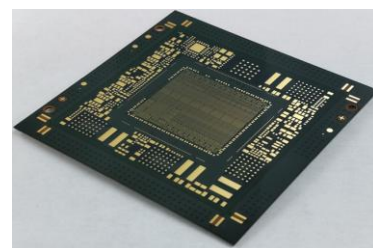


Warpage Suppression Package Substrate BN-LC/LC2



Application

- IC-PKG、CSP、FC-BGA

Feature

✓ High Heat Resistance

The IPN structure keeps the main chain of the high-Tg (300 °C) components rigid, which gives the material excellent heat resistance.

✓ Compact and Thinner

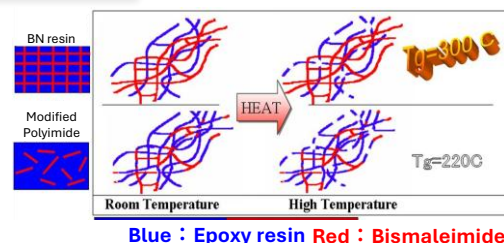
The combination of lamination technology and microfabrication technology allows for high adhesion, miniaturization, and thin film production.

✓ Superior Quality and Reliability

Use of materials with excellent heat resistance, electrical properties, and physical properties to ensure high quality and long-term reliability.

■ IPN Structure

The resin used in the BN base material has an IPN structure made from epoxy resin and bismaleimide. The molecular network is maintained even at high temperatures (above 220°C), achieving dimensional stability and high rigidity.



BN-LC Physical Properties

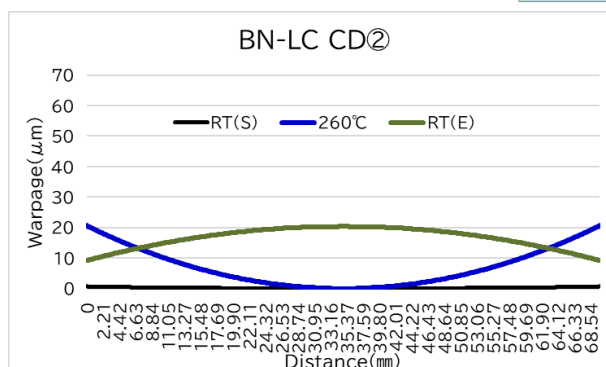
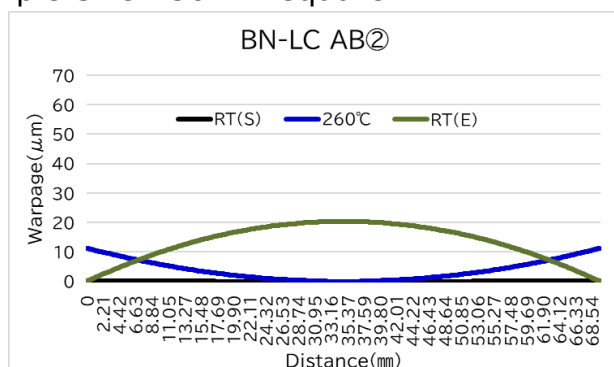
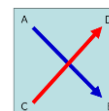
■ Warpage Measurement (Shadow Moire)

Measurement Conditions : RT(S)→260°C→RT(E)

Thickness : 1.2mm

Sample Size : 50mm square

【Warpage Measurement (Scan)】



BN-LC Reliability Test

Specification

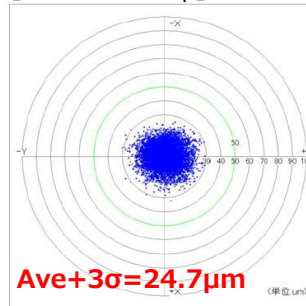
- Thickness : 1.2mm
- L2-3 via : $\phi 0.15\text{mm}$ Copper Thickness : min10 μm

■ Hole Position Accuracy

Measuring Equipment : Hall Analyzer
Fabrication Machine : Via Mechanics
single-axis drilling machine

Layer : 1
Number of holes : 1,000hits
n number : n5

【Distribution map】



【Through-hole finish】

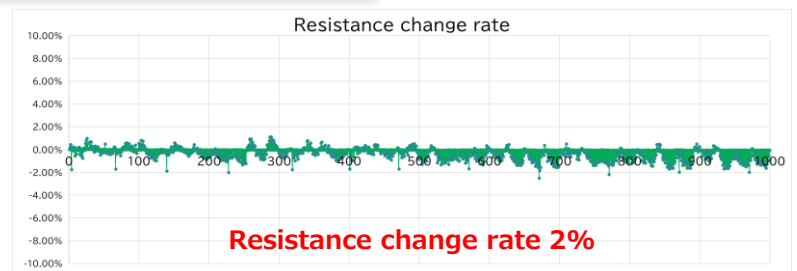
Hole pitch 250 μm



■ Temperature Cycling Test (TCT)

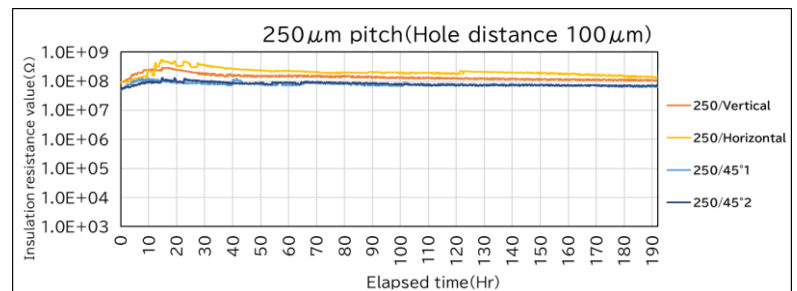
Pretreatment : IPC-TM-650 2.67.2 Test Condition E
Test conditions : -65°C (15min) $\leftrightarrow$ 150°C
(15min) -1000cy

Judging criteria : Resistance change rate is
within 10% of the initial value



■ Highly Accelerated Stress Test (HAST)

Pretreatment : JEDEC MSL-1 ①85/85/168h
②MAX260°C Reflow 3 times
Test conditions : 130°C85%RH, 5V, 192h
(IEC60068-2-66 Condition 3-III)
Judging criteria : After 192 hours, insulation
resistance is 1.00E+06 Ω or more



General Characteristics

Item	Unit	BN-LC	BN-LC2
Glass Cloth		E	E
Tg (TMA)	°C	250	≥ 250
CTE (TMA X/Y, $\alpha 1$)	ppm/°C	6.0-7.0	≥ 5.0
Shadow Moiré (260°C)	μm	5.9	—
Flexural Strength (JIS K7017)	Mpa	410	—
Flexural Modulus	Gpa	22	—
Trnsile Strength (JIS K7162)	Mpa	267	—
Tensile Modulus	Gpa	14	—
Copper Foil Peel Strength (18 μm foil)	KN/m	0.9	—
Stage		Mass production	Under development