

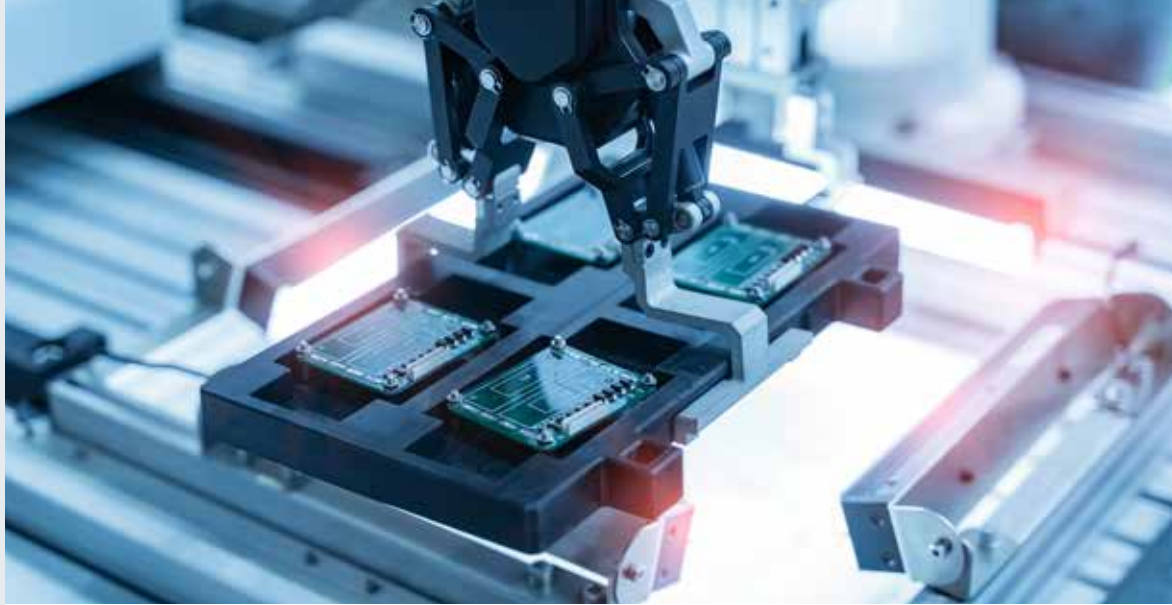
Semitron[®] ESd HPV PEEK

Key benefits

- Delivers a flexural modulus of 760,000 psi along with a melting point of 644°F
- Extremely low moisture absorption of 0.05% at 24 hours and 0.35% at saturation

Common applications

- Integrated chip trays & carriers
- PCB board manufacturing & handling
- Fixturing for electronic assemblies

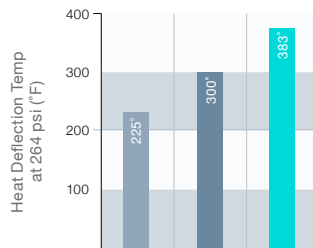


Static dissipative PEEK based value added polymer system

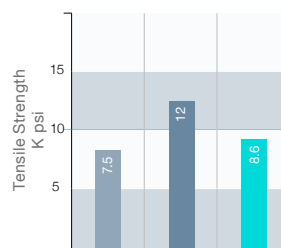
Competitive advantage

Semitron[®] ESd HPV is an extruded static dissipative PEEK based polymer system developed specifically for electronic fixture applications that require a high degree of dimensional stability over an extended thermal range as well as precise machinability.

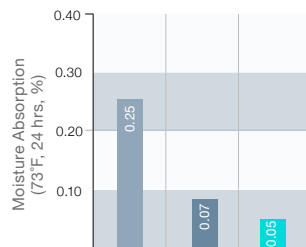
Thermal



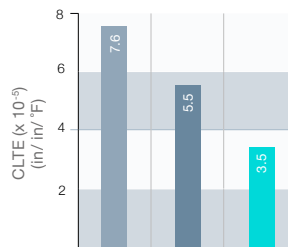
Strength



Moisture



Stability



Semitron® ESd HPV PEEK

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	644
	Glass transition temperature (DMA, tan delta)	DMA	°C	-	DMA	°F	-
	Thermal conductivity at 23°C (73°F)	-	W/(K.m)	0.58	-	BTU in./hr.ft².°F)	-
	Coefficient of linear thermal expansion (-40 to 150 °C) (-40 to 300°F)	-			ASTM E-831 (TMA)	µin./in./°F	35
	Coefficient of linear thermal expansion (23 to 100°C) (73°F to 210°F)	-	µm/(m.K)	37			
	Coefficient of linear thermal expansion (23 to 150°C) (73°F to 300°F)	-	µm/(m.K)	42			
	Coefficient of linear thermal expansion (>150°C) (> 300°F) -	-	µm/(m.K)	100			
	Heat Deflection Temperature: method A: 1.8 MPa (264 PSI)	ISO 75-1/-2	°C	195	ASTM D648	°F	383
	Continuous allowable service temperature in air (20.000 hrs) (3)	-	°C	250	-	°F	482
	Min. service temperature (4)	-	°C	-20	-	°F	-
Flammability: UL 94 (3 mm (1/8 in.)) (5)	-	-	V-0	-	-	V-0	
Flammability: Oxygen Index	ISO 4589-1/-2	%					
Mechanical Properties (6)	Tensile strength	ISO 527-1/-2 (7)	MPa	77	ASTM D638 (8)	PSI	8,600
	Tensile strain (elongation) at yield	ISO 527-1/-2 (7)	%	-	ASTM D638 (8)	%	-
	Tensile strain (elongation) at break	ISO 527-1/-2 (7)	%	2.4	ASTM D638 (8)	%	4
	Tensile modulus of elasticity	ISO 527-1/-2 (9)	MPa	6,140	ASTM D638 (8)	KSI	775
	Shear Strength	ASTM D732	MPa	-	ASTM D732	PSI	-
	Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604 (10)	MPa	42 / 76 / 125			
	Compressive strength				ASTM D695 (11)	PSI	17,500
	Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²	24.0			
	Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²	2.7			
	Izod Impact notched						
	Flexural strength	ISO 178 (12)	MPa	160	ASTM D256	ft.lb./in	1.00
	Flexural modulus of elasticity	ISO 178 (12)	MPa	8,500	ASTM D790 (13)	PSI	15,000
	Rockwell M hardness (14)	ISO 2039-2	-	93	ASTM D790	KSI	760
Rockwell R Hardness (14)	ISO 2039-2	-		ASTM D785	-	92	
				ASTM D2240	-	121	
Electrical Properties	Electric strength	IEC 60243-1 (15)	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.	10E5-10E8	ANSI/ESD STM 11.11	Ohm/sq.	10E5-10E8
	Dielectric constant at 1 MHz	IEC 62631-2-1	-	-	ASTM D150	-	-
	Dissipation factor at 1 MHz	IEC 62631-2-1	-	-	ASTM D150	-	-
Miscellaneous	Colour	-	-	Black	-	-	Black
	Density	ISO 1183-1	g/cm³	1.45			
	Specific Gravity				ASTM D792	-	1.46
	Water absorption after 24h immersion in water of 23°C (73°F)	ISO 62 (16)	%	0.05	ASTM D570 (17)	%	0.04
	Water absorption at saturation in water of 23 °C (73°F)	-	%	0.35	ASTM D570 (17)	%	0.18
	Wear rate	ISO 7148-2 (18)	µm/km	2.00	QTM 55010 (19)	in³.min/ft.lbs.inx10 ⁻¹⁰	-
	Dynamic Coefficient of Friction (-)	ISO 7148-2 (18)	-	0.15-0.25	QTM 55007 (20)	-	-
	Limiting PV at 100 FPM				QTM 55007 (21)	ft.lbs/in².min	-
	Limiting PV at 0.1 / 1 m/s cylindrical sleeve bearings	-	Mpa.m/s	0.66 / 0.42			
	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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