MITSUBISHI PLASTICS, INC.

High heat resistant PEEK base insulation film

IBUKI ®

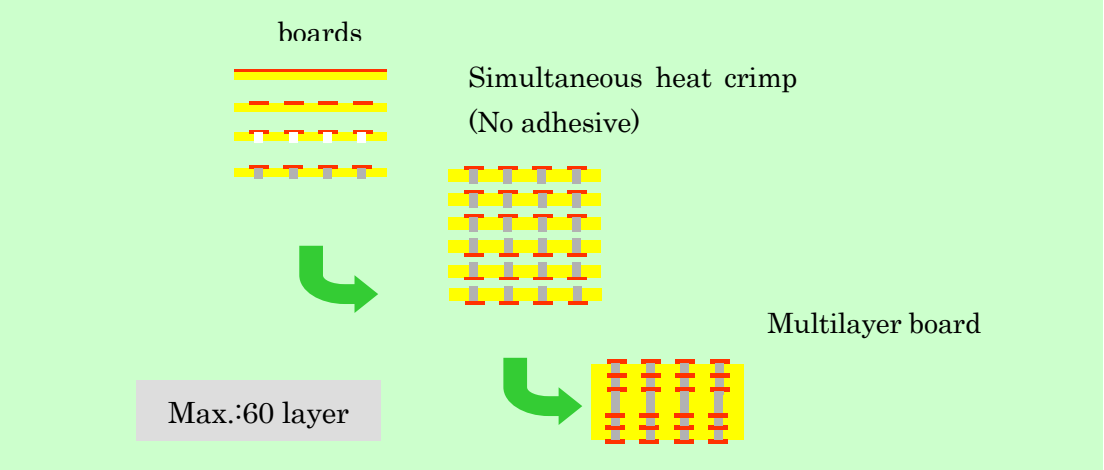
■Characteristics

1. Excellent suitability for multilayer board
   －Simultaneous lamination without adhesive is possible.
2. Excellent high frequency characteristics
   －Low permittivity
   －Low dielectric constant
3. Good dimensional stability
   －Good linear thermal expansion coefficient in thickness direction.
   －Has rigidity after lamination
   －Good chemical resistance
3. Processability
   －High density without inclusion of glass fiber cloth
   －Plating with the system for general purpose system is possible.
   －Can be bonded to metal without adhesive
4. Eco-friendliness
   －Heat resistance for lead-free soldering process
   －Flammability UL-94V-0 (Without Halogen)
   －No out-gassing

■Applications

1. High density and high multilayer printed circuit board
2. High speed multi-pin count LSI package
3. SIP (Single Chip Package) circuit board
4. Metal based circuit board

■Example of operation



■Specifications

	Film	Film with copper foil
Thickness	50 ㎛,75 ㎛, 100 ㎛	12 ㎛,18 ㎛,35 ㎛
Width	< 520mm	

■Physical properties

	Items		Unit	Method	Value
Thermal properties	Glass transition temperature		℃	DSC	180
	Coefficient of linear expansion (X)		ppm	TMA	15
	(Y)		P pm		15
	(Z)		ppm		60
	Thermal conductivity		W／mK	ASTM E 1530	0.21
	Flame resistance			UL Standard	VTM-0 equivalent
Electrical properties	Dielectric constant	1GHz		Resonator Method	3.35
		10GHz			3.21
		20GHz			3.33
	Dielectric Loss tangent	1GHz			0.0017
		10GHz			0.0043
		20GHz			0.0059
	Withstand voltage		kv／mm	ASTM D149	127.5
	Dielectric breakdown strength		kv／mm	JIS C 2151	95
	Surface resistivity		Ω	ASTM D257	3.2×10E15
	Volume resistance		Ω-cm		1.1×10E16
Mechanical properties	Tensile strength		Mpa	ASTM D882	110
	Tensile modulus		Gpa		9
	Elongation break		%		5
Others	Moisture absorption		%	Equilibrium at 50℃60%RH	0.15
	Outgassing			200℃30minutes	None

The values mentioned above are typical ones, not guaranteed ones.

■Important Safeguards

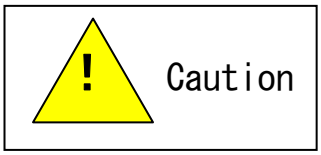
Directions for safe use are prepared for the purpose of maintaining the safety of customers, your clients and property. For the products carry warning and caution, please read the following details.

If this product is mishandled in defiance of this sign, you may have a risk of death or serious injury.

・Absolutely do not implant, insert in the body.

・Never use for any applications for which the material will be left in the body.

・In case of using for medical devices, foodstuff, other special purpose applications, please test and make certain that you can do so safely.



If this product is mishandled in defiance of this sign, you may have a risk of serious injury and property damage.

・During the forming and carrying, wear proper protective gears to prevent possible injury to hands and fingers.

・Decomposed and low molecular weight substances and residual solvent will form toxic gases on heat during the heat forming process. Therefore please provide local ventilation facility to exhaust them.

・Prior to disposal, conform to the law about waste-disposal and cleaning work. If you dispose of the material, entrust recognized industrial waste-disposal service or city's Sanitation Bureau.

・The burning of waste needs a refuse incinerator and conform to the law about an anti-pollution.