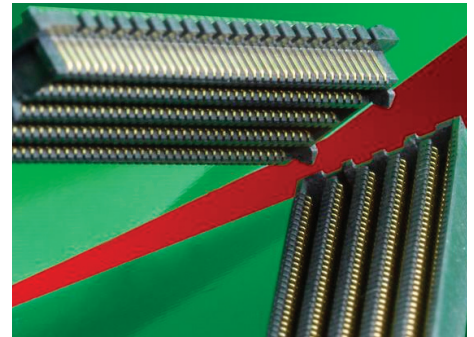


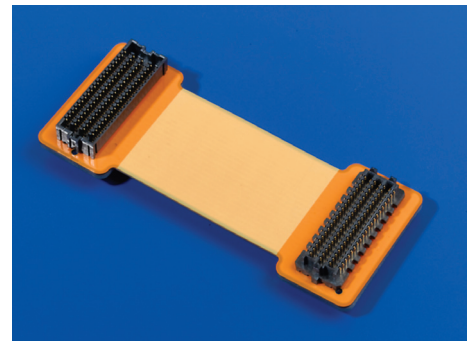


# 1.27 by 1.27mm (.050 by .050") Pitch SEARAY\* Connector and Jumpers

**45970 Plug**  
**45971 Receptacle**  
**110299 Jumper System**



SEARAY 400 pin count connectors with blind-mate features



SEARAY flexible jumper with SEARAY receptacle (left) and plug (right)

*High-performance flexible jumpers are the latest addition to Molex's SEARAY connector system which accommodates low-profile applications with stack heights of 7.00 to 15.00mm (.276 to .591") for the large, growing, high-density, high-performance mezzanine connector market*

The SEARAY board-to-board connector is designed for applications with high pin-count devices or memory modules that are mounted on mezzanine or module PCBs. The unique, Molex-patented, solder-charge technology results in better process yields and a lower-applied cost versus equivalent Ball Grid Array (BGA) connector products. Solder-charge technology is a patented Molex process, which provides optimized PCB adhesion and immense mechanical retention force.

The SEARAY flexible jumper system provides a high-performance, flexible jumper for board-to-board connector applications. It has been designed, developed and tested to support a mixed-digital and analog format. Assemblies use multiple layers of flex cable to add shielding between layers and ensure signal clarity for high-speed connectivity. Most assemblies incorporate the plug connector to aid in blind mating and to protect the pins on the motherboard through the receptacle shroud.

### Features and Benefits

#### Plugs and Receptacles

- Molex's unique and patented, solder-attach method is more cost effective and reliable than BGA attach methods
- Data rates of up to 10Gbps have excellent signal clarity and large bandwidth for customer requirements in high-speed designs
- Robust contact design prevents stubbing and damage in mating interface

#### Jumper Systems

- Off-the-shelf design provides a proven product for immediate use with little or no development cost for the end user
- High-performance design supports the most aggressive transmission needs up to 10 Gbps

The SEARAY connector and flex jumper provide numerous benefits. Both offerings can achieve data rates up to 10 Gbps and allow customers to simplify PCB routing without sacrificing performance. Customers will avoid the expense of large, complex, multi-layer boards and utilize space better within a given card-slot area. Option cards may be added or upgraded to increase flexibility in design, production and testing. The SEARAY connector design has superior electrical and mechanical features that are cost competitive.

Need to customize the pin out? Molex can provide customization quickly, with performance assurance guaranteed. The jumpers are available in lengths from 3 to 22" and in all stack heights and pin counts offered by the SEARAY connectors, resulting in a broad range of packaging options. For additional information, please visit: [www.molex.com/product/searay.html](http://www.molex.com/product/searay.html).

- Flexible tooling design with multiple stack heights and circuit sizes provides ease in tooling a new circuit size or stack-height version
- Popular footprint is compatible with other products in the market: 1.27 by 1.27mm (.050 by .050"); and allows ease in multiple sourcing with other common products
- High-density flex jumper and connector design provides packaging advantages, including high-pin counts, multiple stack heights and clean-signal routing
- Mass solder process provides high reliability that cables do not offer and the flexibility that rigid boards do not provide

## SPECIFICATIONS

### Reference Information

Product Specification: PS-45970-001  
Packaging: Tray  
Designed in: Inches

### Electrical

Voltage: 250V AC per contact  
Current: 1.0A per contact  
Contact Resistance: 25 milliohms nominal  
Dielectric Withstanding Voltage: 500V DC  
Insulation Resistance: 5000 Megohms min.  
Impedance: 100 ohm differential

### Mechanical

Mating Force: 50g max. per contact  
Un-mating Force: 30g max. per contact  
Normal Force: 82g max. per contact  
Durability: 100 cycles

### Physical

Housing: Glass-filled LCP, UL 94V-0  
Contact: Copper (Cu) Alloy  
Plating:  
Contact Area – 0.75µm Gold (Au) min.  
Solder Tail Area – 3.80µm Tin (Sn) min.  
Underplating – 1.25µm Nickel (Ni) min. overall  
Operating Temperature: -55 to +105°C

\*SEARAY is a trademark of Samtec, Inc.

## APPLICATIONS



# 1.27 by 1.27mm (.050 by .050") Pitch SEARAY\* Connector and Jumpers

**45970 Plug**

**45971 Receptacle**

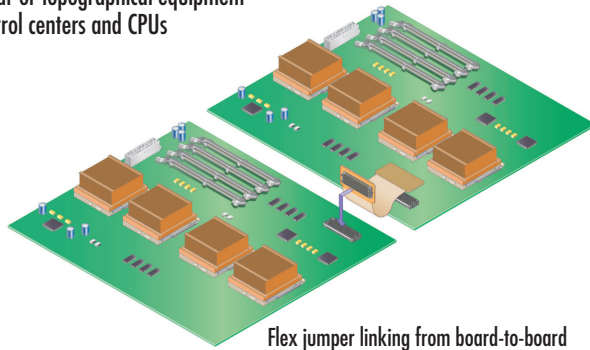
**110299 Jumper System**

- High and Mid-Range Computers
  - Servers

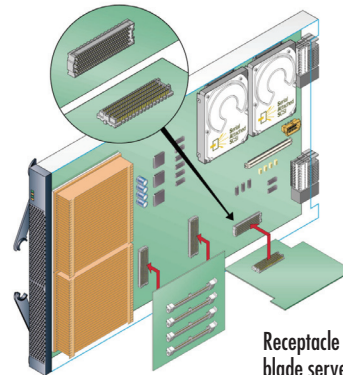
- Networking and Telecommunications
  - Network routers and switches
  - Mobile base stations

- Medical
  - Scanning equipment
  - Data acquisition and imaging equipment

- Military
  - Radar or topographical equipment
  - Control centers and CPUs



Flex jumper linking from board-to-board



Receptacle and plug illustrated in blade server application

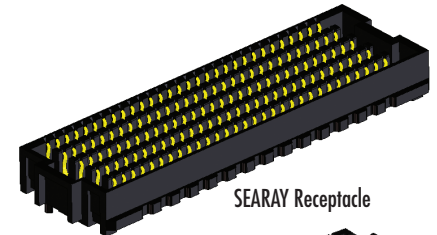
## ORDERING INFORMATION

### Plugs and Receptacles

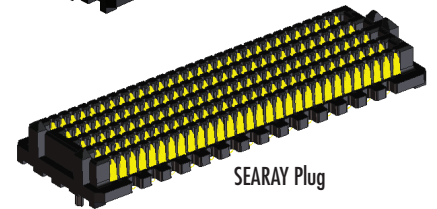
Plug Order No.	Circuits	Stack Height	Receptacle Order No.
45970-0161	114	7.00mm (.276")	45971-0161
45970-2311	200	10.00mm (.393")	45971-2311
45970-3181	240	7.00mm (.276")	45971-3181
45970-3213	300	8.00mm (.314")	45971-3113
45970-3111	300	7.00mm (.276")	45971-3113
45970-4311	400	11.00mm (.433)	45971-4411

#### Notes

- 1) Refer to the product sales drawing for mated stack-height options
- 2) Please contact inside sales for other circuit sizes and stack heights
- 3) Please contact inside sales for parts with Tin/Lead solder charges



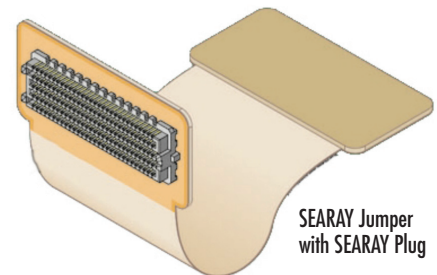
SEARAY Receptacle



SEARAY Plug

### Flex Jumper

Flex Order No.	Circuits	Length
110299-0001	400	76.2 to 558.8mm (3.00 to 22.00")



SEARAY Jumper with SEARAY Plug

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Visit our website at [www.molex.com/product/searay.html](http://www.molex.com/product/searay.html)

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