

# Product Guide

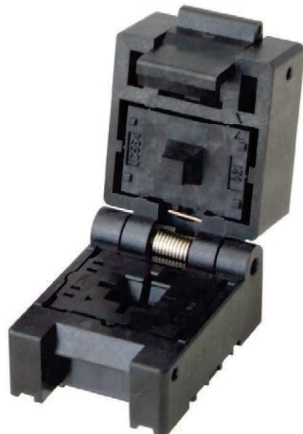


# Burn-in Sockets

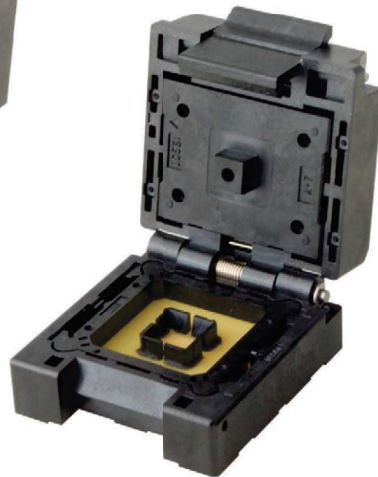
Yamaichi Electronics' Test Solutions evolve alongside the progress of semiconductor devices.

## Universal Pitch Sockets

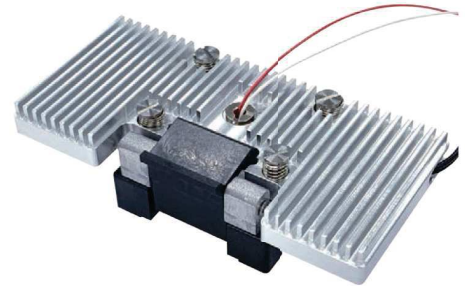
BGA, BGA, LGA, QFN, Others (0.3mm-Irregular pitch available from 0.3mm pitch)



IC564 Series



IC561 Series



Thermal Solution



IC542 Series

## High Power Socket

BGA, LGA (0.8mm, 1.0mm Pitch)



IC603 Series



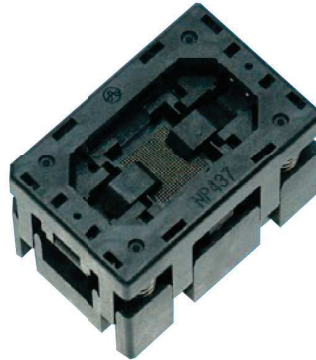
# Burn-in Sockets

## Sockets for Grid-Array Package

BGA (0.35, 0.4mm Pitch)



IC511 Series

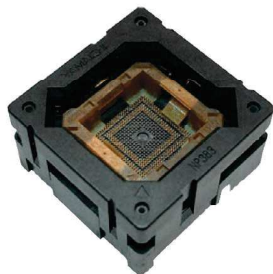


NP437 Series



NP597 Series

BGA (0.5mm Pitch)

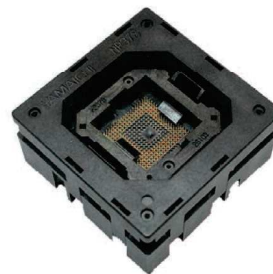


NP383 Series



IC409 Series

BGA (0.65mm Pitch)



NP378 Series



IC280 Series

BGA (0.8mm Pitch)



NP566 Series



IC280 Series

BGA (1.0mm Pitch)



NP483 Series



IC280 Series

# Burn-in Sockets

## Sockets for Grid-Array Package

BGA (1.27mm Pitch)

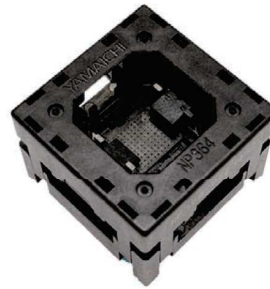


NP276 Series

LGA (0.65, 0.75, 0.80, 1.00mm Pitch)



NP364 Series



NP364 Series



IC280 Series

## Sockets for Lead Frame Package

QFP



IC357 Series



IC51 Series

QFN



NP506 Series



IC609 / IC610 Series

SOP / TSOP



IC354 Series



IC369 Series



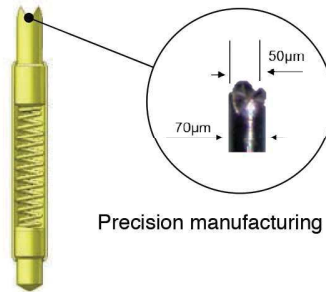
IC51 Series

# Test Sockets

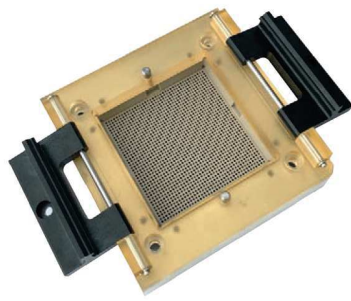
## Probe Pin Test Sockets



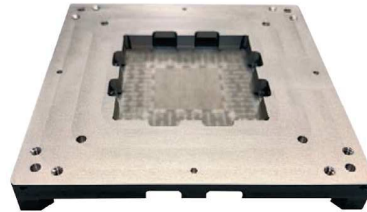
Spring Probe Pin



Precision manufacturing ability

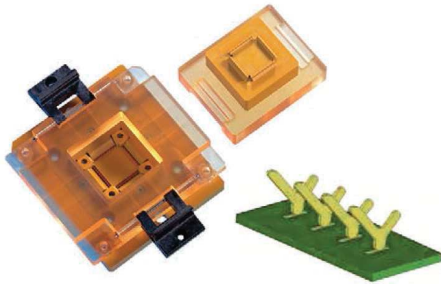


IC Socket for high pin count package



Coaxial Socket

## High Frequency Test Sockets



Y - Contact

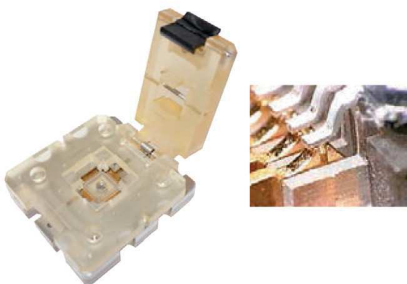


Short Probe Pin



Clam Shell Type

## Kelvin Socket



Kelvin Socket

## Sensor Socket



Magnetic Sensor Socket

## FPC Test Socket



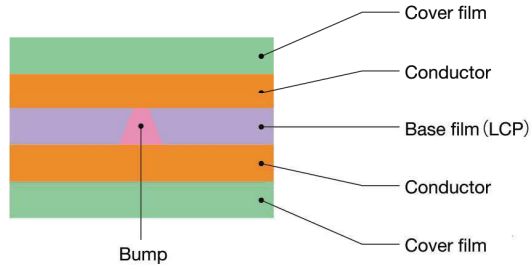
# FPC YFLEX<sup>®</sup>

Flexible Printed Circuit Board YFLEX<sup>®</sup>

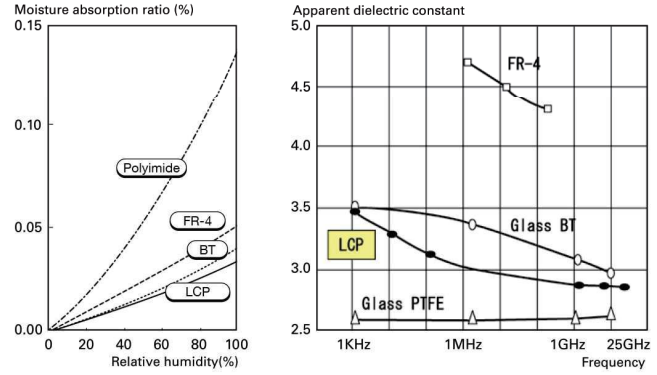
Flexible Printed Circuit Board (YFLEX<sup>®</sup>) assembled with Liquid Crystal Polymer (LCP) as Dielectric Substrate. Excellent characters for loss properties in high frequency(HF) area and dimension stabilities realize accurate characteristic impedance matching for FPC.

## Basic Structure (Double-layer)

### Structure of double-sided YFLEX



### Moisture absorption & dielectric constant



### Material

Base film	Liquid crystal polymer (Thickness:25μm, 50μm)
Conductor	Copper (Thickness:9μm, 12μm, 18μm, 35μm)
Inter-layer connection(Conductive bump)	Ag conductive paste
Cover film	Thermosetting resist, Photo resist, Polyimide film

### Test data

Item	Condition	Result
Resistance value per bump	Room temperature, normal humidity	Within 6mΩ
Temperature cycle test	+55°C~+125°C, 1,000cyc	Resistance change:Within 10%
High temperature test	+85°C, 1,000h	Resistance change:Within 10%
Low temperature test	-40°C, 1,000h	Resistance change:Within 10%
High temperature constant humidity test	+85°C, 90%RH, 1,000h	Resistance change:Within 10%
Ion migration test	+40°C, 90%RH, 60VDC, 1,000h	No change
Peeling test	90°peels	0.8KN/m or above
Solder resistance test	+260°C, 20sec	No change
Moisture adsorption	+23°C, 24h	0.04% or below
Thermal expansion coefficient	TMA method	Longitudinal:17ppm, Lateral:17ppm
Dielectric constant (1GHz)	Bridge method ※2	2.8
Dissipation factor (1GHz)	Bridge method ※2	0.0025

JIS C6481-1996

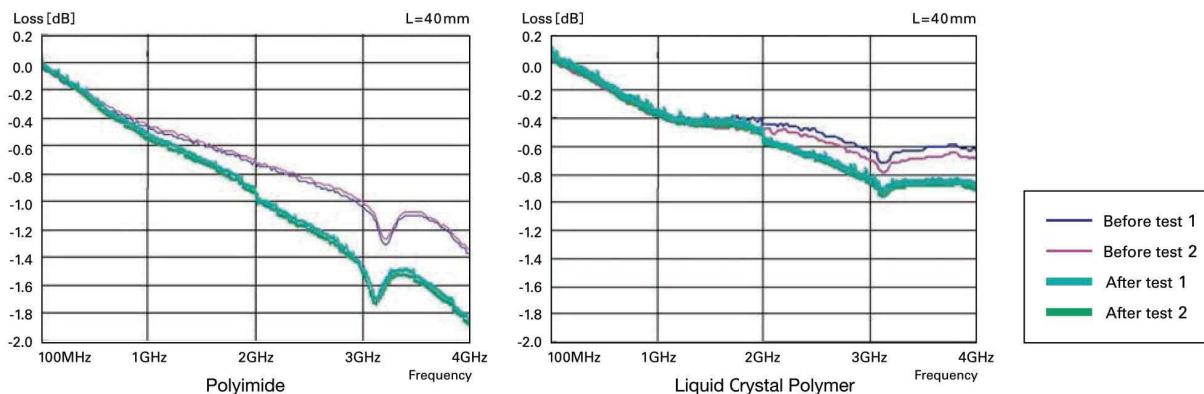
※2=JIS C6481-1996

Values are for reference only.

### Design Specs(Bouble-layer)

Item	Standard	Minimum
Wire width/space	60/60μm	25/35μm
Bump diameter	250μm	150μm
Land diameter	400μm	250μm
Maximum current per bump	100mA (bump:φ250μm)	50mA (bump:φ150μm)

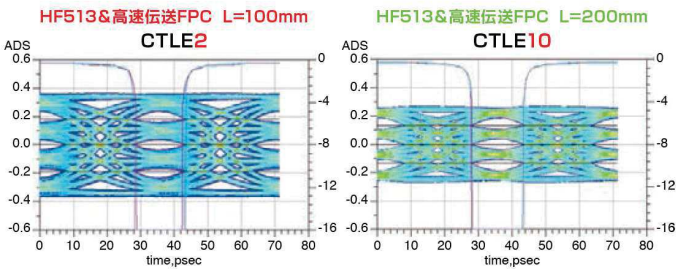
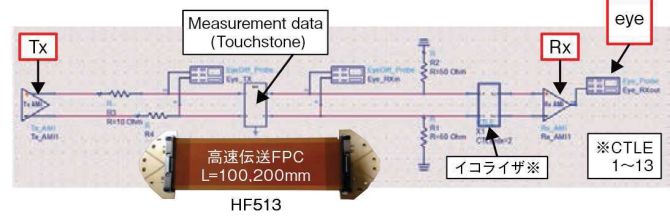
### Comparison of insertion loss (Before/After temperature-humidity cycling test using a network analyzer)



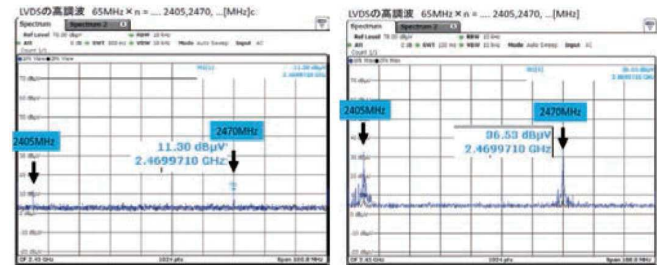
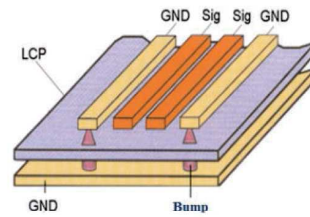
## High speed transmission FPC



### 56Gbps PAM4 eye diagram



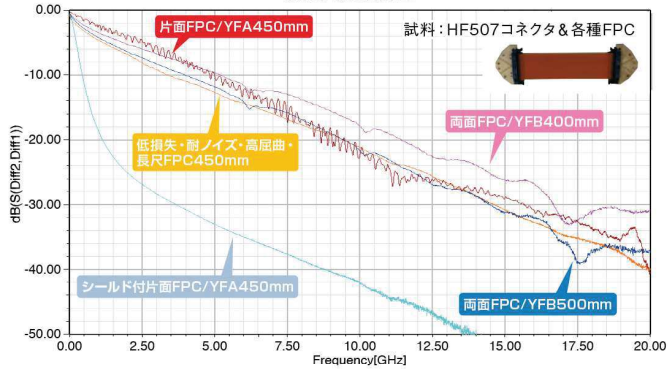
## Noise resistant FPC



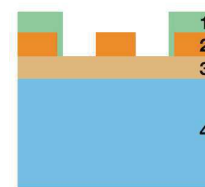
## Low loss, noise resistance, high bending, long FPC



### Insertion loss

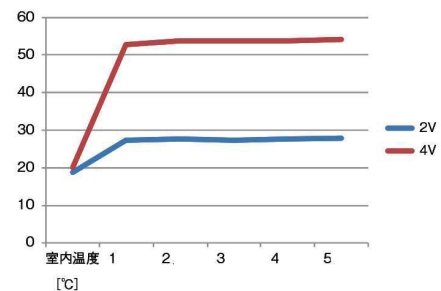
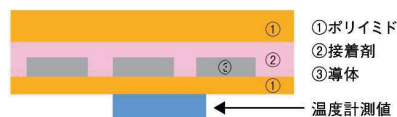
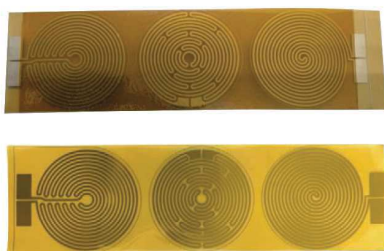


## Transparent FPC



	Material	Thickness
1	Transparent resist	Epoxy 10µm
2	Conductor layer	Copper foil 12µm
3	Adhesive layer	Epoxy 10µm
4	Insulating layer	PEN 100µm

## Heater FPC



No.	室内温度	1	2	3	4	5	(V)	(A)	(W)	(mm)	(mm)	電力密度
2V	18.8	27.4	27.8	27.5	27.8	27.9	2.0	0.07	0.14	0.25	250	0.10
4V	20.1	52.9	53.7	53.7	53.9	54.2		0.14	0.56	0.25	250	0.40

NRZ		
28G	56G	64G

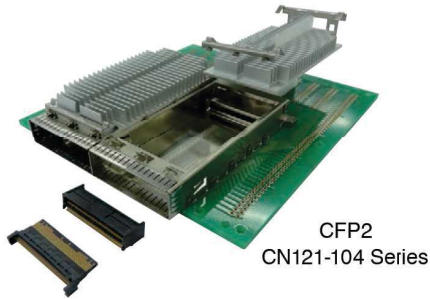
RAM4	
56G	112G

## CFP Series Connectors and Mechanical-units

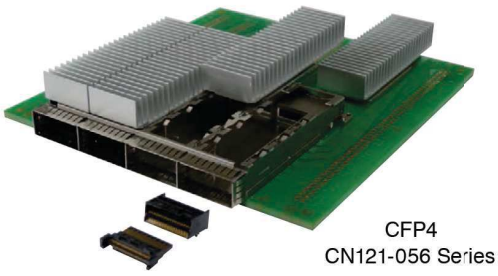
### CFP Multi-Source Agreement (MSA) Compliant

CFP Family Connector and mechanical-unit for 40Gbps, 100Gbps, 200Gbps & 400Gbps Ethernet.

#### CFP2 Connector & Mechanical-Unit



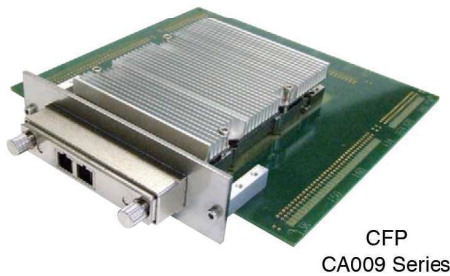
#### CFP4 Host & Mechanical-Unit



#### CFP8 Host & Mechanical-Unit



#### CFP Host & Mechanical-Unit



## Advanced MC Connector CN074, CN080 & CN084 Series

### PICMG AMC, 0-Compliant Advanced MC Connector

#### AdvancedMC Connector for AdvancedTCA



#### AdvancedMC Connector for Micro TCA



#### AdvancedMC Connector





SFP/DSFP/QSFP/QSFP-DD/OSFP Host Connectors & Mechanical-units  
SFF Committee Compliant MSA Compliant

OSFP Host & Mechanical-Unit



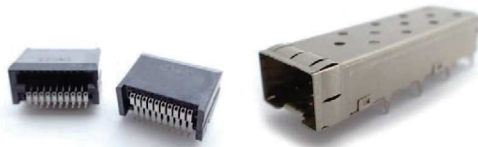
CN176 series

QSFP-DD Connector & Mechanical-Unit



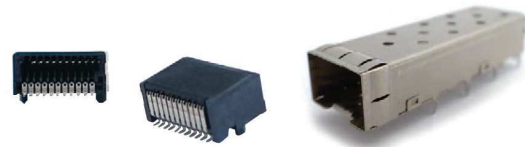
CN174 Series

SFP28 Connector & Mechanical-Unit



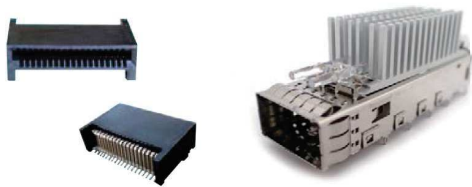
CN109S-020 Series

DFSP Connector & Mechanical-Unit



CN109S-022 Series

QSFP 28 & 56 Connector & Mechanical-Unit



CN120 Series

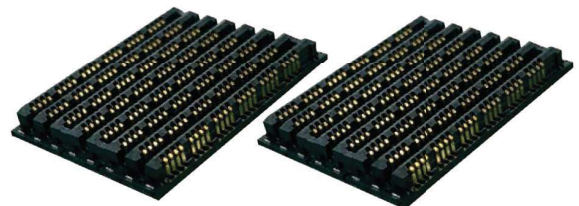
Mezzanine Connector

YGM-320 PAM4-56G



CN201

YTM Series PAM4-112G



RC Series

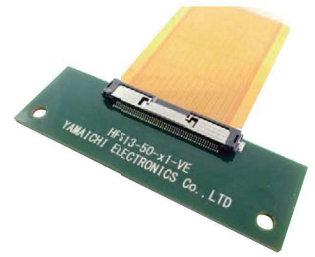
# Connectors for In-vehicle Equipments



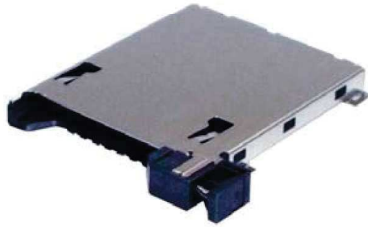
230/314 pin card edge connector  
CN113 Series



FPC/FFC Connector Flip Lock Type  
125°C Heat-resistant Type  
HF601 Series



FPC/FFC Connector Non-ZIF Type  
125°C Heat-resistant Type  
HF513 Series



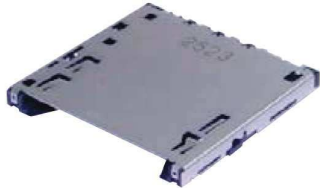
SD Card Connector for In-Vehicle  
One Action Lock Type  
FPS009-4200 Series



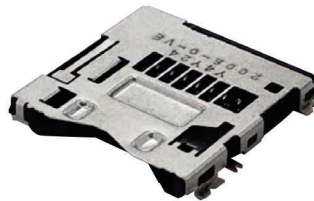
micro SD Card Connector for In-Vehicle  
One Action Lock Type  
PJS008-4100 Series



SIM Card Connector for In-Vehicle  
One Action Lock Type  
FMS006-2340 Series



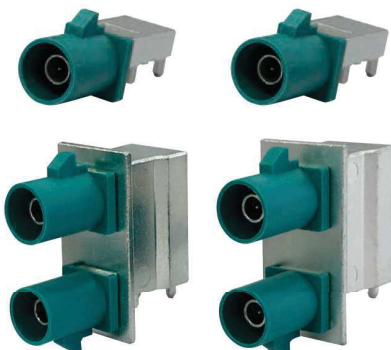
SD Card Connector for In-Vehicle  
Push-in/Push-out Type  
with Card Stay Detection Switch  
FPS009-2920 Series



microSD Card Connector for In-Vehicle  
Push-in/Push-out Type  
2-beam contact installation  
PJS008-2005



Automotive camera module connector  
Coaxial/Differential  
HC Series



FAKRA Coaxial Connector Series  
HF106 & HF110 Series



mini-FAKRA  
Y-MFC Series



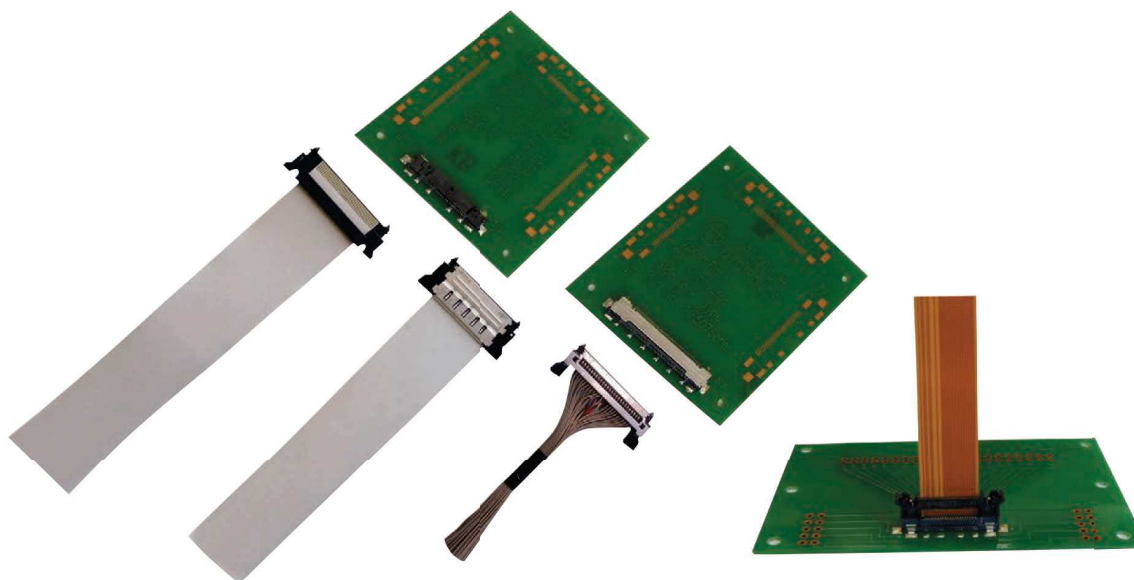
HSD Connector STD. Type  
HF109 Series



HDMI Type "E" Connector  
PKS/PKP Series



Y-IDE Series



## Connectors for High-Speed Transmission

### Plug (Side-Lock Type)



YFLEX®+HF507 Series



Discreet Adapter+HF507 Series



High-Speed FFC+HF507 Series

### Receptacle HF507 Series



HF507S-\*\*-01~04 Series



HF507-\*\*-06 Series



HF507S-\*\*-72 Series

### Receptacle (Flip-Lock Type) HF601 Series



HF601-22-03 Series



HF601-\*\*-12 Series

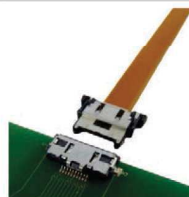


HF601-\*\*-02 Series

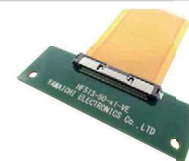
### FPC/FFC Connector with Lock Type



Center-Lock Type  
HF512 Series



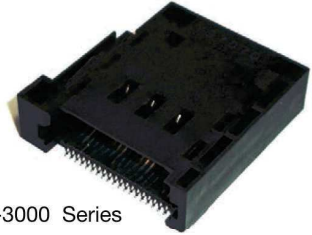
HF509 Series



FPC/FFC Connector Non-ZIF Type 125°C Heat-resistant Type  
HF513 Series

# Memory Card Connectors

## Combination Card Connectors FRS Series



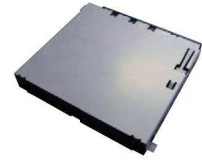
FRS019-3000 Series

3 in 1 (Memory Stick Duo, SD, MMC)



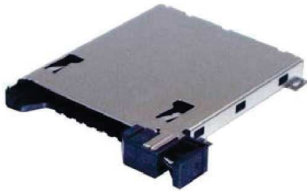
FRS020-3100 Series

2 in 1 (Memory Stick Duo, SD)

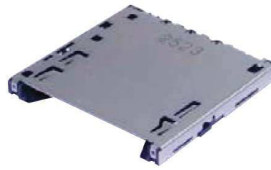


FRS018-20 Series

## SD Card Connectors FPS009 Series



FPS009-4200 Series



FPS009-2920 Series



FPS009-2913 Series

## SD Card Connectors FPS009 Series



FPS009-230\* Series

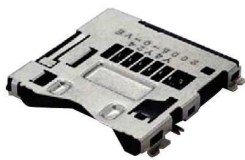


FPS009-2960 Series



FPS009-290\* Series

## micro SD Card Connectors PJS008 Series



PJS008-2004 & 2005

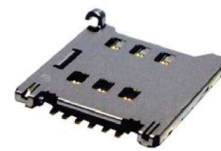


PJS008-21\*0 Series



PJS008-4100 Series

## Micro SIM Card Connectors FUS006 Series

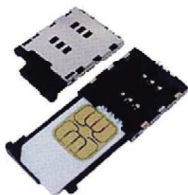


FUS006-8500 Series



FUS006-3210 Series

## SIM Card Connectors FMS Series



FMS006-3\*\*\* Series



FMS008-600\* Series



FMS006-234\* Series



FMS006-5\*\*\* Series

# Industrial & Communication System Connectors

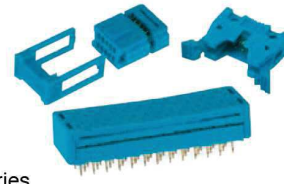
## Flat Cable Connector MIL Standard Connector



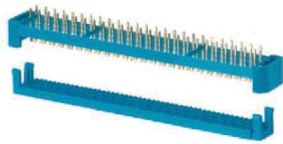
FA Series  
【2.54mm Pitch】



NF Series  
【1.27mm Pitch】



## Cable-to-Board Connector



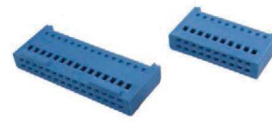
FG Series  
【2.54mm Pitch】

## IDC Connector for Cable

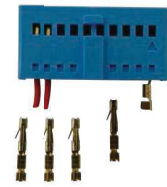


SF Series  
【2.54mm Pitch】

## Crimp Connector for Loose Wires



UF Series  
【2.54mm Pitch】



Contact 66

## Crimp Circular Connector

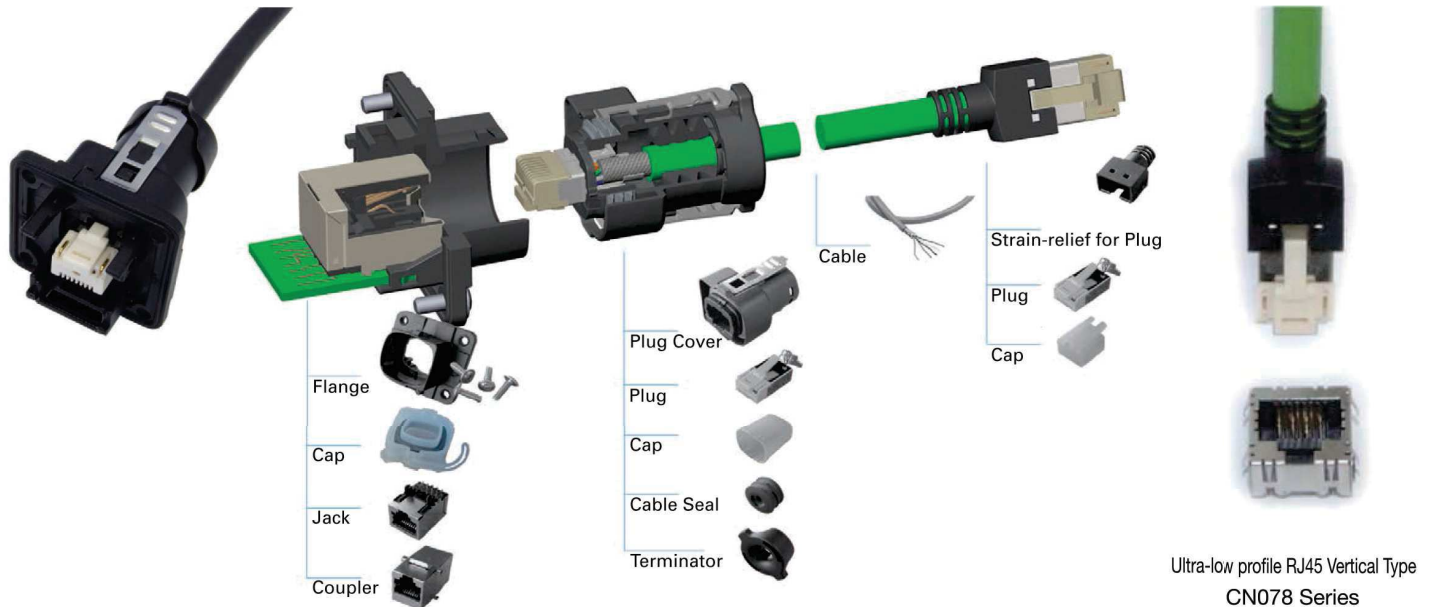


Y-CIRC Series  
Y-CIRC P



Y-CIRC Series  
Y-CIRC M

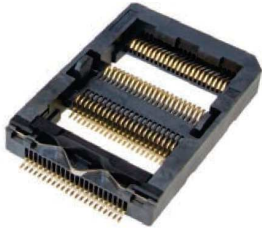
## Dust & Water-Proof Modular Connection System CN078 Series



Ultra-low profile RJ45 Vertical Type  
CN078 Series

# IC Production Sockets

## LGA



IC307 Series

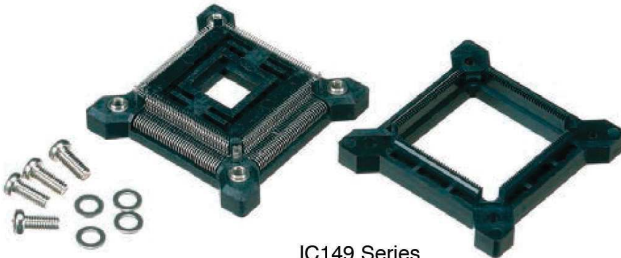


IC315 Series



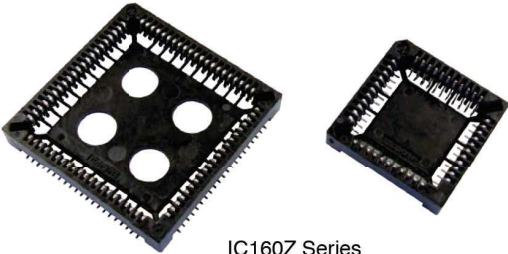
IC316 Series

## QFP



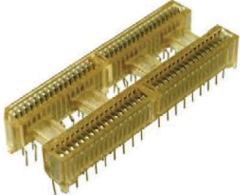
IC149 Series

## PLCC



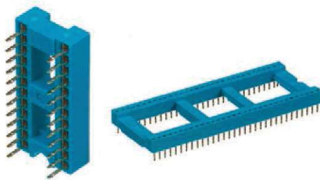
IC160Z Series

## SSDIP



IC326 Series

## SDIP

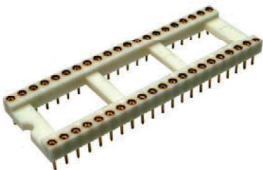


IC38 Series



IC310 Series

## DIP

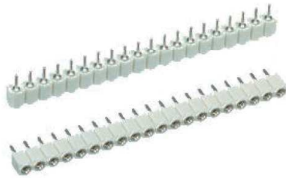


IC26V Series

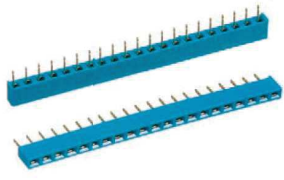


IC30 Series

## SIP



IC26V Series



IC30 Series

# Optical Products

## Tunable Laser Light Source Products

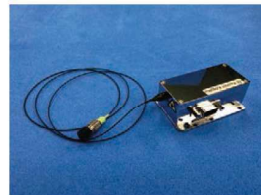
### KLS-201A Series

1 $\mu$ m帯/1200nm帯/O/S/C/L/Uのバンドに対応  
単色性に優れた狭スペクトラム線幅  
低RINの低ノイズ光源



### FLS & FLM

1180-1370nm/1400-1680nmから任意の波長を選択可能  
ドライバ内臓タイプ(FLS)とLDモジュール単体 (FLM) をラインナップ



FLM



FLS

## Optical Module Products

### 2port optical filter module



TFM / FC



WTFM / FC



FBPF

### 3port tunable filter module



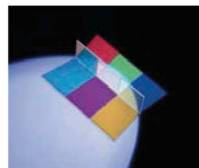
TMUX

## Optical Thin Film Filter Products

### For Visual Equipment Products



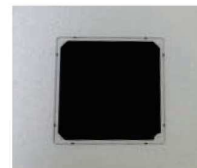
UV/IR Cut Filter



Dichroic Mirror



Cold Mirror

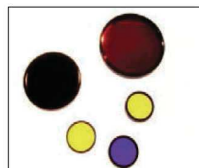


Low-reflection Film ND Filter

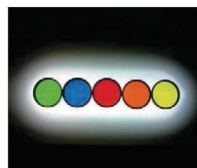
### For Analysis Products



Band-pass Filter



Excitation Filter



Fluorescence Filter

### For Industrial Products

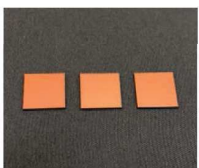


3 5 5 nm  
Laser Mirror Coating



High-power Laser Mirror

### For Optical Communication Products



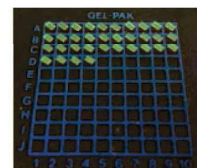
LIDAR, Spatial Sensing Filter



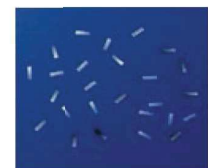
Anti-Reflection Coating



Band Pass Filter



Short Pass Filter



Polyimide Filter

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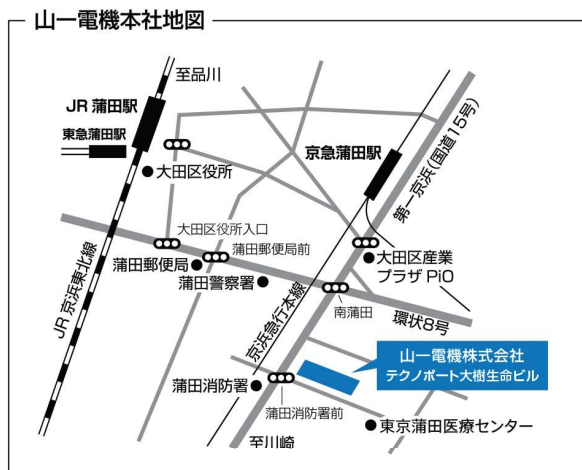
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