



Miniature Laser Diode Submounts

Miniature thin film metallised aluminium nitride submounts with pre-deposited AuSn, for mounting of laser diodes and LEDs.

Material

GRADE	170*	200
TC W/mK	~170	~200
CTE ppm/°C	~4.6	~4.6
Surface finish	~0.15µm Ra	
Thickness range	0.25 - 1.5 mm	
*standard material		

Mechanical dimensions

Min. length and width	0.5 mm x 0.5 mm
Max. length and width	75 x 75 mm

Tolerances

	Typ.	High spec.
Length and width	± 0.05 mm	± 0.02 mm
Edge chipping	< 0.05 mm	< 0.01 mm

Conducting or insulating

The AlN mounts can be metallised with the option of making the mount conducting or insulating. For conductive AlN, metallisation is deposited onto at least two of the side walls as well as the top and bottom surfaces. The thickness of the side wall metallisation is tailored depending on the electrical load to be carried.

Metallisations

Various metallisation schemes can be applied, the standard is Ti/Cu/Pt/Au.

The Au, Pt and Cu layer thicknesses depend on the application. The copper is primarily used to provide the electrical conductivity on the sidewalls and is nominally 1 µm thick on the faces and a total of 0.6 µm thick on the walls. To ensure the copper is properly covered the platinum barrier layer is usually also specified at 1µm on the faces. Generally for gold wire bonding 0.5µm minimum of gold is required. A standard specification for the top and bottom faces would be:

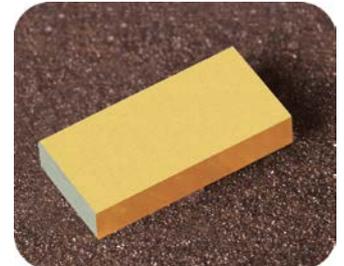
Soldering only required	0.1Ti / 1.0Cu / 1.0Pt / 0.1Au
Au wire bonding required	0.1Ti / 1.0Cu / 1.0Pt / 0.5Au

Pre-deposited AuSn

A thin layer of vacuum deposited AuSn can be applied over one or both of the top and bottom faces. The standard alloy ratio is nominally 76Au / 24Sn, normally at ~3.5 - 5.5 microns thick. The alloy ratio can also be tailored for specific applications.

Patterned AlN and metal laser mounts

Visit our website for details of our comprehensive capabilities for manufacturing patterned AlN laser mounts together with sharp edge C-mounts, laser bar mounts, photodiode mounts and other optoelectronic and RF related products.



Images are not to scale

LEW Techniques specialises in the manufacture of miniature components for the mounting of semiconductor devices. Our in-house capabilities include Thin Film, Thick Film and refractory metallising of ceramics and metals, electroplating, precision dicing, laser machining and marking, atmosphere/vacuum brazing and solder assembly.

To ensure end user compatibility, comprehensive in-house testing includes eutectic die bonding, Au wire bonding, shear strength, peel strength, coating thickness and surface finish measurement, heat testing and He leak detection.

To discuss your application in detail please contact our Technical Sales Department who will be pleased to assist you.