

# ATP1014 Samples

## Aluminum Nitride with Predeposited & Patterned Gold Tin (Au/Sn) 80/20

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

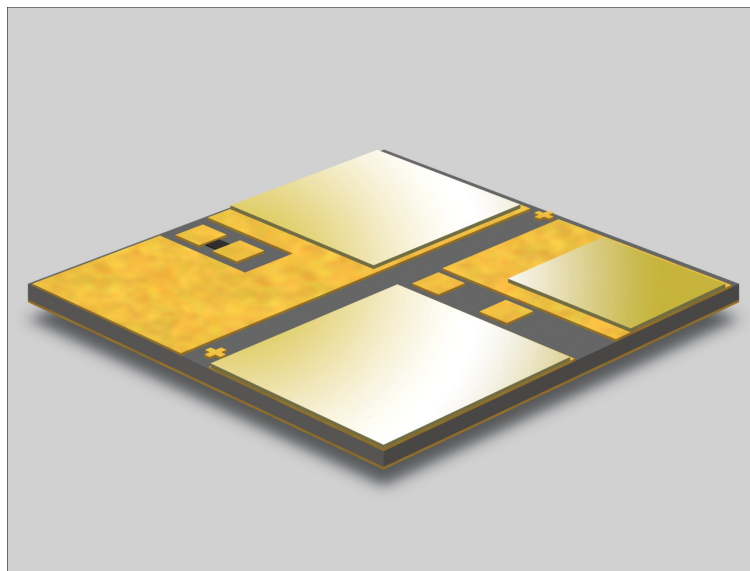
ATP custom fabricates thin film submounts for laser diode applications. These submounts can include predeposited and patterned Gold Tin (Au/Sn) that is Sputtered(S) or Plated(P) to accommodate low cost, high volume, automated assembly of laser diode modules. The use of predeposited and patterned Au/Sn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

Properties	Units	Aluminum Nitride
Chemical Composition		AlN
Purity	%	98
Color		Tan
Nominal Density	g/cm	2.85
Surface Finish Polished	u-inches / (nm)	< 2.0 / (50nm)
Coefficient of Thermal Expansion (CTE)	10 (-6)	4.6 (25-300 Degrees C)
Camber	inches / um (microns)	.0003/.0005(7.62/12.7um)
Thickness	inches / um (microns)	.015(.381mm)
Thickness Tolerance	inches / um (microns)	+/- 0.0005(12.7um)
Thermal Conductivity	Watts/m K	170
Dielectric Constant	1 MHz	8.6
Dissipation Factor (Loss Tangent)	1 MHz	0.001
Hardness	Rockwell	n/a
Flexural Strength	K(10-3) lbs/sq.in	59 (4 pt. bend)
Compressive Strength	M(10-3) lbs/sq.in.	n/a
Grain Size	um (microns)	5 to 7

Material Specifications provided by Accumet Engineering Corporation

### Sample Provided:



### Typical Sample Metalization

TiW/Au/Ni/Au/Sn TiW = 400-1,000Å ,Au = 3 microns, Ni = 500-1,500Å, Au/Sn = 5 microns.  
 Custom Metalizations and Thicknesses available upon request.

### Pre-deposited and Patterned Au/Sn Guidelines

- Smallest Feature Size: 0.002"x0.002"(5.08um x 5.08um)
- Minimum Pitch (Minimum space between Au/Sn Pads): 0.002"(5.08um)
- Typical Au/Sn Thickness: 160u" - 200u" (4-5 microns)
- Minimum Au/Sn Thickness: 80u" (2 microns)
- Maximum Au/Sn Thickness: 400u" (10 microns)

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 (510) 661-4287 or visit our web site [www.thinfilm.com](http://www.thinfilm.com). ATP would enjoy discussing your application with you and working to develop a solution.

web site: [www.thinfilm.com](http://www.thinfilm.com)

