FURUKAWA Die Attach Film

Furukawa’s one-stop-manufacturing provide highly reliable and totally well-balanced DDF with original DAF and DC tape.

Core Technology of AF Series

Original technology in AT & FUNCTIONAL PLASTICS DIVISION is development and production of tape for semiconductor field.

Based on those technologies such as sheet manufacturing, blending knowhow of high-polymer material, and adhesion control, original die attach film is newly released. Including dicing tape for die attach film, Furukawa electric provides well-balanced products as “AF Series”.

**DDF Construction**

- Adhesive (Furukawa Original)
- DAF (Furukawa Original)
- Backing film (Furukawa Original)

**Furukawa original design**

- Sheet manufacturing knowhow
- Blending knowhow of high-polymer material
- Adhesion control knowhow
- Original die attach film

**Performance Balance Chart**

- Pick up performance
- DDS performance
- No void & No die shift
- Good warpage performance

Furukawa
Competitor A
Competitor B
Competitor C

Highly reliable and totally well-balanced DDF
## Properties

<table>
<thead>
<tr>
<th>DAF Type</th>
<th>AFN301</th>
<th>AFN303</th>
<th>AFN601</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150deg.C × 1h</td>
<td>150deg.C × 1h</td>
<td>120deg.C × 1h or 140deg.C × 0.5h</td>
</tr>
<tr>
<td>DAF thickness µm</td>
<td>20</td>
<td>10</td>
<td>50 / 60 / 80</td>
</tr>
<tr>
<td>General DC tape Type</td>
<td>UV type &quot;K13&quot;</td>
<td>UV type &quot;K13&quot;</td>
<td>UV type &quot;K13&quot;</td>
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<tr>
<td>DC tape thickness µm</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Recommended UV dosage mJ/cm²</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>CTE arpha1 ppm/K</td>
<td>36</td>
<td>33</td>
<td>25</td>
</tr>
<tr>
<td>arpha2 ppm/K</td>
<td>125</td>
<td>121</td>
<td>70</td>
</tr>
<tr>
<td>Tg (TMA) deg.C</td>
<td>110</td>
<td>120</td>
<td>160</td>
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<tr>
<td>Melting Viscosity 60deg.C Pa•s</td>
<td>120000</td>
<td>50000</td>
<td>16500</td>
</tr>
<tr>
<td>120deg.C Pa•s</td>
<td>1900</td>
<td>1500</td>
<td>690</td>
</tr>
<tr>
<td>150deg.C Pa•s</td>
<td>300</td>
<td>500</td>
<td>600</td>
</tr>
<tr>
<td>Elastic Modulus 25deg.C MPa</td>
<td>5600</td>
<td>5000</td>
<td>7100</td>
</tr>
<tr>
<td>100deg.C MPa</td>
<td>4800</td>
<td>4100</td>
<td>6200</td>
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<tr>
<td>150deg.C MPa</td>
<td>180</td>
<td>250</td>
<td>5100</td>
</tr>
<tr>
<td>200deg.C MPa</td>
<td>60</td>
<td>135</td>
<td>2000</td>
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<tr>
<td>250deg.C MPa</td>
<td>54</td>
<td>146</td>
<td>730</td>
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<tr>
<td>Die Shear Strength @ 24deg.C MPa</td>
<td>55</td>
<td>74</td>
<td>34</td>
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<tr>
<td>@ 260deg.C MPa</td>
<td>29</td>
<td>14</td>
<td>8</td>
</tr>
</tbody>
</table>

## Advantages

- No bleed out
- No void
- Pick up performance
- Good warpage performance
- DDS performance

## Features

- AFN301
  - Mold
  - Wafer / Chip
  - Die to Substrate

- AFN303
  - Film on Wire (FOW)

- AFN601
  - Film on Wire (FOW)

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