

Product Samples

ATP1014P: Plated (Au/Sn); ATP1014S: Sputtered (Au/Sn)

Applied Thin-Film Products (ATP) is pleased to provide ceramic thin-film samples for your evaluation.

ATP custom fabricates thin film submounts for laser diode applications. These submounts can include predeposited and patterned Gold Tin (Au/Sn) that is Sputtered(S) or Plated(P) to accommodate low cost, high volume, automated assembly of laser diode modules. The use of predeposited and patterned Au/Sn replaces the more traditional

approach of using Au/Sn Preforms. The Au/Sn will have accurate placement and dimensions. The thickness is tightly controlled. Multiple Au/Sn locations can be patterned on the circuits without additional cost. The accurate, thin Au/Sn thicknesses aid in the laser attachment and alignment resulting in less assembly time and better yields. ATP's standard alloy composition is 80% Au and 20% Sn and reflows at 284°C.

Material Specifications

Aluminum Nitride

Properties	Values
Chemical Composition	AlN
Purity	98%
Color	Tan
Nominal Density	2.85g/cm ³
Surface Finish (Polished) CLA	<2.0μ" (50nm)
Camber	0.0003 / 0.0005" (76 / 12.7μm)
Thickness	0.015" (0.381mm)
Thickness Tolerance (±)	0.0005" (0.0127mm)
Coefficient of Thermal Expansion (CTE)	4.6 x 10 ⁻⁶ (25–300°C)
Thermal Conductivity	170 Watts/m ² K
Dielectric Constant (k)	8.6 @ 1 MHz
Dissipation Factor (Loss Tangent)	0.001 @ 1 MHz
Flexural Strength	54 x 10 ⁻³ K lbs/in ² (4 pt bend)
Grain Size	5–7μm

Material Specifications provided by Accumet Engineering Company

Typical Sample Metalization

TiW/Au/Ni/Au/Sn

TiW = 400–1,000 Ångströms

Au = 3 microns

Ni = 500–1,500 Ångströms

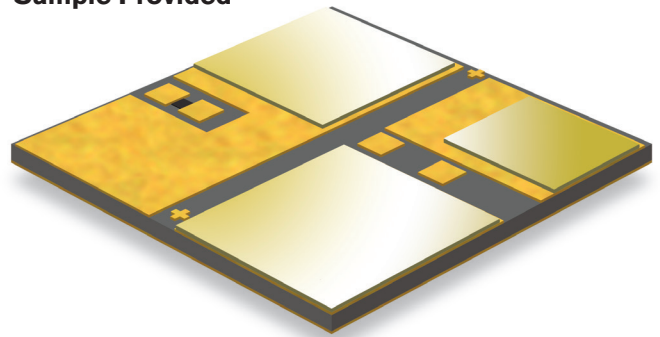
Au/Sn = 5 microns

Custom metalizations and thicknesses available upon request.

Pre-deposited and Patterned Au/Sn Guidelines

- Smallest Feature Size: 0.002" x 0.002" (5.08μm x 5.08μm)
- Minimum Pitch (Minimum space between Au/Sn Pads): 0.002" (5.08μm)
- Typical Au/Sn Thickness: 160μ"–200μ" (4–5 microns)
- Minimum Au/Sn Thickness: 80μ" (2 microns)
- Maximum Au/Sn Thickness: 400μ" (10 microns)

Sample Provided



ATP offers build-to-print service for a wide range of materials and metalization schemes. ATP fabricates circuits on substrates from As-Fired Alumina to Beryllium Oxide to Fused Silica, even Silicon. Metalizations range from the standard Tan/TiW/Au to films including Nickel, Palladium, or Titanium.

At ATP, we constantly evolve our processing and material capabilities to reflect our customer's changing needs. If you have a circuit requirement that is out of the "normal" thin-film type, please contact ATP at 1.510.661.4287 or visit our website at www.thinfilm.com. ATP would enjoy discussing your application with you and working to develop a solution.