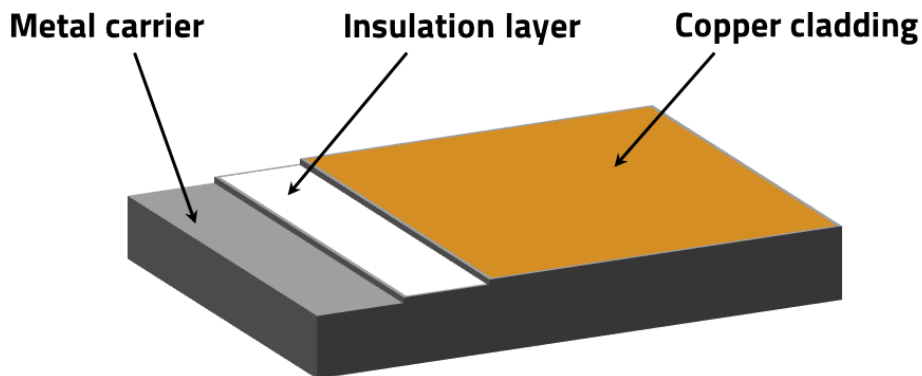


Design Rules IMS

Thermal management

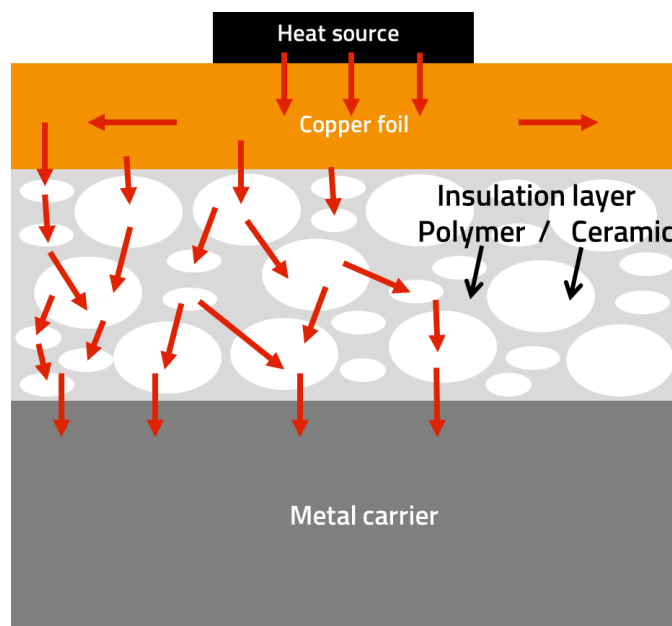
These design rules apply to:
Insulated Metal Substrate (IMS)

Motor control, current conversion and LED technology - applications where things get hot. Here in particular, it is essential to ensure heat dissipation from the components in order to increase reliability. One possible solution is the use of IMS circuit boards.



Insulation layer

Usually made from prepreg or thermally optimized resin systems. Polymers with a high proportion of ceramic particles with good thermal conductivity achieve up to 5 times higher thermal conductivity than prepreg, with higher dielectric strength compared to FR4.



Metal carrier

Usually made of aluminum, copper or stainless steel.

Design Rules IMS

Thermal management



**WURTH
ELEKTRONIK**
MORE THAN
YOU EXPECT

Technical Specifications

Manufacturer	Bergquist, DENKA, KinWong, Ventec, Shengyi, DOOSAN, PTTC, Rogers, Aismalibar
Carrier material	Aluminum, copper, stainless steel
Metal type	Aluminum : 1100,4045,4047,5052,6061 Kupfer : C1100 Edelstahl: 202, 304, 430
Panel size	Normal: 406 * 325 mm Maximum: 1.180 * 350 mm nur für OSP/HAL+IMS
PCB thickness	0,5 mm – 3,2 mm
Tolerance PCB thickness	+/- 0,10 mm und +/- 10% whichever is larger
Standard Metal Thickness	0,8 mm, 1,0 mm, 1,5 mm, 2,0 mm, 3,0 mm
Insulation layer thickness	0,05 mm – 0,20 mm
Thermal conductivity	1-12 W/m*K
Dielectric strength	6 kV AC
Copper thickness	½ oz (17,5 µm) to 4 oz (140 µm)
Conductor width	≥ 100 µm
Conductor spacing	≥ 100 µm
End diameter	0,55 mm – 6,5 mm
Hole tolerance	NPTH Hole tolerance ± 0,05 mm PTH Hole tolerance ± 0,075 mm
Position Tolerance Hole	+/- 0,075 mm
Aspect Ratio	8:1 (Ratio of PCB thickness to hole diameter)
Soldermask land	< 2 oz (70µm), green color / blue color: ≥ 0,076 mm; white color / black color: ≥ 0,13 mm
Solder resist mask clearance	+/- 0,075 mm
Via clearance	≥ 100 µm
Trace coverage	+/- 0,075 mm
Tolerance outer contour	+/- 0,10 mm
max. outer dimensions	Maximum: 1.180 * 350 mm only for OSP/HAL+IMS
Finish surface	HASL, LF-HASL, OSP, ENIG, Immersion Silver