

Material: Polyimide

Property	Value	Reference	Image/URL (optional)
Mass density	1.42 g/cc	"Dupont Kapton Polyimide Film General Specifications, Bulletin GS-96-7". http://www.dupont.com/kapton/general/H-38479-4.pdf	
Young's modulus	2.5 GPa	"Dupont Kapton Polyimide Film General Specifications, Bulletin GS-96-7". http://www.dupont.com/kapton/general/H-38479-4.pdf	
Poisson ratio	0.34 @ 23°C	"Dupont Kapton Polyimide Film General Specifications, Bulletin GS-96-7". http://www.dupont.com/kapton/general/H-38479-4.pdf	
Stiffness Constants (if crystalline)			
Tensile strength	231 MPa @ 23°C 139 MPa @ 200°C	"Dupont Kapton Polyimide Film General Specifications, Bulletin GS-96-7". http://www.dupont.com/kapton/general/H-38479-4.pdf	
Residual stress on silicon	35MPa @ 5 μ m , on 8" wafer, 375°C cure	"Photodefinable HD-4000 Series Polyimide Product Bulletin." http://www.hdmicrosystems.com	
Specific heat	1.09 J/(g*K) 0.261 cal/(g*°C)	"Dupont Kapton Polyimide Film General Specifications, Bulletin GS-96-7". http://www.dupont.com/kapton/general/H-38479-4.pdf	
Thermal conductivity	0.12 W/(mK) 2.87e-4 cal/(cm*sec*°C)	"Dupont Kapton Polyimide Film General Specifications, Bulletin GS-96-7". http://www.dupont.com/kapton/general/H-38479-4.pdf	
Dielectric constant	3.4 @ 25 μ m, 1kHz	"Dupont Kapton Polyimide Film General Specifications, Bulletin GS-96-7". http://www.dupont.com/kapton/general/H-38479-4.pdf	
Index of refraction	1.70	"Dupont Kapton Polyimide Film General Specifications, Bulletin GS-96-7". http://www.dupont.com/kapton/general/H-38479-4.pdf	
Electrical conductivity	1.5e17 Ω cm	"Dupont Kapton Polyimide Film General Specifications, Bulletin GS-96-7". http://www.dupont.com/kapton/general/H-38479-4.pdf	
Magnetic permeability			
Piezoresistivity (if a conductor)			
Piezoelectricity coefficient	3.8e-12c/N (in abstract) 3.8e-3c/N in table in body of paper	Tong, Yuejin, et. al. "Preparation and properties of polyimide films codoped with barium and titanium oxides." Journal of Applied Polymer Science, v 83, n 8, 22 Feb. 2002, p 1810-16.	

Wet etching method	TMAH developer can be used to develop exposed photoresist and etch unmasked underlying polyimide in one step.	“Product Bulletin PI-2545 Wet Etch Polyimide.” http://www.hdmicrosystems.com	
Plasma etching method	Use PECVD silicon nitride mask and use O ₂ plasma etch, possibly with CF ₄	Lee, Y.K. et al. “Reactive Ion Etch of the Fluorinated Polyimide Film.” Advanced Metallization for Future ULSI. Symposium, 1996, p 455-61. Abstract.	
Adhesion to silicon dioxide	Varies; “A separate adhesion promoter is recommended with PI-2525, PI-2555, PI-2556 to promote adhesion to oxides and metals. PI-2575 is self priming and does not require an adhesion promoter.”	“Product Information Pyralin PI2525, PI2555, PI-2575 & PI2556.” http://www.hdmicrosystems.com	
Biocompatibility	Used in Bio-MEMS an implantable intracortical electrode array. “Polyimide also provides an ideal surface for the selective attachment of various important bioactive species onto the device in order to encourage favorable long-term reactions at the tissue-electrode interface.” “Overall polyimide is a proven biocompatible material and an excellent choice for neuroprosthetic applications.”	Rousche, P.J.; Pellinen, D.S.; Pivin, D.P., Jr.; Williams, J.C.; Vetter, R.J.; kirke, D.R.. “Flexible polyimide-based intracortical electrode arrays with bioactive capability.” Biomedical Engineering, IEEE Transactions on , Volume: 48 , Issue: 3 , March 2001 Pages:361 - 371	Can be found using IEEE Xplore
Hydrophobicity	82 degrees	Ghosh, I. et al. “Surfaces Properties of Chemically Modified Polyimide Films.”	

		Journal of Adhesion Science and Technology. Vol 11. no.6. 1997. Abstract.	
Melting point	Does not melt, Decomposes at 520°C	“Dupont Kapton Polyimide Film General Specifications, Bulletin GS-96-7”. http://www.dupont.com/kapton/general/H-38479-4.pdf	

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