

TIMbber™ ALT-314 Series

Snap Cure Compatible, High Reliability TIM

Preliminary Data Sheet

Description

Arieica’s ALT series of Liquid Metal Embedded Elastomer (LMEE) Thermal Interface Materials (TIM) are specifically designed for applications that require high reliability. The ALT series fill the matrix of a high adhesion, stretchable elastomer with thermally conductive liquid metal. This enables extremely high reliability, as the liquid metal maintains the base polymer’s mechanical properties. Using liquid metal droplets as fillers, additionally, provides the ability to achieve low BLT (<20µm) inside the package with available assembly pressures. Reliability performance has been demonstrated with thin bond line thicknesses of less than 20µm. The ALT314 is optimized for snap cure manufacturing methods.

Key Features

- Low thermal resistance
- Extremely high adhesion
- Low BLT
- Extreme elongation
- High reliability (HTS, HAST, shock and vibration, pump out)
- High operating temperature stability
- Single component, thermally curable
- Snap Cure compatible
- Solvent free
- Electrical isolation

Nominal Properties¹

Thermal Resistance ² (mm ² K/W) @ BLT < 30µm	< 7
Complex Viscosity ³ (Pa.s) @ 10 rad/sec, ε=5%	220
Adhesion ⁴ (N/m)	> 30
Strain at Break ⁵ (%)	> 200
Outgassing, Mass Loss 1 hour @ 175°C ⁶	0.05 wt%
Operating Temperature Range (°C)	-55 ↔ 200
Working Time (hours)	> 8

¹ The ALT-314 series are currently in pre-production and engineering samples can be evaluated with an NDA in place. All specifications are nominal and have not been statistically validated.

² Measured using TIMA test apparatus www.nanotest.eu/tima with pressures between 20-30psi

³ Measured using TA HR10 Rheometer www.tainstruments.com/hr-10/

⁴ Measured 180-Peel with TIMbber™ applied to nickel plate

⁵ Measured using Mark-10 with TIMbber™ sample cured in dog-bone shape www.mark-10.com/

⁶ Measured using TA TGA550 <https://www.tainstruments.com/tga-550/>



201 N Braddock Ave. • Suite 334
Pittsburgh, PA 15208
+1 (412) 409 - 9019 • partner@ariecca.com

Curing Profile

The ALT-314 series purify the base polymer used in the ALT-304 series, the resulting formulation supports a wide-range of high temperature profiles up to 150°C and is compatible with snap cure. For exact curing profiles required by your application, please contact your Ariecca representative.

Product Storage

To maximize product quality, this product should be stored in its original packaging in a –30 °C to –40 °C freezer.

Safety Data Sheets (SDS) and Application Note for the ALT-314 series are available in multiple languages. Please email Ariecca at partner@Ariecca.com to obtain a copy.

Warranty

The information and data contained herein are believed to be accurate and reliable; however, this product is still under engineering validation. Quantities may be limited, and design specifications may change while we ready the product for release to production. This product is currently provided for proof of concept (PoC) evaluation, and Ariecca makes no warranties concerning the fitness or suitability of its products for a particular use or purpose.