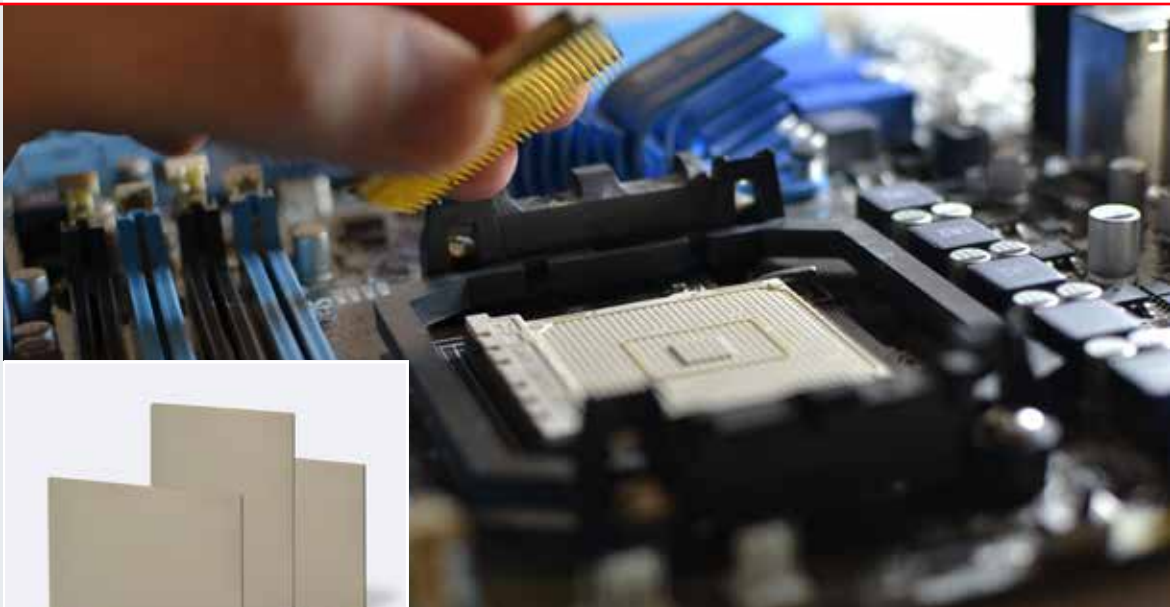


Semitron[®] MDS 100



Key benefits

- Very low moisture absorption
- Easily machined to precise dimensions
- Very strong and stiff without the addition of a fiber fill
- Low CLTE means parts stay in spec
- Available in thin cross-sections down to 1mm thick

Common applications

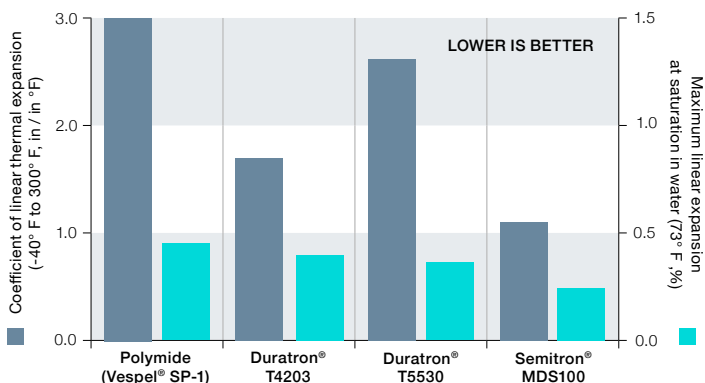
- Test sockets for semiconductor back end testing manufacturing
- Fixtures for electronics testing
- Mounting points for precision diagnostic equipment
- Positioning platforms for miniature motion control devices

Excellent machinability, stability and performance value

Competitive advantage

Semitron[®] MDS 100 was developed specifically to provide a highly rigid, stable, moisture-resistant platform for precision structural applications. Its unique, proprietary polymer matrix makes it ideal for use in parts where fine machining and precise tolerances are critical. With flexural modulus performance over 1,400,000 PSI, Semitron[®] MDS 100 sets a new performance level for machinable polymers. This technology allows the production of thinner shapes that reduce the amount of machining required for thin parts.

Dimensional stability



Semitron® MDS 100

Semitron® MDS 100 modified Polyetheretherketone PEEK shapes offer a remarkable combination of strength, stiffness, and stability. This grade in particular was developed for use in controlled application environments where a high level of precision is required. Due to this, Semitron® MDS 100 components are often used as test sockets, nests, and fixtures in test and package equipment throughout the semiconductor and electronics industry.

	ISO*			ASTM*			
	Test methods	Units	Indicative values	Test methods	Units	Indicative values	
Thermal Properties (1)	Melting temperature (DSC, 10°C (50°F) / min)	ISO 11357-1/-3	°C	340	ASTM D3418	°F	635
	Glass transition temperature (DMA, tan delta)	DMA	°C	-	DMA	°F	-
	Thermal conductivity at 23°C (73°F)	-	W/(K.m)	0.25	-	BTU in./hr.ft² .°F	1.73
	Coefficient of linear thermal expansion (-40 to 150 °C) (-40 to 300°F)	-	µm/(m.K)	20	ASTM E-831 (TMA)	µin./in./°F	11
	Coefficient of linear thermal expansion (23 to 100°C) (73°F to 210°F)	-	µm/(m.K)	20			
	Coefficient of linear thermal expansion (23 to 150°C) (73°F to 300°F)	-	µm/(m.K)	20			
	Coefficient of linear thermal expansion (>150°C) (> 300°F) -	-	µm/(m.K)	21			
	Heat Deflection Temperature: method A: 1.8 MPa (264 PSI)	ISO 75-1/-2	°C	-	ASTM D648	°F	410
	Continuous allowable service temperature in air (20.000 hrs)	-	°C	-	-	°F	-
	Min. service temperature	-	°C	-	-	°F	-
Mechanical Properties (6)	Tensile strength	ISO 527-1/-2	MPa	118	ASTM D638	PSI	14,700
	Tensile strain (elongation) at yield	ISO 527-1/-2	%	-	ASTM D638	%	-
	Tensile strain (elongation) at break	ISO 527-1/-2	%	2	ASTM D638	%	1.5
	Tensile modulus of elasticity	ISO 527-1/-2	MPa	11,000	ASTM D638	KSI	1,500
	Shear Strength	ASTM D732	MPa	83	ASTM D732	PSI	12,000
	Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604 (10)	MPa	73 / 125			
	Compressive strength				ASTM D695	PSI	24,400
	Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²	21.0			
	Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²	2.0			
	Izod Impact notched				ASTM D256	ft.lb./in	0.40
Electrical Properties	Electric strength	IEC 60243-1	kV/mm	-	ASTM D149	Volts/mil	-
	Volume resistivity	IEC 62631-3-1	Ohm.cm	-	IEC 60093	Ohm.cm	-
	Surface resistivity	ANSI/ESD STM 11.11	Ohm/sq.	10E12	ANSI/ESD STM 11.11	Ohm/sq.	10E12
	Dielectric constant at 1 MHz	IEC 62631-2-1	-	-	ASTM D150	-	3.37
	Dissipation factor at 1 MHz	IEC 62631-2-1	-	-	ASTM D150	-	0.0070
	Colour	-	-	Light-grey	-	-	Light-grey
	Density	ISO 1183-1	g/cm³	1.51			
	Specific Gravity				ASTM D792	-	1.51
	Water absorption after 24h immersion in water of 23°C (73°F)	ISO 62	%		ASTM D570	%	0.10
	Water absorption at saturation in water of 23 °C (73°F)	-	%		ASTM D570	%	0.58
Miscellaneous	Wear rate	ISO 7148-2	µm/km	-	QTM 55010	in³.min/ft.lbs.inx10 ⁻¹⁰	-
	Dynamic Coefficient of Friction (-)	ISO 7148-2	-	-	QTM 55007	-	-
	Limiting PV at 100 FPM				QTM 55007	ft.lbs/in².min	-
	Limiting PV at 0.1 / 1 m/s cylindrical sleeve bearings	-	Mpa.m/s	- / -			
	Chemical Resistance	https://www.mcam.com/en/support/chemical-resistance-information/			https://www.mcam.com/en/support/chemical-resistance-information/		
		Note: 1 g/cm³ = 1,000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 kV/mm = 1 MV/m			NYP: there is no yield point		

*This table, mainly to be used for comparison purposes, is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties of dry material. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design. This product data sheet and any data and specifications presented on our website shall provide promotional and general information about the Engineering Plastic Products (the "Products") manufactured and offered by Mitsubishi Chemical Advanced Materials and shall serve as a preliminary guide. All data and descriptions relating to the Products are of an indicative nature only. Neither this data sheet nor any data and specifications presented on our website shall create or be implied to create any legal or contractual obligation.

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