

Chemical Designation

PEEK (Polyetheretherketone)

Colour

grey

Density

1.65 g/cm³

Fillers

mineral filler

Main features

- lithography capable
- PVD / CVD capable
- wirebonding possible
- 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
Surface Roughness		Ra 0,1	µm	-	(2) 100, 200, 500, 800, 1000 available
thickness		100 - 1000	µm	-	2)

Mechanical properties	parameter	value	unit	norm	comment
Tensile strength		103	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)		30	kJ/m ²	DIN EN ISO 179-1eU	

Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		143	°C	-	1) (1) literature value
Melting temperature		343	°C	-	2) (2) literature value
Service temperature	short term	300	°C	-	3) (3) literature value
Service temperature	long term	260	°C	-	4) (4) literature value
Thermal expansion (CLTE)	in plane (RT - 100 °C)	31	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)	87	10 ⁻⁶ K ⁻¹	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	perpendicular to the plane (200 °C - 260 °C)	47	10 ⁻⁶ K ⁻¹	DIN EN ISO 11359-1;2	
Specific heat		0,8	J/(g*K)	DIN EN 821	
Thermal conductivity	in plane	1,2	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		1* 10 ¹⁴	Ω	DIN EN 61340-2-3	
volume resistivity		9 * 10 ¹⁴	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	0,002		-	
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	< 0,04	%	DIN EN ISO 62	(1) No listing at UL (Yellow Card).
Flammability (UL94)	at 0,8 mm	V0		DIN IEC 60695-11-10;	(2) LDS layer; test method: pull-off-test
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	-	

