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**
- **IC542 Series**
- **Thermal Solution**

**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

<table>
<thead>
<tr>
<th>BGA (1.27mm Pitch)</th>
<th>LGA (0.65, 0.75, 1.00mm Pitch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP276 Series</td>
<td>NP364 Series</td>
</tr>
<tr>
<td>NP364 Series</td>
<td>NP364 Series</td>
</tr>
<tr>
<td>IC280 Series</td>
<td>IC280 Series</td>
</tr>
</tbody>
</table>

Sockets for Lead Frame Package

<table>
<thead>
<tr>
<th>QFP</th>
<th>QFN</th>
</tr>
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<tbody>
<tr>
<td>IC357 Series</td>
<td>IC51 Series</td>
</tr>
<tr>
<td>IC51 Series</td>
<td>NP506 Series</td>
</tr>
<tr>
<td>NP506 Series</td>
<td>IC609 / IC610 Series</td>
</tr>
</tbody>
</table>

SOP / TSOP

<table>
<thead>
<tr>
<th>SOP / TSOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC354 Series</td>
</tr>
<tr>
<td>IC369 Series</td>
</tr>
<tr>
<td>IC51 Series</td>
</tr>
</tbody>
</table>
Test Sockets

Probe Pin Test Sockets

Spring Probe Pin

IC Socket for high pin count package

Coaxial Socket

Precision manufacturing ability

High Frequency Test Sockets

Y - Contact

Slott Probe Pin

Clam Shell Type

Kelvin Socket

Sensor Socket

FPC Test Socket

Kelvin Socket

Magnetic Sensor Socket
Flexible Printed Circuit Board (YFLEX®) 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

Material

<table>
<thead>
<tr>
<th>Item</th>
<th>Base film</th>
<th>Liquid crystal polymer (Thickness:25µm, 50µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor</td>
<td>Copper (Thickness:9µm, 12µm, 18µm, 35µm)</td>
<td></td>
</tr>
<tr>
<td>Inter-layer connection</td>
<td>Ag conductive paste</td>
<td></td>
</tr>
<tr>
<td>Cover film</td>
<td>Thermostatic resin, Photo resists, Polyimide film</td>
<td></td>
</tr>
</tbody>
</table>

Test data

<table>
<thead>
<tr>
<th>Item</th>
<th>Condition</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance value per bump</td>
<td>Room temperature, normal humidity</td>
<td>Within 6mΩ</td>
</tr>
<tr>
<td>Temperature cycle test</td>
<td>+55°C ~ -125°C, 1,000 cycles</td>
<td>Resistance change: Within 10%</td>
</tr>
<tr>
<td>High temperature test</td>
<td>+85°C, 1,000h</td>
<td>Resistance change: Within 10%</td>
</tr>
<tr>
<td>Low temperature test</td>
<td>-40°C, 1,000h</td>
<td>Resistance change: Within 10%</td>
</tr>
<tr>
<td>High temperature constant</td>
<td>+85°C, 90%RH, 1,000h</td>
<td>Resistance change: Within 10%</td>
</tr>
<tr>
<td>Ion migration test</td>
<td>+40°C, 90%RH, 60VDC, 1,000h</td>
<td>No change</td>
</tr>
<tr>
<td>Peeling test</td>
<td>90° peels</td>
<td>0.8KN/m or above</td>
</tr>
<tr>
<td>Solder resistance test</td>
<td>+260°C, 20sec</td>
<td>No change</td>
</tr>
<tr>
<td>Moisture absorption</td>
<td>+23°C, 24h</td>
<td>0.04% or below</td>
</tr>
<tr>
<td>Thermal expansion coefficient</td>
<td>TMA method</td>
<td>Longitudinal: 17ppm, Lateral: 17ppm</td>
</tr>
<tr>
<td>Dielectric constant</td>
<td>Bridge method x2</td>
<td>2.8</td>
</tr>
<tr>
<td>Dissipation factor</td>
<td>Bridge method x2</td>
<td>0.0025</td>
</tr>
</tbody>
</table>

Design Specs(Double-layer)

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard (µm)</th>
<th>Minimum (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire width/space</td>
<td>60/60</td>
<td>25/35</td>
</tr>
<tr>
<td>Bump diameter</td>
<td>250</td>
<td>150</td>
</tr>
<tr>
<td>Land diameter</td>
<td>400</td>
<td>250</td>
</tr>
<tr>
<td>Maximum current per bump</td>
<td>100mA (bump:250µm)</td>
<td>50mA (bump:150µm)</td>
</tr>
</tbody>
</table>

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

CFP Series Connectors and Mechanical-units

CFP Multi-Source Agreement (MSA) Compliant

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

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

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

OSFP Host & Mechanical-Unit

OSFP-DD Connector & Mechanical-Unit

SFP28 Connector & Mechanical-Unit          DFSP Connector & Mechanical-Unit

CN176 series

CN174 Series

CN109S-020 Series    CN109S-022 Series

QSFP 28 & 56 Connector & Mechanical-Unit

CN120 Series

Mezzanine Connector

YGM-320 PAM4-56G          YTM Series PAM4-112G

CN201

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  
FMS06-2340 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

HDMI Type "E" Connector  
PKS/PKP Series

HSD Connector STD. Type  
HF109 Series

Y-HDE Series
**Connectors for High-Speed Transmission**

<table>
<thead>
<tr>
<th>Plug (Side-Lock Type)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YFLEX®+HF507 Series</td>
<td>Discreat Adapter+HF507 Series</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Receptacle HF507 Series</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>HF507S**-01~04 Series</td>
<td>HF507**-06 Series</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Receptacle (Flip-Lock Type) HF601 Series</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>HF601-22-03 Series</td>
<td>HF601**-12 Series</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPC/FFC Connector with Lock Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Center-Lock Type HF512 Series</td>
<td>HF509 Series</td>
</tr>
</tbody>
</table>
# Memory Card Connectors

## Combination Card Connectors  FRS Series
- **FRS019-3000 Series**
- **FRS020-3100 Series**
- **FRS018-20 Series**
  - 3 in 1 (Memory Stick Duo, SD, MMC)
  - 2 in 1 (Memory Stick Duo, SD)

## 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**
- **PJS008-210 Series**
- **PJS008-4100 Series**

## Micro SIM Card Connectors  FUS006 Series
- **FUS006-8500 Series**
- **FUS006-3210 Series**

## SIM Card Connectors  FMS Series
- **FMS006-3*** Series
- **FMS006-600* Series**
- **FMS006-234* Series**
- **FMS006-5*** Series
Industrial & Communication System Connectors

Flat Cable Connector
MIL Standard Connector

Cable-to-Board Connector
IDC Connector for Cable
Crimp Connector for Loose Wires

Crimp Circular Connector

Dust & Water-Proof Modular Connection System  CN078 Series

Ultra-low profile RJ45 Vertical Type
CN078 Series
Optical Products

Tunable Laser Light Source Products

KLS-201A Series
1μm带／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
ドライバ内蔵タイプ(FLS)とLDモジュール単体(FLM)をラインナップ

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
355 nm Laser Mirror Coating

For Industrial Products

For Optical Communication Products

LiDAR, Spatial Sensing Filter
Anti-Reflection Coating
Band Pass Filter
Short Pass Filter
Pdymide Filter
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