Technical Specification Sheets

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Chemical Designation
PEEK (Polyetheretherketone)

Colour
black

Density
1.67 g/cm^3

Fillers
mineral filler

Main features
- lithography capable
- PVD / CVD capable
- wirebonding possibile
- electroplating possible
- developed for the LPKF-LDS® process
- reflow soldering possible
- inherent flame retardant
- low moisture absorption

Target Industries
- MEMS technology
- sensor technology
- semiconductor technology
- electronics
- interposer technology
- cleanroom technology

General material information	parameter	value	unit	norm		comment
Width		10 - 630	mm	-	1)	(1) max. thickness depends on width (2) 100, 200, 500, 800, 1000 available
Surface Roughness		Ra 0,1	µm	-		
thickness		100 - 1000 +-25	µm	-	2)	

Mechanical properties	parameter	value	unit	norm	comment
Tensile strength		102	MPa	DIN EN ISO 527-1	
Modulus of elasticity (tensile test)		10700	MPa	DIN EN ISO 527-1	
Elongation at break (tensile test)		2,3	%	DIN EN ISO 527-1	
Impact strength (Charpy)		31	kJ/m^2	DIN EN ISO 179-1eU	

Thermal properties	parameter	value	unit	norm		comment
Glass transition temperature		143	°C	-	1)	(1) literature value (2) literature value (3) literature value (4) literature value
Melting temperature		343	°C	-	2)	
Service temperature	short term	300	°C	-	3)	
Service temperature	long term	260	°C	-	4)	
Thermal expansion (CLTE)	in plane (RT - 100 °C)	26	10^{-6} K^{-1}	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	perpendicular to the plane (RT - 100 °C)	18	10^{-6} K^{-1}	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	in plane (200 °C - 260 °C)	67	10^{-6} K^{-1}	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	perpendicular to the plane (200 °C - 260 °C)	46	10^{-6} K^{-1}	DIN EN ISO 11359-1;2		
Specific heat		0,97	J/(g*K)	DIN EN 821		
Thermal conductivity	in plane	1,7	W/(K*m)	ISO 22007-4:2008		
Thermal conductivity	perpendicular to the plane	0,5	W/(K*m)	ISO 22007-4:2008		

Electrical properties	parameter	value	unit	norm	comment
surface resistivity		5,8 * 10^{12}	Ω	DIN EN 61340-2-3	
volume resistivity		5,8 * 10^{11}	Ω*m	DIN EN 61340-2-3	
Dielectric strength	70 mm x 70 mm x 3 mm	17,5	kV/mm	ISO 60243-1	
Dielectric loss factor	test frequency of 1 GHz	0,004		-	
Dielectric constant	test frequency of 1 GHz	3,6		-	
Resistance to tracking (CTI)		225	V	DIN EN 60112	

Other properties	parameter	value	unit	norm		comment
Water absorption	23 °C / 50 % relative humidity up to saturation	< 0,1	%	DIN EN ISO 62		(1) No listing at UL (Yellow Card). (2) LDS layer; test method: pull-off-test
Flammability (UL94)	at 0,8 mm	V0		DIN IEC 60695-11-10;	1)	
Adhesive strength (metal path)		19,4	N/mm^2	-	2)	
Laser parameters	Power (LDS process)	2 - 8	W	-		
Laser parameters	Frequency (LDS process)	120 - 180	kHz	-		
Laser parameters	Forward movement (LDS process)	1,8 - 2,4	m/s	-		