EpoCore & EpoClad - Negative Tone Photoresist Series

For manufacture of optical single mode (SM) & multi mode (MM) waveguides

Unique features
- Standard UV lithography & PCB technology processing
- UV patterning of core and cladding
- High transmittance @ 850 nm
- High heat (> 230 °C) and pressure resistance

Applications
- Optical SM & MM waveguides
- Beam splitters
- Biosensors (multifunctional systems)

Process flow
- Spin-coating and crosslinking of EpoClad
- Spin-coating of EpoCore
- Photolithographic patterning of EpoCore
- Casting and crosslinking of EpoClad
- Laminating under pressure and heating with FR4 substrates

Technical data

<table>
<thead>
<tr>
<th>Resist</th>
<th>EpoCore</th>
<th>EpoClad</th>
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<tbody>
<tr>
<td>Spectral sensitivity</td>
<td>Broadband, 365 nm</td>
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<tr>
<td>Ready-to-use solutions for various film thicknesses from 1.5 µm to 120 µm</td>
<td>EpoCore 2</td>
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<td>EpoCore 5</td>
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<td>EpoCore 10</td>
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<td>EpoCore 20</td>
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<td>EpoCore 50</td>
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<td>Developer</td>
<td>mr-Dev 600 (solvent based)</td>
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Properties of cured resist

- Shrinkage < 3 %
- Thermal stability up to 230 °C
- Refractive index @ 830 nm 1.58 1.57
- Optical loss ~ 0.2 dB/cm @ 850 nm
- Glass transition temperature > 180 °C
- Excellent stability after lamination T > 185°C, pressure 23 kp/cm² and reflow tests 3 x 15 s @ 230°C, TCT: 240 x -40 °C to 120 °C

Refractive index vs. wavelength

Thermo-optic coefficient dn/dT of EpoCore and EpoClad

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