAR+AL.Mylar+Braid	USB2.0 Cable
QFP12GD100-B-5G NX-Q22A0018 DACAR647	1000M Ethernet Cable
NOUL 22AWG 44/0.100D1.3mm (-40°C~105°C)	Flexible Cable

FAKRA
SMB / VSMP
X-FAKRA
HSD
USB
HSN

USB SERIES

Universal Serial Bus/High Speed Link

Features & Benefits

- Meets stringent automotive electronic reliability requirements.
- Fully shielded metal housing with excellent EMI performance.
- Supports USB2.0, LVDS, and GVIF protocols.
- Available in three versions (Type A/B/C), compatible with various HSL connector types in the market.
- Supports both cable-end connectors and harness assemblies for USB2.0, LVDS, and GVIF protocols.

Applications

Low-voltage differential signal transmission / USB2.0 connectivity / Rear-seat connections
Camera connections / Instrument clusters / Displays connections

Number Guide

E.G.

- **UBJCSX1001**
  UB(HSL); **J**(Jack); **C**(Cable); **S**(Straight); **X**(Reserved Number); **1**(Wire soldering); **001**(Serial Number)

UB	J	C	S	X	1	001

Series	UB: USB, HSL, Type-C
Interface	P: Plug
	J: Jack
Type	P: PCB
	C: Cable
Angle	R: Right Angle
	S: Straight
Reserved Number	
Connection Type	D: PCB_Wave soldering
	S: PCB_Reflow soldering
	1: Wire soldering
	2: Terminal crimping
Serial Number	001~999 (Used to differentiate products of the same specification with different accessories)

Key Code/Color

Type-A

Coding		Color/RAL (Similar)
A		Jet Black/9005
B		Signal Blue/5005
C		Nut Brown/8011
D		Leaf Green/6002
E		Blue Gray/7031

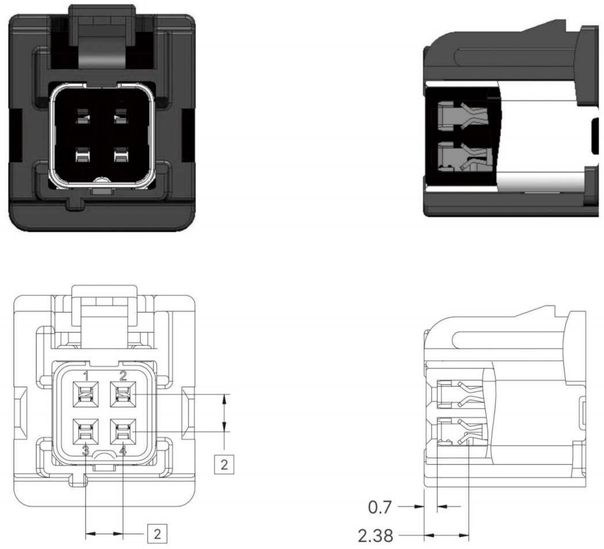
Type-B

Coding		Color/RAL (Similar)
A		Jet Black/9005
B		Blue Gray/7031
C		Pure White/9010
D		Nut Brown/8011
E		Signal Blue/5005
F		Leaf Green/6002

Type-C

Coding		Color/RAL (Similar)
A		Nut Brown/8011
B		Leaf Green/6002
C		Signal Blue/5005
D		Jet Black/9005

Interface Dimensions

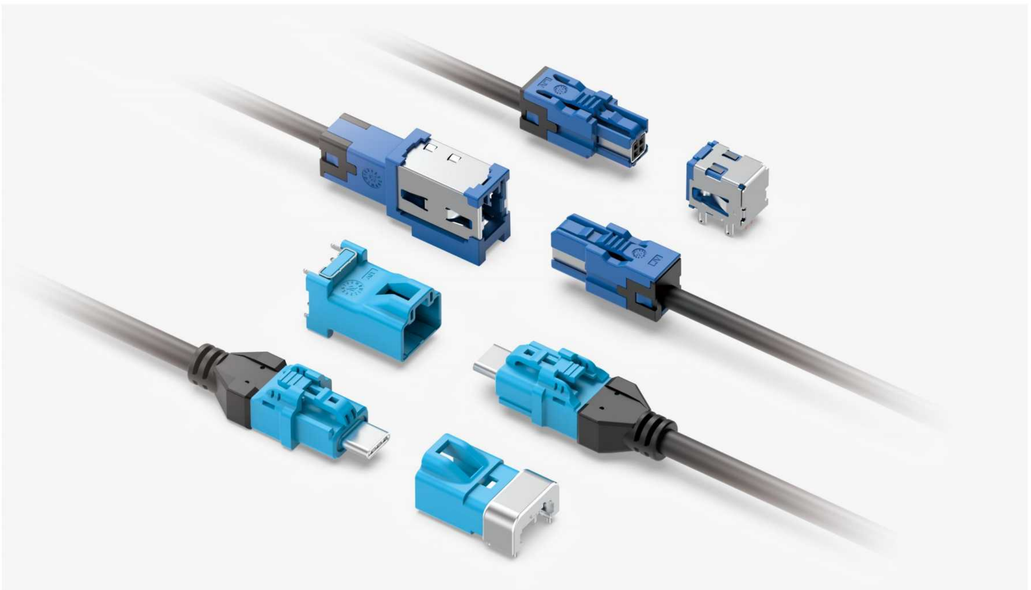


Jack

Unit: mm

Jack

Unit: mm



Technical Specification

Electrical Performance

Impedance	90Ω@HSL@TYPE-A,85Ω@TYPE-C
Data Rate	480Mbps@USB2.0 5Gbps@USB3.0 10Gbps@USB3.1
Dielectric Withstanding Voltage	500 VRMS Min
Operating Current	≤2.5A DC(Depending on cable specifications)
Center Contact Resistance	30mΩ Max
Outer Contact Resistance	30mΩ Max
Insulation Resistance	100mΩ Min

Mechanical Performance

Mating Cycles	25 Cycles Min
Coding Efficiency	80N Min
Retention Force Latch	98N Min@HSL,110N@TYPE-A/TYPE-C
Disengagement Force	10N Min @HSL/TYPE-C
Engagement Force	60N Max@HSL,35N MAX@TYPE-A@TYPE-C

Environmental Performance

Operating Temperature	-40°C ~ +105°C
Thermal/Humidity Cycling	USCAR-2, Paragraph 5.6.2
Vibration & Mechanical Shock	USCAR-2, Paragraph 5.4.6
Thermal Shock	USCAR-2, Paragraph 5.6.1
RoHS	RoHS Compliance

Materials

Housing	PA, PBT, PPE
Outer Contact	Zn, CuZn, CuSn, Stainless Steel
Insulator	LCP, PA, PTFE
Inner Contact	CuBe, CuZn, CuSn
Retaining Cap	PA, PBT, PPE
Crimping Ferrule	Cu
TPA	PA, PBT, PPE

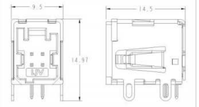
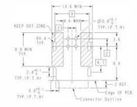
Contact Finish

Outer Contact	Au, Sn, Ni
Inner Contact	Au

HSL Cable Connectors

Part No.	Interface	Ports	Structure	Pins	Cable Type	Product
UBJCSXX001(Type A)	Jack	1	Straight	4	USB2.0 or equivalent	
UBJCSXX002(Type B)	Jack	1	Straight	4	USB2.0 or equivalent	
UBJCSXX003(Type C)	Jack	1	Straight	4	USB2.0 or equivalent	
UBPCSXX001(Type B)	Plug	1	Straight	4	USB2.0 or equivalent	

HSL Connectors

Part No.	Interface	Ports	Structure	Pins	Product	Outline Dimensions	PCB Layout
UBPPRXS011X	Plug	1	Right Angle	4			

Coding : See coding diagram (**Page 57**). Options available per customer requirements.

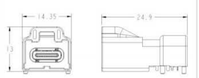
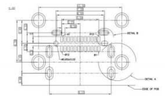
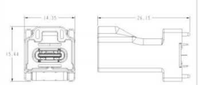
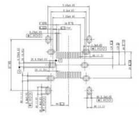
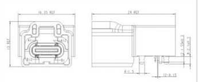
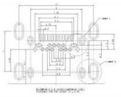
Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

Type-A Cable Connectors

Part No.	Interface	Ports	Structure	Pins	Cable Type	Product
UBPCSX30006	Plug	1	Straight	12	USB2.0/USB3.0/USB3.1 or equivalent	
UBJCSX1010	Jack	1	Straight	4	USB2.0 or equivalent	
UBJCSX1009	Jack	1	Straight	4	USB2.0 or equivalent	
UBJCS2A004	Jack	1	Straight	4	USB2.0 or equivalent	
UBJCSA1021	Jack	1	Straight	9	USB2.0/USB3.0 or equivalent	
UBJCRX1015	Jack	1	Right Angle	4	USB2.0 or equivalent	

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

Type-C Connectors

Part No.	Interface	Ports	Structure	Pins	Product	Outline Dimensions	PCB Layout
UBJPRXS008C-XA	Jack	1	Right Angle	24			
UBJPSXS009C	Jack	1	Straight	24			
UBJPRXS015C	Jack	1	Right Angle	24			

Type-C Cable Connectors

Part No.	Interface	Ports	Structure	Pins	Cable Type	Product
UBPCRX31003	Plug	1	Right Angle	24	USB2.0/USB3.0/USB3.1 or equivalent	
UBPCSA31001	Plug	1	Straight	24	USB2.0/USB3.0/USB3.1 or equivalent	
UBJCSA31001	Jack	1	Straight	24	USB2.0/USB3.0/USB3.1 or equivalent	

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

Number Guide | Single-to-Single Configuration

E.G.

- **C4-LJSB-LJSB-2150-001**

  C(Cable Assembly); **4**(Cable Type 4); **LJSB**(Side A: HSL, Jack, Straight, B Code); **LJSB**(Side B: HSL, Jack, Straight,B Code); **2150**(Cable Length); **001**(Serial Number)

C 4 - L J S B - L J S B - 2150 - 001

Cable Assembly Identification	C:Cable Assemblies
Cable Type	1: DACAR302/RTK031 or equivalent
	2: RG174/RG316/1.5DS or equivalent
	3: RG58 or equivalent
	4: DACAR535 or equivalent
	Other types refer to the *Cable Group(C*)*
Side A Connector Series	F: FAKRA
	XF: X-FARKA
	D: HSD
	L: HSL
	U: USB
	N: HSN
Side A Interface	P: Plug
	J: Jack
Side A Angle	R: Right Angle
	S: Straight
Side A Coding	A: A Code
	B: B Code
	Configurable per series coding and customer requirements.
Side B Connector Series	F: FAKRA
	XF: X-FARKA
	D: HSD
	L: HSL
	U: USB
	N: HSN
	E: Indicates no connector.
Side B Interface	P: Plug
	J: Jack
	0: Indicates no connector at Side B.
Side B Angle	R: Right Angle
	S: Straight
	0: Indicates no connector at Side B.
Side B Coding	A: A code
	B: B code
	0: Indicates no connector at Side B.
	Configurable per series coding and customer requirements.
Cable Length	XXXX (mm)
Serial Number	YYY (For distinguishing different accessories of the same specification.)

USB

HSL Cable Assemblies

Part No.	Side A	Side B	Product
C*-LJSX-LJSX-XXXX-YYY	HSL Cable Connector, Jack (Type A)	HSL Cable Connector, Jack (Type A)	 A B
C*-LJSX-LPSX-XXXX-YYY	HSL Cable Connector, Jack (Type B)	HSL Cable Connector, Plug (Type B)	 A B
C*-LJSX-LJSX-XXXX-YYY	HSL Cable Connector, Jack (Type C)	HSL Cable Connector, Jack (Type B)	 A B

USB Cable Assemblies

Part No.	Side A	Side B	Product
C*-DJSX-UJSX-XXXX-YYY	HSD Cable Connector, Jack	USB Cable Connector, Jack	 A B
C*-UJSX-UJSX-XXXX-YYY	USB Cable Connector, Jack	USB Cable Connector, Jack	 A B
C*-LJSX-UPSX-XXXX-YYY	HSL Cable Connector, Jack (Type B)	USB Cable Connector, Jack	 A B

FAKRA
SMB / VSMP
X-FAKRA
HSD
USB
HSN

HSN SERIES

High Speed Connction for Automotive EtherNet

Features & Benefits

- Designed to meet in-vehicle Ethernet cabling performance requirements
- 100Ω differential twisted pair transmission line for optimized signal integrity
- Scalable high-performance interface, supporting up to 10GHz/25Gbps data rates
- Fully shielded construction for reliable high-bandwidth transmission in harsh EMI environments
- Interface compliant with national Ethernet port standards for easy interoperability
- Modular, compact single-port and multi-port configurations enabling high-reliability quick connections
- Available in both sealed and unsealed versions to support diverse automotive applications

Applications

Domain controller interconnections / Backbone network links / High-speed Ethernet video transmission
Autonomous driving systems / Telematics systems / Advanced Driver Assistance Systems (ADAS)
High-resolution automotive displays / LiDAR sensing systems

Number Guide

E.G.

- **HNPPRNZS01T**

  HN(HSN); **P**(Plug); **P**(PCB); **R**(Right Angle);
  N(North); **Z**(Code); **S**(PCB_Reflow);
  01(Serial Number); **T**(Tray Packaging)

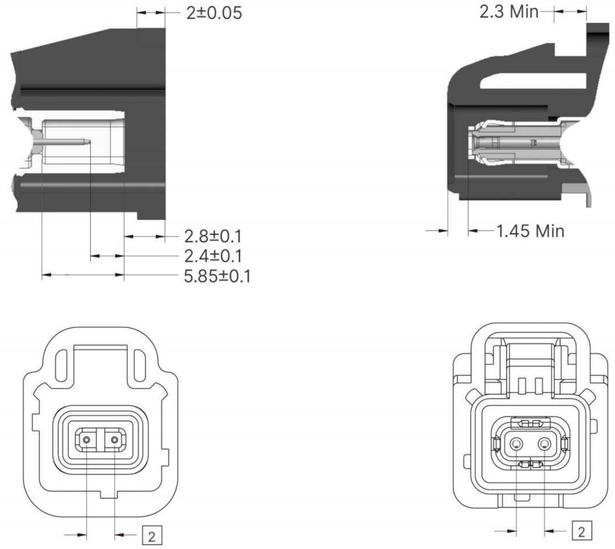
HN	P	P	R	N	Z	S	01	T

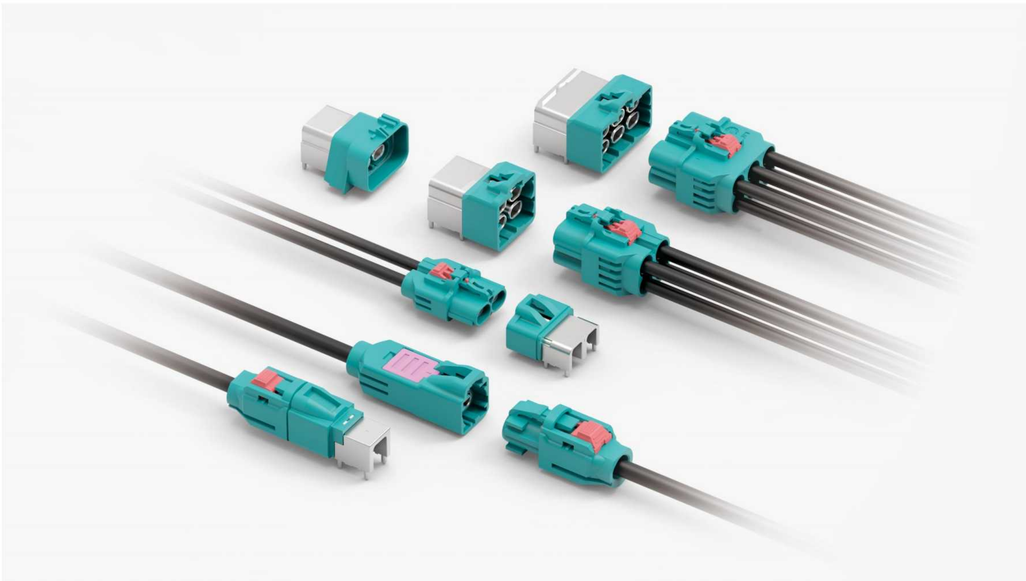
Series	HN: HSN
Interface	P: Plug
	J: Jack
Type	P: PCB
	C: Cable
Angle	R: Right Angle
	S: Straight
Orientation	N: North
	S: South
	W: West
	E: East
	0: No Orientation
Coding	A: Jet Black
	B: Pure White
	C: Signal Blue
	D: Claret Violet
	E: Leaf Green
	F: Nut Brown
	G: Platinum Grey
	H: Light Pink
	I: Beige
	K: Curry
	L: Yellow Green
	M: Pastel Orange
	O: Light Green
	Z: Water Blue
Mounting/Cable Type	D: PCB_Wave soldering
	S: PCB_Reflow soldering
	1: Cable_DACAR647 or equivalent
	0: Customized Cable
Serial Number	01 ~ 99 (Used to differentiate products of the same specification with different accessories)
Packaging Type	C: Carrier Tape
	U: Tube
	T: Blister Tray

Key Code/Color

Coding	Plug			Jack			Color/RAL (Similar)
	Single-Port	Dual-Port	Quad-Port	Single-Port	Dual-Port	Quad-Port	
A							Jet Black/9005
B							Pure White/9010
C							Signal Blue/5005
D							Claret Violet/4004
E							Leaf Green/6002
F			—			—	Nut Brown/8011
G			—			—	Platinum Gray/7036
H			—			—	Light Pink/3015
J			—			—	Beige/1001
K			—			—	Curry/1027
L			—			—	Yellow Green/6018
M			—			—	Pastel Orange/2003
Z							Water Blue/5021
O			—			—	Light Green/6027

Interface Dimensions





Technical Specification

Electrical Performance

Impedance	100Ω±5% (at 500 ps rise time)
Frequency Range	DC-10GHz
Dielectric Withstanding Voltage	200V AC
Operating Current	1A DC Max (Per cable specification)
Center Contact Resistance	10mΩ Max
Outer Contact Resistance	7.5mΩ Max
Return Loss	30dB @ DC~190Mhz; 20dB @ 190~600Mhz (TC9)
	14.4dB @ 1000Mhz; 11.4dB @ 2000Mhz; 7.5dB @ 4000Mhz 2.5GBASE-T1, 5GBASE-T1, 10GBASE-T1 (IEEE Std 802.3ch 149.8.2)
Insertion Loss(Connector)	$\leqslant 0.1\times\sqrt{fGHz}$ dB
Insulation Resistance	500mΩ Min (Connector), 100mΩ Min (Cable assembly)
LCL(Connector)	50dB @ 10-50MHz, 34dB @ 50-600MHz
Balanced LCL/LCTL(Connector)	50dB @ 10-50MHz, 34dB @ 50-600MHz

Mechanical Performance

Mating Cycles	25 Cycles Min
Retention Force Latch	110N Min
Disengagement Force(Single/dual-port)	5N Min
Engagement Force(Single/dual-port)	45N Max
Engagement Force(Sealed)	45N Max

Environmental Performance

Operating Temperature	-40°C ~ +105°C
Thermal/Humidity Cycling	USCAR-2, Paragraph 5.6.2
Vibration & Mechanical Shock	USCAR-2, Paragraph 5.4.6
Thermal Shock	USCAR-2, Paragraph 5.6.1
RoHS	RoHS Compliance

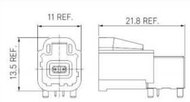
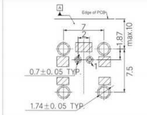
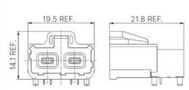
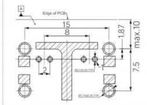
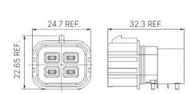
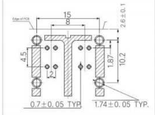
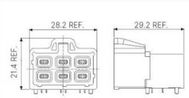
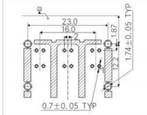
Materials

Housing	PA, PBT, PPE
Outer Contact	Zn, CuZn, CuSn, Stainless Steel
Insulator	LCP, PA, PTFE
Inner Contact	CuBe, CuZn, CuSn
Retaining Cap	PA, PBT, PPE
Crimping Ferrule	Cu
TPA	PA, PBT, PPE

Contact Finish

Outer Contact	Au, Sn, Ni
Inner Contact	Au

PCB Connector(ISO)

Part No.	Interface	Ports	Structure	Pins	Product	Outline Dimensions	PCB Layout
HNPPRNZS01T	Plug	1	Right Angle	2			
HNPPRNZS02T	Plug	2	Right Angle	4			
HNPPRNZS04T-W	Plug	4	Right Angle	8			
HNPPRNZS06T	Plug	6	Right Angle	12			

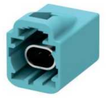
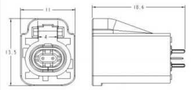
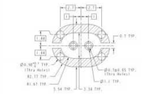
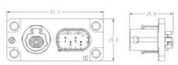
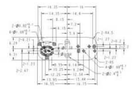
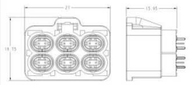
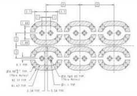
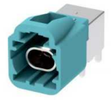
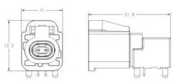
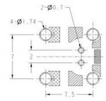
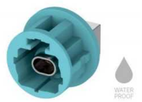
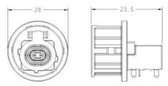
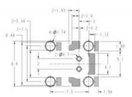
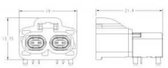
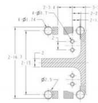
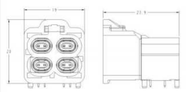
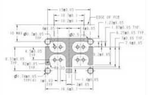
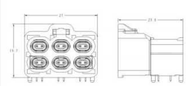
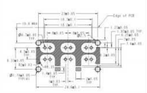
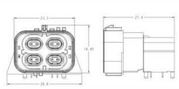
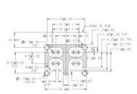
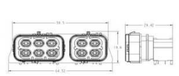
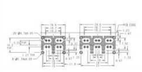
Cable Connector(ISO)

Part No.	Interface	Ports	Structure	Pins	Cable Type	Product
HNPCSNZ101	Plug	1	Straight	2	QFP12GD100-B-5G NX-Q22A0018 DACAR647	
HNJCSNZ101	Jack	1	Straight	2	QFP12GD100-B-5G NX-Q22A0018 DACAR647	
HNJCSNZ102	Jack	2	Straight	4	QFP12GD100-B-5G NX-Q22A0018 DACAR647	
HNJCSNZ104-W	Jack	4	Straight	8	QFP12GD100-B-5G NX-Q22A0018 DACAR647	
HNJCSNZ106	Jack	6	Straight	12	QFP12GD100-B-5G NX-Q22A0018 DACAR647	

Coding : See coding diagram (**Page 67**). Options available per customer requirements.

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

PCB Connector(A)

Part No.	Interface	Ports	Structure	Pins	Product	Outline Dimensions	PCB Layout
HNPPSNXS12X	Plug	1	Straight	2			
HNPPSNXS22X-W	Plug	1	Straight	2			
HNPPSNXS09X	Plug	6	Straight	12			
HNPPRNXS13X	Plug	1	Right Angle	2			
HNPPRNXS10X-W	Plug	1	Right Angle	2			
HNPPRNXS14X	Plug	2	Right Angle	4			
HNPPRNXS15X	Plug	4	Right Angle	8			
HNPPRNXS16X	Plug	6	Right Angle	12			
HNPPRNXS17X-W	Plug	4	Right Angle	8			
HNPPRNXS23X-W	Plug	10	Right Angle	20			

HSN

Cable Connector(A)

Part No.	Interface	Ports	Structure	Pins	Cable Type	Product
HNJCSNX111	Jack	1	Straight	2	DACAR686-3/DACAR647/ FDC541 or equivalent	
HNJCSNX119	Jack	2	Straight	4	DACAR686-3/DACAR647/ FDC541 or equivalent	
HNJCSNX116	Jack	4	Straight	8	DACAR686-3/DACAR647/ FDC541 or equivalent	
HNJCSNX115	Jack	6	Straight	12	DACAR686-3/DACAR647/ FDC541 or equivalent	
HNJCSNX127-W	Jack	4	Straight	8	DACAR686-3/DACAR647/ FDC541 or equivalent	
HNJCSNX128-W	Jack	6	Straight	12	DACAR686-3/DACAR647/ FDC541 or equivalent	
HNJCSNX110-W	Jack	1	Straight	2	DACAR686-3/DACAR647/ FDC541 or equivalent	
HNPCSNX126-W	Plug	1	Straight	2	DACAR686-3/DACAR647/ FDC541 or equivalent	
HNPCSNX122	Plug	1	Straight	2	DACAR686-3/DACAR647/ FDC541 or equivalent	

Packaging : PCB connectors: Blister tray or tape & reel.
Cable connectors and assemblies: Bagged.
Custom packaging: Available on request.

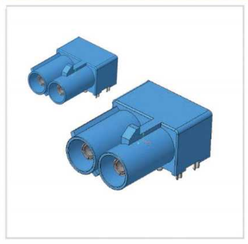
FAKRA
SMB / VSMP
X-FAKRA
HSD
USB
NSH

Technical Documentation | Product Specifications

For detailed information on LJV products and solutions,
please contact sales representative or visit our website: **www.ljv.cn** to access relevant documents.

LJV TECHNOLOGY

PRODUCT SPECIFICATION



Product Description: FAKRA Dual R/A PCB Connector
Product Part Number: FKPPRNXD18X
Specification Number: PS-FKPPRNXD18X-008

Product Specification

LJV TECHNOLOGY

Specification Number	Product Description	Part Number	Date	Version
PS-FKPPRNXD18X-008	FAKRA Dual R/A PCB Connector	FKPPRNXD18X	XXXX-XX-XX	A.0

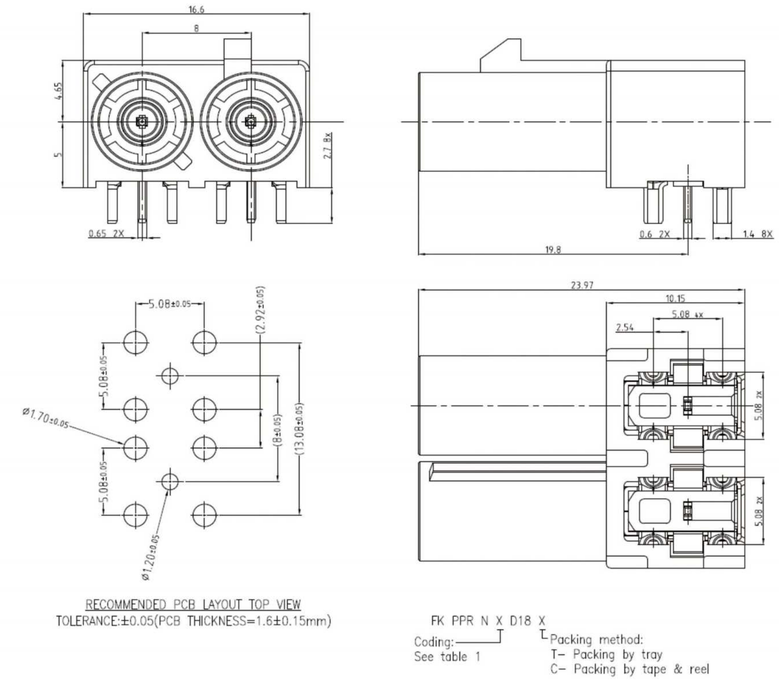
Revision History					
Rev.	ECN #	Rev.Date	Release and Revision Description	Prepared by	Approved by
A0	N/A	XXXX-XX-XX	The First Release	Kevin Fang	Harry He

1. Scope / Product Application

The FAKRA PCB connectors are applied for RF signal transmission under particular mechanical condition and environment in automotive industry. Designed to meet/exceed the performance specification and requirement of below industrial standards:
- SAE/USCAR-17
- SAE/USCAR-18
- DIN 72594-1

Applications:
- Automotive Antenna Communication
- Automotive ADAS

2. Outline & Application Dimension



All dimensions are in mm

3. Material and Finish

Item	Component Description	Material	Surface Finish
1	Plastic Housing	High Temp. Engineer Plastic	Color Per Coding defined
2	Body	Phosphor Bronze	Matte TIN
3	Insulator	LCP	Natural
4	Center Contact	Brass	Gold Plating

Specification Number	Product Description	Part Number	Date	Version
PS-FKPPRNXD18X-008	FAKRA Dual R/A PCB Connector	FKPPRNXD18X	XXXX-XX-XX	A.0

4. Technology Parameters

4.1 Electrical Performance

Item			Spec Requirement	Test Condition
4.1.1	Impedance		50 Ω	
4.1.2	Frequency range		DC-6GHZ	
4.1.3	Insertion loss		IL≤0.1*$\sqrt{f}$dB (f: GHz)	
4.1.4	Return loss		≥20.8dB @DC-200Mhz ≥15.5dB @200Mhz-2GHZ ≥13.9dB @2Ghz-3Ghz	Connector Only, depend on PCB design also
4.1.5	Operating voltage		335Volts rms	
4.1.6	Contact resistance	Center	10mΩ Max	Refer to USCAR-17 4.3.1
		Outer	5mΩ Max	Refer to USCAR-17 4.3.1
4.1.7	Withstanding voltage		800Volts rms	Refer to USCAR-17 4.3.2
4.1.8	Insulation resistance		≥1000 MΩ	Refer to USCAR-17 4.4.1

4.2 Mechanical Performance

Item		Spec Requirement	Test Condition
4.2.1	Visual inspection	No surface broken, No Color changed	Refer to USCAR-2 5.1.8
4.2.2	Mating cycles	25 Cycles Min	Refer to USCAR-2 5.1.7
4.2.3	Mating force	45 N Max.	Refer to USCAR-2 5.4.2
4.2.4	Unmating force	2 N Min.	Refer to USCAR-2 5.4.2
4.2.5	Axial Retention force	110 N Min.	Refer to USCAR-2
4.2.6	Bland Mating force	40 N Min.	
4.2.7	Resistance to soldering heat	Connector can withstand Pb-free Reflow soldering Process; Peak Temperature can withstand 260°C, 5 seconds	Refer to JEDEC J-STD-020D

4.3 Environmental Performance

Item		Spec Requirement	Test Condition
4.3.1	Operating temperature	-40°C to +105°C	
4.3.2	Humidity temperature cycling	1. Appearance: No abnormality ; 2. Contact Resistance: shall meet 4.1 ; 3. Insulation Resistance: shall meet 4.1 ;	Refer to USCAR-2 5.6.2
4.3.3	Thermal shock	1. Appearance: No abnormality ; 2. Contact Resistance: shall meet 4.1 ; 3. Insulation Resistance: shall meet 4.1 ;	Refer to USCAR-2 5.6.1
4.3.4	Vibration	1. Appearance: No abnormality ; 2. Electrical discontinuity less than 1us	Refer to USCAR-2 5.4.6
4.3.5	Shock	1. Appearance: No abnormality ; 2. Electrical discontinuity less than 1us	Refer to USCAR-2 5.4.6
4.3.6	Solder ability	At least 95% covered by a continuous new solder coating	Apply the following environment to the mating connector Temperature : 245±5°C Duration : 3~5 second Test sample should be observed by the magnification of 10times after the test.
4.3.7	RoHS compliant	RoHS 2.0	

Product Specification

Specification Number	Product Description	Part Number	Date	Version
PS-FKPPRNXD18X-008	FAKRA Dual R/A PCB Connector	FKPPRNXD18X	XXXX-XX-XX	A.0

5. Packaging & Stockpile Condition

5.1 Packaging

1) FKPPRNXD18T: Soft tray packing 50 pcs/tray, 28 layers, total 1400 pcs/carton

1) FKPPRNXD18C: Tape & Reel Packing 200 PCS/Reel

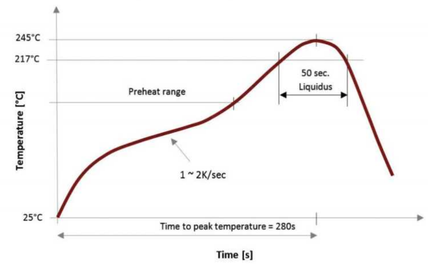
2) Weight: 4.19g/pc

5.2 Stockpile Condition

Use this product within 6 months after receipt
Condition : Temp: -10~+40°C Humidity:15~85%

6. Recommended Reflow Soldering Condition/SMT

Due to large variations of existing processes, equipment and accessory and the different demands to the soldering process, it is not possible to define an ideal soldering proposal for all situations. This connector is designed for reflow soldering application. A recommended soldering processes is possible only in reference to the respective soldering standard (JEDEC). the Next Fig. shows the recommended reflow soldering process according JEDEC J-STD-020D.



7. Coding

Jack	Coding	Color
	A	Jet Black
	B	Cream
	C	Signal Blue
	D	Claret Violet
	E	Leaf Green
	F	Nut Brown
	G	Blue Grey
	H	Heather Violet
	I	Beige
	K	Curry
	L	Carmine Red
	M	Paster Orange
	N	Pastel Green
	Z	Water Blue

Dongguan LJV Technology Co.,Ltd.

LJV TECHNOLOGY

Dongguan LJV Technology Co., Ltd.

No. 51 Jinchuan Road, Zhaolin, Xiegang Town,
Dongguan, Guangdong, 523590.

T (86) -769-8210 0188
E sales.intl@ljv.cn
W www.ljv.cn

Regional Offices
Shenzhen Shanghai Qingdao Quanzhou Xi'an

Follow us on WeChat.

Welcome to visit our website for more information.