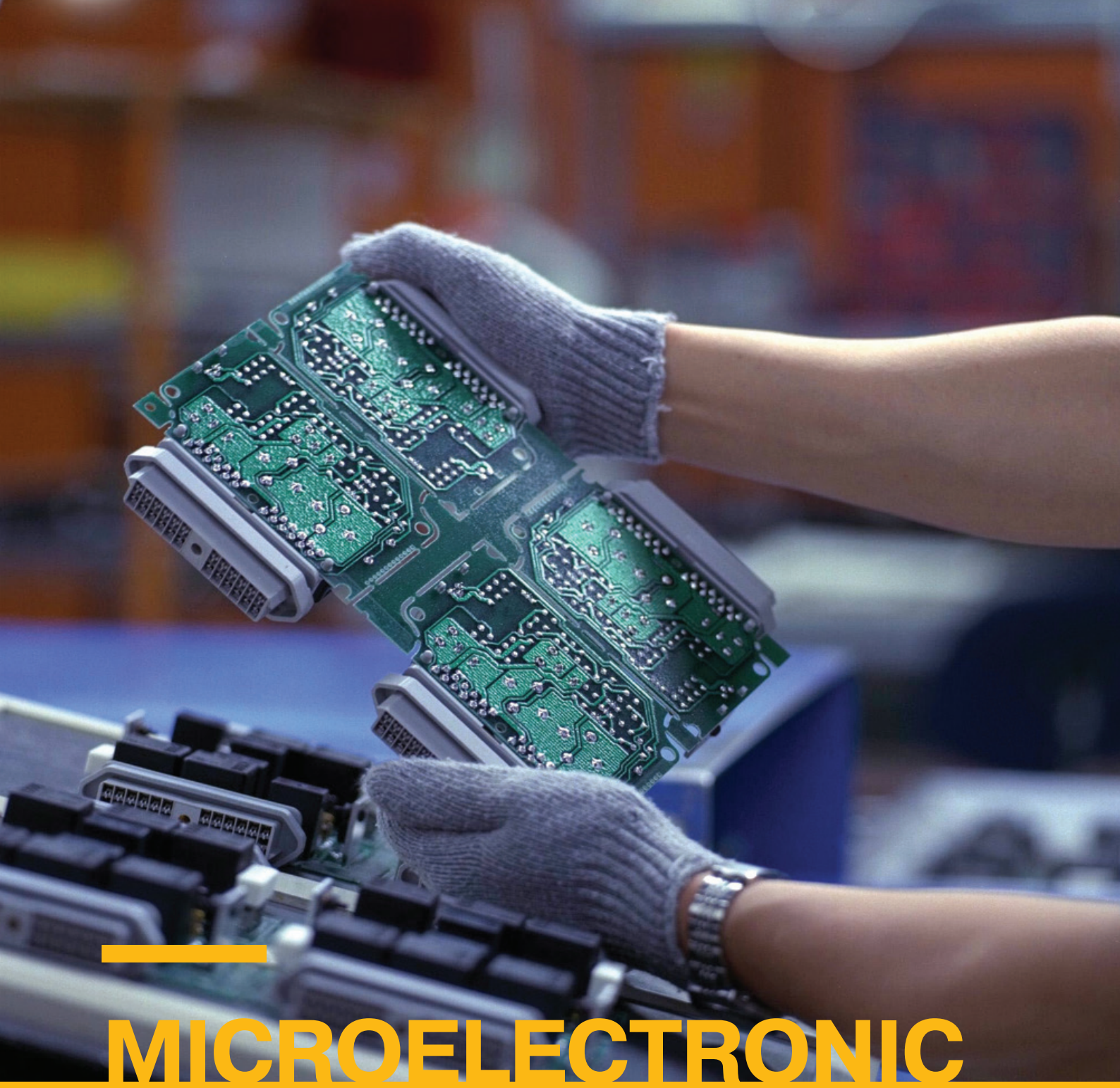
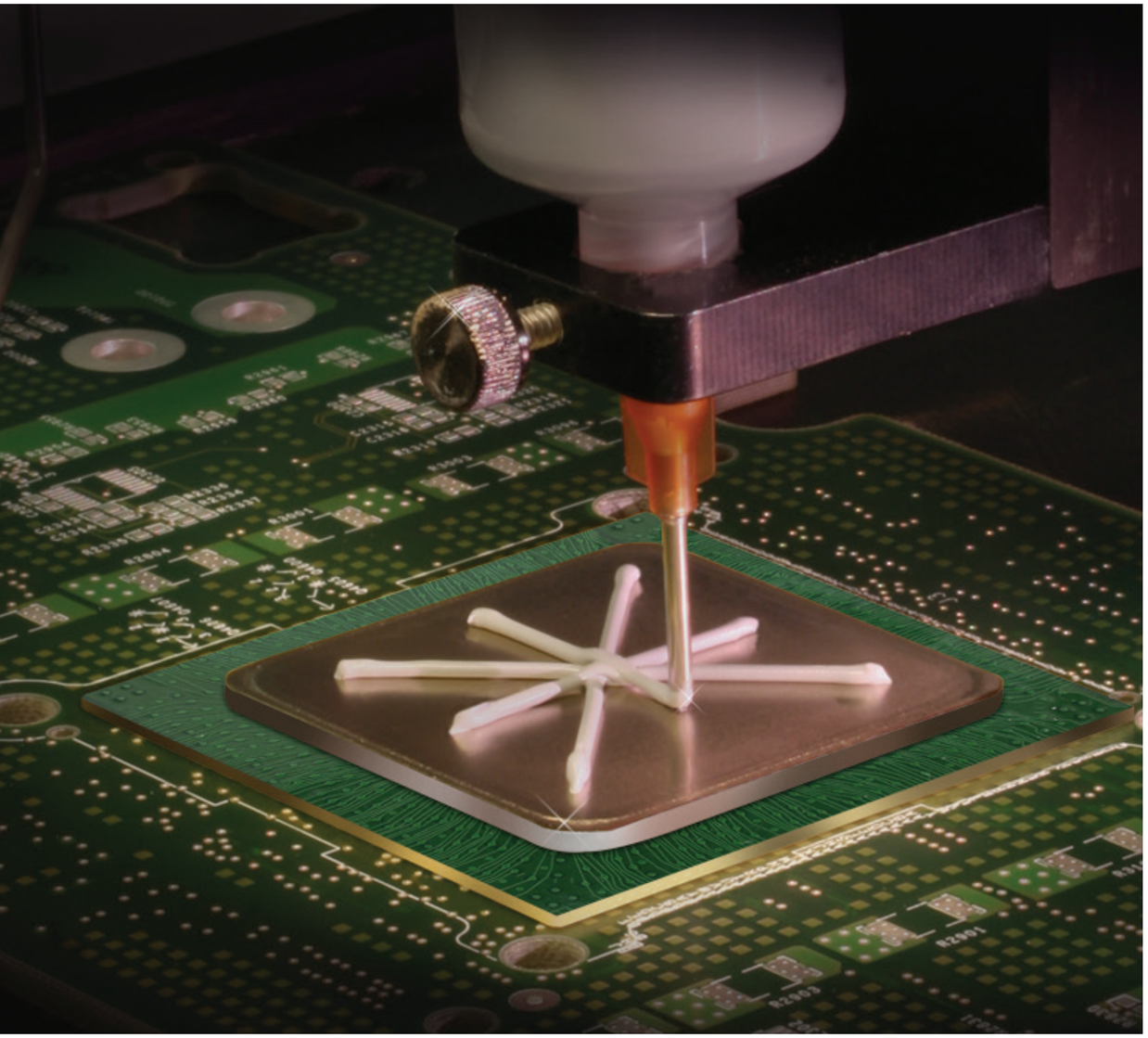


MICROELECTRONIC MATERIALS

Catalog

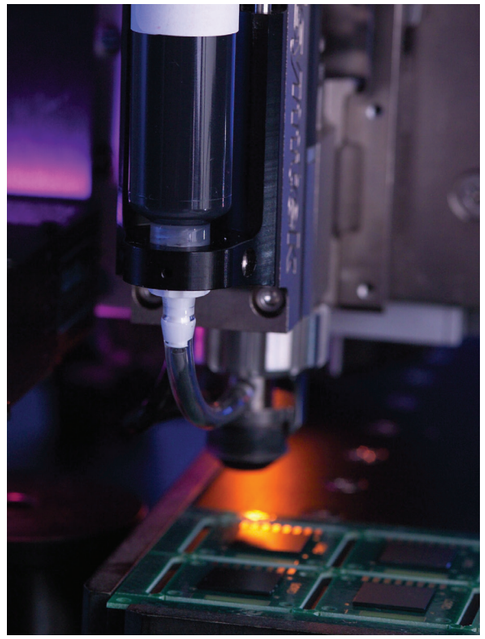
Parker Lord



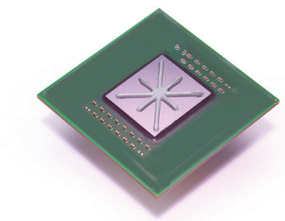
DESIGN WITHOUT COMPROMISE

At Parker, we provide world-class thick film, thermal management, semiconductor packaging, circuit assembly, potting and encapsulation materials for demanding applications. Our experience in electronic materials spans more than 50 years, and we incorporate this vast knowledge in supporting new applications to help ensure our customers' success.

If you need help choosing one of our standard microelectronic products, let us help you determine the appropriate solution for your application.



Parker partners with customers to leverage expertise in multiple chemistries and diverse applications to develop customized solutions.



Semiconductor Packaging

Semiconductor packaging materials range from adhesives to encapsulants. Our Surface Mount and Die Attach adhesives are designed to enhance the assembly process and improve reliability. Our Glob Top, Dam-and-fill and Underfill encapsulants provide environmental protection, reduce warpage, demonstrate excellent flow, offer good adhesion to multiple substrates and have the strength to handle over-molding and subsequent process steps.

Thermal Management

CoolTherm® thermal management materials are critical to the reliability of the semiconductor chip. Thermal management materials are used to effectively transfer heat from the semiconductor chip or package to the heat sink or heat spreader and are available in adhesives, gels or greases. These materials offer a variety of thermal performances, dependent on the end use application.

	Adhesives	Encapsulants	Underfills	Gels	Greases	Thermally Conductive	Electrically Conductive	Components 1K	Components 2K	Viscosity, cP @ 25°C
Circalok® 6027	x							x		450,000
CoolTherm® EP-6151	x					x		x		750,000
CoolTherm EP-6960	x					x	x	x		150,000
CoolTherm MT-125	x					x		x		100,000
CoolTherm MD-140 SP	x					x	x	x		34,000
CoolTherm MT-220C	x					x		x		50,000
CoolTherm MT-322	x					x		x		65,000
Thermoset® EP-937		x						x		47,900
Thermoset ME-430		x						x		317,500
Thermoset ME-455		x						x		19,000
Thermoset ME-456		x						x		1,200,000
Thermoset LS 213-9		x	x					x		2,800
CoolTherm ME-525			x			x		x		6,000
CoolTherm ME-531			x			x		x		4,000
CoolTherm ME-543			x			x		x		21,000

Cure Schedule	Thermal Conductivity, W/m·K	Volume Resistivity, ohm-cm @ 25°C	Glass Transition Temperature (Tg), °C	Description
30 min @ 121°C 10 min @ 150°C		>1 x 10^{14}	90	Thixotropic rapid cure epoxy adhesive that provides excellent thermal stability and chemical resistance. It is designed for use in the assembly of electronic components.
30 min @ 121°C 10 min @ 177°C	0.6		124	Aluminum-filled epoxy adhesive designed for use as a thermal interface material between heat sinks and in other applications requiring good adhesion and heat transfer properties.
90 min @ 125°C 30 min @ 150°C 5 min @ 210°C	1.1	< 0.0008	49	Silver-filled conductive adhesive that offers excellent electrical conductivity and room temperature stability. It provides excellent adhesion to various surfaces including silicon, ceramic, plastics and metal.
30 min @ 100°C 8 min @ 150°C	2.35	2 x 10^{13}	123	Rapid cure, one-component adhesive that provides long working life and high thermal conductivity.
5-10 min @ 120°C 3-5 min @ 150°C 1-3 min @ 180°C	12	0.0001	82	Silver-filled electrically conductive adhesive designed for use in thermally demanding die attach application where thin bondline is desired.
30 min @ 125°C 10 min @ 150°C	3.0		-90	Fast cure, one-component adhesive that provides superior adhesion strength and high thermal conductivity.
60 min @ 120°C 30 min @ 150°C	1.7	2 x 10^{15}		Thermally conductive silicone adhesive that forms a flexible elastomer. It exhibits low shrinkage and low stress on components as it cures.
6-12 min @ 150°C 12 min @ 135°C 18-28 min @ 120°C 60-80 min @ 100°C		1 x 10^{15}	125	Epoxy encapsulant designed for coating semiconductor devices on printed circuit boards.
30 min @ 150°C		1 x 10^{15}	135	High purity epoxy encapsulant designed for encapsulation of Chip-on-Board (COB) devices.
30 min @ 150°C		1 x 10^{15}	135	High purity epoxy encapsulant designed for encapsulation of wire-bonded or flip chip die cavity packages.
30 min @ 150°C		>1 x 10^{15}	135	High purity epoxy dam material for use where a dam is needed to restrict flow of a cavity fill encapsulant.
2 hr @ 120°C 5 hr @ 104°C 8 hr @ 93°C		2 x 10^{15}	80	Unfilled epoxy encapsulant designed for electrical laminations, encapsulation, or reworkable underfill applications.
30 min @ 150°C 15 min @ 165°C	0.5	1 x 10^{15}	120	High purity epoxy underfill developed for encapsulation of electronic components.
30 min @ 150°C 15 min @ 165°C	0.5	1 x 10^{15}	140	High purity epoxy underfill developed for encapsulation of electronic components. Specially designed for higher temperature applications.
7-20 min @ 160-165°C	1.2	>1 x 10^{15}	135	High purity epoxy underfill developed for encapsulation of electronic component. Specially designed to be used when anhydride-free and thermal conductivity are desired.

	Adhesives	Encapsulants	Underfills	Gels	Greases	Thermally Conductive	Electrically Conductive	Components 1K	Components 2K	Viscosity, cP @ 25°C
Thermoset ME-588			x					x		13,000
CoolTherm MG-121				x		x		x		60,500
CoolTherm MG-122				x		x		x		60,000
CoolTherm SC-6754					x	x		x		500,000
CoolTherm TC-404					x	x		x		212,400 (shear rate 5/sec)

Cure Schedule	Thermal Conductivity, W/m·K	Volume Resistivity, ohm-cm @ 25°C	Glass Transition Temperature (Tg), °C	Description
7-20 min @ 160-165°C		>1 x 10^{15}	139	High purity epoxy underfill developed for encapsulation of electronic component. Specially designed to be anhydride-free.
2 hr @ 100°C 60 min @ 125°C 30 min @ 150°C	2.3	8 x 10^{13}	-121	Thermally conductive silicone gel exhibits very low thermal resistance and good HAST resistance. It is designed to inhibit bleeding, separation and pump-out.
60 min @ 120°C 30 min @ 150°C	2.8	8 x 10^{13}	-121	Thermally conductive silicone gel exhibits very low thermal resistance and good HAST resistance. It is designed to inhibit bleeding, separation and pump-out.
	0.5	1 x 10^{14}		Thermally conductive silicone grease designed for applications where low thermal conductivity is sufficient. It is suitable for larger area applications.
	4.3			Non-reactive, solvent-free thermally conductive silicone grease designed for applications with demanding thermal concerns. It is reworkable.

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