



ATP1014 Samples

Aluminum Nitride with Predeposited & Patterned Gold Tin (AuSn) 80/20

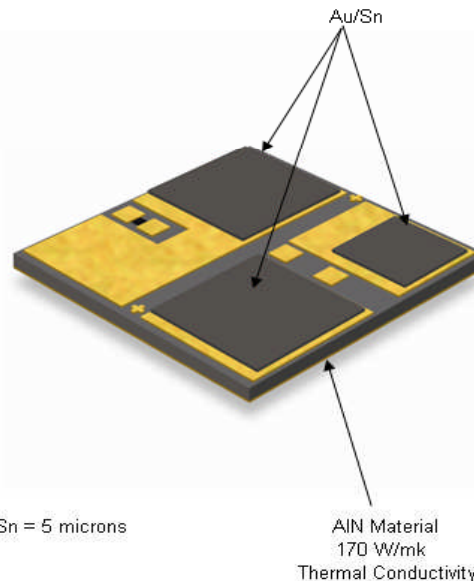
Applied Thin-film Products (ATP) is pleased to provide ceramic thin film samples for your evaluation.

ATP custom fabricates thin film submounts for laser diode applications. These submounts can include predeposited and patterned Gold Tin (AuSn) to accommodate low cost, high volume, automated assembly of laser diode modules. The use of predeposited and patterned AuSn replaces the more traditional approach of using AuSn Preforms. The AuSn will have accurate placement and dimensions. The thickness is tightly controlled. Multiple AuSn locations can be patterned on the circuits without additional cost. The accurate, thin AuSn 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 280°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

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. ATP would enjoy discussing your application with you and working to develop a solution.

web site: www.thinfilm.com

