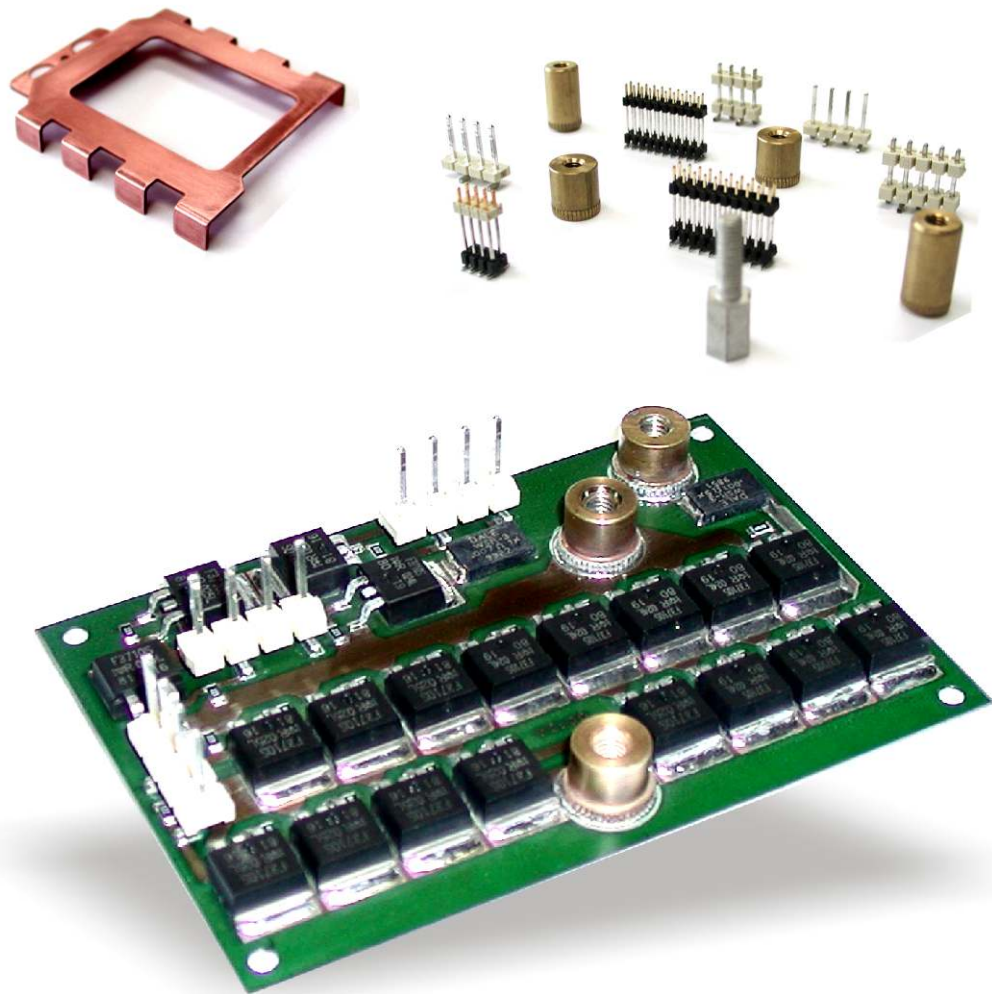


# custom solution on IMS technology



insulated metal substrate

not only  
thick film



insulated metal substrate

## What does I.M.S. Mean ?

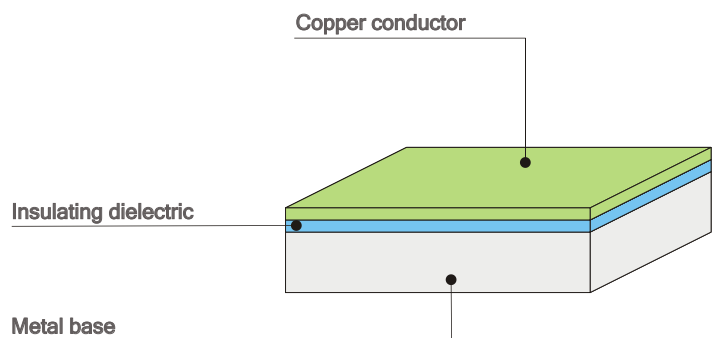
It means "Insulated Metal Substrate".

It is constituted by:

### Base:

Aluminium 1050 (thickness: 0.5; 1; 1.5 and 2 mm)  
Aluminium 5052 (thickness 3 mm).

High temperature resistant epoxy resin + high thermal conductivity inorganic filler.



### 2 types available:

	K-1	TH-1	
Thermal Conductivity ( W/m.K)	2.0	4.0	
Available Thickness	80,100,125 µm	125 µm	
Dielectric Strength	80 µm	100 µm	125 µm
	2KVac	3KVac	5KVac

### Conductor:

Copper conductor layer: available in 35, 70 and 105µm thickness.

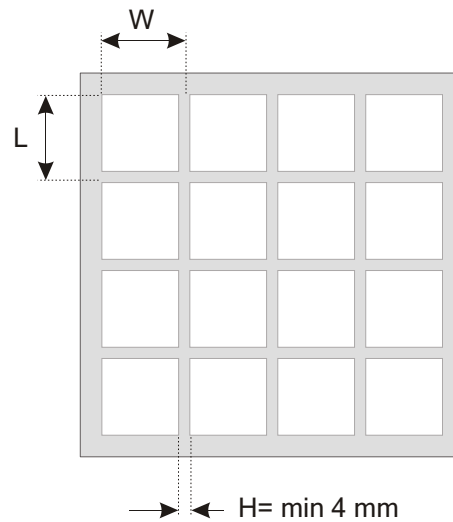
Obviously there can be many different types combining the different thickness of the metal base, dielectric and copper conductor.

We suggest to use, because normally held in stock in AUREL, the following types:

Type	Aluminum Thickness	Dielectric Type	Dielectric Thickness	Copper Thickness
AC15	1,5mm	K - I	80µm	70µm
AC30W	3mm	K - 1	80µm	70µm
AC30V	3mm	K - 1	100µm	105µm
TGV30Y	3mm	TH-1	100µm	105µm

### Which are the optimum dimensions ?

The panel size is 500 x 500 mm; 10mm per each side are used for refence drilling during the etching operations. It is available a 480mm x 480 mm surface, with the only requirement that between one figure and the next there must be a 4 mm minimum clearance (H).



AUREL is specialized in the mechanical workmanship that, for small/medium series, is made with special CNC equipments, while for high volume production is made with punching tools. In this case the clearance distances must be evaluated by our technical staff.

### Design rules for the lay-out

	Copper 70 µm	Copper 100 µm
Minimum conductor width	500 µm	500µm
Minimum clearance between copper traks	300 µm	350 µm
	Aluminium 1,5 mm	Aluminium 3 mm
Minimum hole diametre	1,5 mm	3 mm
Minimum clearance between copper and edges or internal holes	1,8 mm	3 mm

(\*) Parameter necessary to guarantee the dielectric integrity. During the design you must consider the insulation distances requested by your application.

## What can you solder or not on an IMS module ?

It is possible to assemble all the surface-mount components, with the following suggestions:

Resistors: all the sizes equal or bigger than 0603.

Capacitors: all the sizes equal or bigger than 0603.

Transistors, Mosfets, diodes: SOT 23, SOT 89.....

Integrated circuits : with leads pitch equal or bigger than 1,27 mm.

SMD connectors: with leads pitch equal or bigger than 1,27 mm

It is also possible to assemble, after lead preforming and compatibility with the reflow process temperature:

TO220, TO3 PLASTIC, TO247, ecc.

We can also realize : male or female threaded columns and copper preforms for high current connections, custom pin arrays.

## What can AUREL supply ?

- Lay-out design or consultancy.
- Prototypes.
- Components purchasing.
- Lead forming.
- Raw materials purchasing ( IMS laminated base ).
- Punching tools.
- Design and constructions of reflow fixtures.
- Low and high volume productions.
- Automatic optical inspection.
- Electrical testing.
- High voltage dielectric strenght testing.
- X-Ray inspection.

## Additional informations

Capacity (pF/cm <sup>2</sup> )	73 (80µm)	58 (100µm)	39 (125µm)
Weight (Gr./cm <sup>2</sup> )	0,42 (AC15W)		0,84 (AC30..)
Surface resistivity (Mohm/□)	0,5 (35 µm Copper) 0,26 (70 µm Copper) 0,17 (105 µmCopper)		
Pull strenght	>2Kg on 2x2mm pad		



applications

