

【Development】 New HR RESIN (Bismaleimide type resin)

- New HR RESIN is a PRINTEC'S bismaleimide-type resin with features of high heat resistance, high thermal decomposition temperature and low dielectric properties.
- This resin is easy to use because it dissolves in MEK and toluene, etc.

HR resin	Measurement condition	HR3072	HR7000
Product		Mass-produced	Development product
Process	Press conditions	230°C × 90min Pressure 30kgf	230°C × 90min Pressure 30kgf
Tg (°C)	DSC		250
	TMA	280	250
TD (°C)	TG-DTA 1% / 5% Weight loss temperature	330/430	360/430
Solder heat resistance	320°C/30sec	PASS	PASS
Flexural strength (MPa)	JIS K6911 1.2mm	615	During measurement
Flexural modulus (GPa)		30	During measurement
CTE (ppm/°C) X : Y	TMA (X:Y) 30~Tg	9.0	12.0
Dk / Df (1GHz) Dk / Df (10GHz)	Cavity resonance method	4.2/0.006 4.3/0.008	3.2/0.0025 3.2/0.0031
Peel Strength (KN/m)	18μm Copper foil	0.9	1.2
Water absorption rate (%)	85°C/85%RH/168Hr	0.5	0.3
Solder heat resistance after water absorption	85°C/85%RH/168Hr → 288°C × 30sec	PASS	PASS

The above values are reference values and are not guaranteed

Performance comparison of HR7000

	Measurement condition	Other company's product	HR3072	HR7000
Glass cloth		D-Glass	E-Glass	E-Glass
Filler		Containing	Containing	Containing
Tg	TMA(X:Y)	240°C	280°C	250°C
CTE	TMA(X:Y)	10ppm	8ppm	11ppm
Flame retardance	UL-94	V-0	V-0相当	V-0相当
Dk	1GHz/10GHz	3.5/3.4	4.2/4.2	3.08/3.16
Df	1GHz/10GHz	0.003/0.004	0.006/0.008	0.0025/0.003
Td(5%)	TG-DTA	—	430°C	430°C
Peel strength	90°	0.7KN/m	0.8KN/m	1.2KN/m
Water absorption rat	85°C/85RH%/168hr	0.35%	0.6%	0.3%

Solvent solubility of HR7000

Solvent type	result
MEK	○
PGM	○
PGM-Ac	○
DMAc	○
NMP	○
γ - Butyrolactone	○
Ethyl acetate	○
acetone	○
methanol	×
ethanol	×

Solvent type	result
toluene	○
Xylene	×
THF	○
Cyclohexanone	○
IPA	×
DMF	○
Methoxybenzene (anisole)	○
2-(2-Butoxyethoxy)ethanol (Diethylene glycol monomethyl ether)	○
2-(2-Ethoxyethoxy)ethyl Acetate (Ethyl Carbitol Acetate · Carbitol Acetate)	○