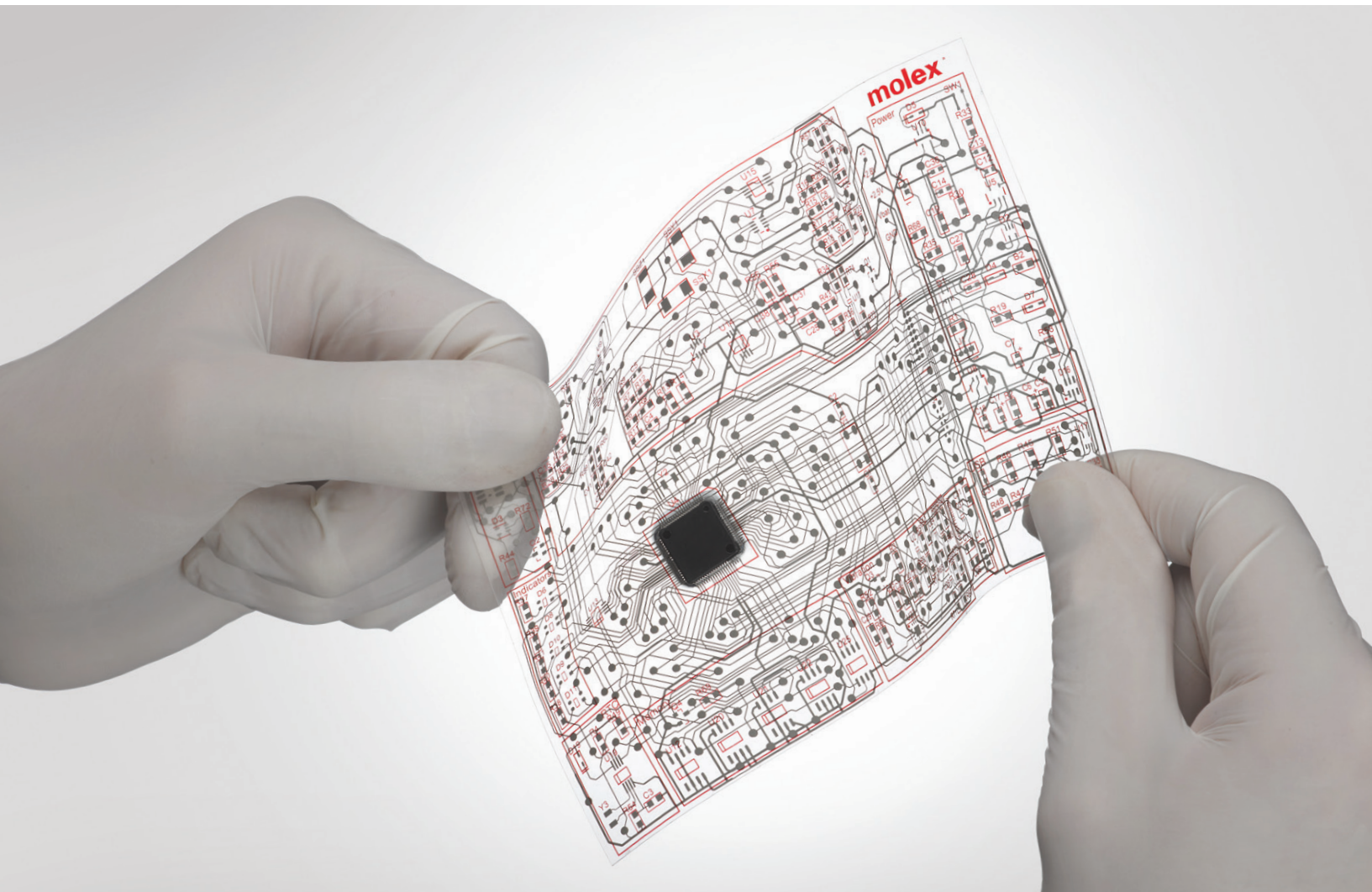


# MOLEX SILVER FLEXIBLE CIRCUIT SOLUTIONS >

*Flexible Solutions that Deliver*



**molex**<sup>®</sup>

# SILVER FLEXIBLE CIRCUITS FOR LOW-POWER APPLICATIONS >

Molex silver flexible circuits are ideal for low-power and low-signal applications where space is a premium. By choosing silver, you can design a product that bends or flexes while reducing costs — making silver particularly desirable.

## CONSUMER

Consumer and smart home appliances, wearables, VR/AR, handheld devices — where size, flexibility and cost matter. Flexible circuits can wrap around a wrist or a torso, powering many fitness wearables



## DATA LOGGING AND SMART TAGS

Sensor products, RFID, data logging and other Internet of Things applications to wirelessly monitor environmental conditions

## MEDICAL

Diagnostic and therapeutic medical devices that enable telehealth and remote monitoring — disposable, single use devices such as temperature, oxygen, and heart rate monitoring.



## AUTOMOTIVE

Sensors and controls for instrument panels and the center stack with smaller, lighter, less expensive silver flexible circuits — well suited throughout the dashboard user interface and smart surfaces

# MODERN ELECTRONICS > NEED SILVER FLEXIBLE CIRCUIT SOLUTIONS

## SILVER FLEXIBLE CIRCUIT SOLUTIONS

Lightweight

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Flexible

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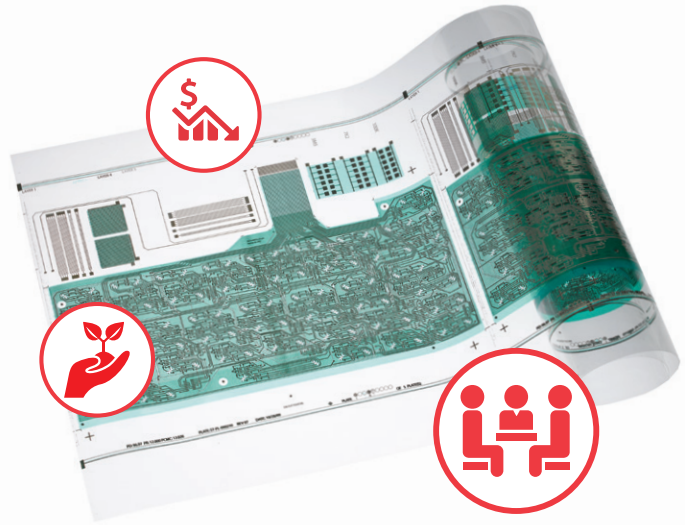
Thin

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Cost effective

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Environmentally friendly



Every year, consumers demand smaller, lighter, less expensive electronics — and you're pressured to find new ways to meet demand without compromising on quality or performance. Stronger environmental regulations mean you're simultaneously trying to reduce waste, protect natural resources and use more sustainable processes and materials.

A new alternative to traditional printed circuit boards helps you meet these challenges. Molex silver flexible circuits use finely spaced, narrow silver traces to attach complex components onto a proven polyester substrate — delivering a flexible option ideal for your low-power and signal applications.

Silver flexible circuits solutions are a cost-effective choice for many applications that demand flexible interconnect technology in smaller form factors.

## MOLEX DELIVERS:

Design engineering support

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Proven Molex reliability

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In-house value-add capabilities





# MOLEX IS EVOLVING PRINTED ELECTRONICS WITH SILVER >

## A HISTORY OF SILVER PRINTING

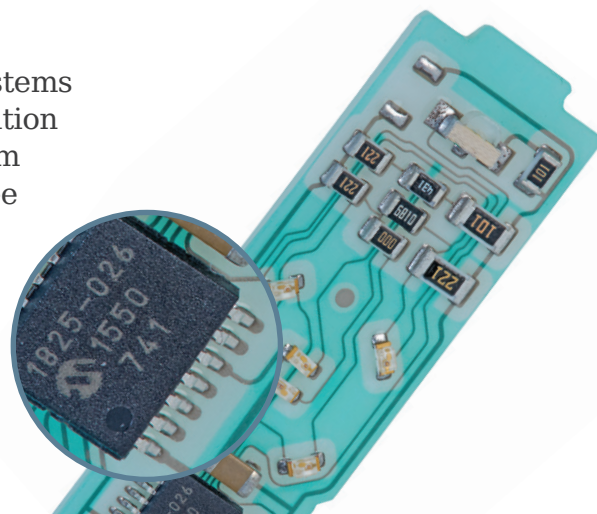
Molex has been printing silver circuitry for more than 30 years, and bonding components to polyester substrates for more than 20 years. Through this experience, we've become a trusted leader in silver printing, bonding over 1 billion LEDs to silver circuits on polyester.

**30 YEARS**  
of silver circuitry

**1 BILLION+**  
LEDs bonded to silver circuits on polyester

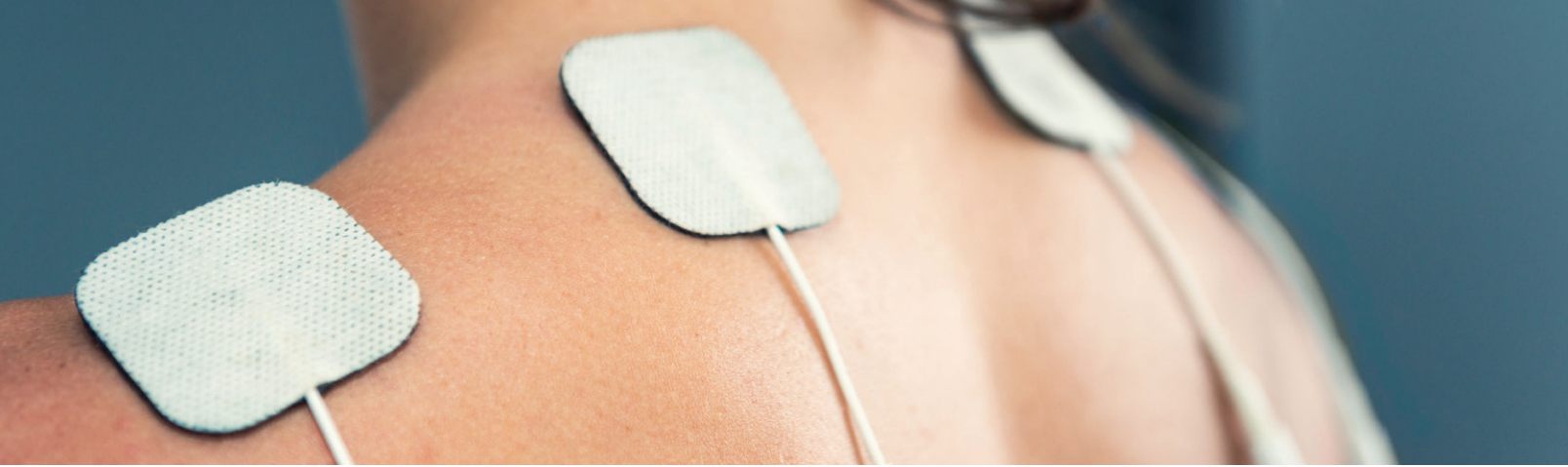
## A TRUSTED PARTNER

Molex can integrate flexible interconnects, sensor systems and flex circuit assemblies to develop a complete solution that leverages advanced materials and innovative form factors. Our engineers can help you maximize all three dimensions of your space with greater density and functionality. As a manufacturer of both flexible copper circuits and silver printed circuits, Molex will provide you with the right solution for your needs.



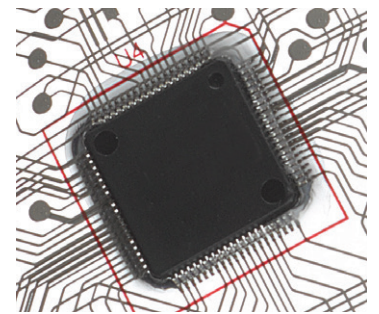
## DEMONSTRATED CAPABILITIES

PRINTING	<b>Printing methods</b>	Screen printing, sheet based or roll-to-roll
	<b>Inks</b>	Silver flake, silver/silver chloride, carbon, nano silver, PEDOT, silver nano-wire, dielectric, radio translucent or opaque ink, PTC and more
	<b>Substrates</b>	PET, PC, PI, LDPE, paper, fabrics, non-woven fabrics
	<b>Layers</b>	Single- and double-sided printing Up to 4 conductive layers
	<b>Trace and space</b>	0.005" x 0.005" (127 micron) production ready
	<b>FFC tails</b>	As small as 0.50mm pitch
ASSEMBLY	<b>Attach method</b>	Surface mount
	<b>SMD passives</b>	0402, 0603, 0805, 1206, 0201
	<b>Integrated circuits</b>	QFN, QFP, D-PAK (0.50mm pitch)
	<b>Value-add</b>	Mechanical assembly, hydrogel integration, adhesives, lamination, shielding, forming packaging, roll-to-roll



## PROPRIETARY TECHNIQUES TO SOLDER AND BOND COMPONENTS

Molex engineers developed and optimized a better method to solder components to a proven polyester substrate, allowing electronics to flex and bend to fit into tight spaces. We have streamlined our process to boost reliability, even in the most challenging conditions.



**1** Calculate and thoroughly optimize the necessary bend radius to minimize points of flex stress.

**2** Bond fine-pitch active devices (0.50mm), such as integrated circuits, to polyester using traditional SMT processes. Encapsulate components to protect solder joints from mechanical failure and vibration.

## NEW METHODS SHRINK TRACES — AND SPACES

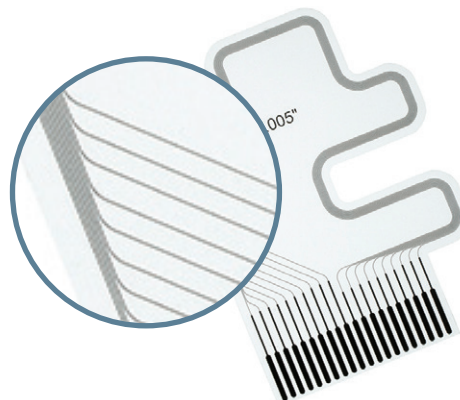
Molex silver ink technology and proprietary techniques enable **fine line production ready printing**, with traces as narrow as 0.127mm (0.005"). These thin traces allow better routability and more densely packaged circuitry.

Our printing capability also supports 0.50mm (0.020") FFC tails. Together, these capabilities provide an alternative to traditional copper circuitry in ways that were never possible before.

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Traces as narrow as  
**0.127mm**  
(0.005")

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## ***The Molex Approach***

At Molex, we take a multidimensional approach to develop complete, integrated solutions that turn your ideas into reality. With the industry's broadest line of printed electronics and the expertise to work through your mechanical rigors, we can advise you on the best fit for your needs, balancing cost, performance, durability, weight and other requirements.

Learn whether a Molex silver flexible circuit is right for your end application, and start designing your solution today at [www.molex.com/printedelectronics](http://www.molex.com/printedelectronics).

