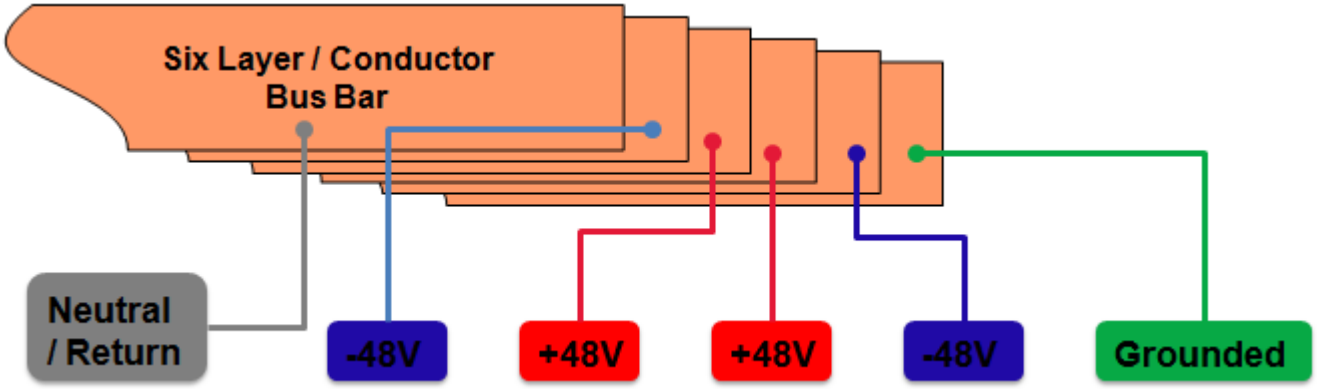
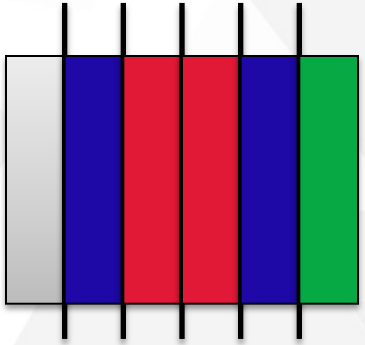
Laminated busbar

A total power distribution solution in electric equipments like Inverters,MCUs, and PDUs. Laminating multi-layers of copper conductors together with insulation films,busbar reduce system costs, improve reliability, increase capacitance, and eliminate wiring errors. They also have lower inductance and increase capacitance. Plus, the physical structure of busbars offers unique features in mechanical design. For example, complete power distribution subsystems can also act as structural members of a total system. Multilayer busbars offer a structural integrity that wiring methods just can't match.

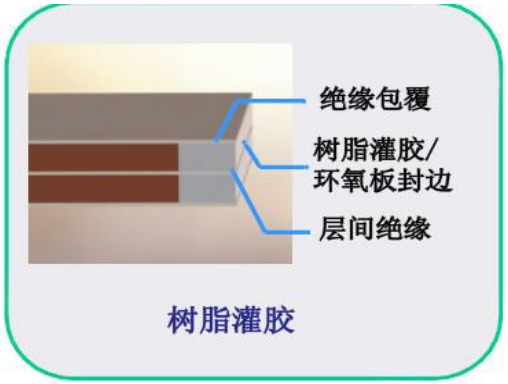




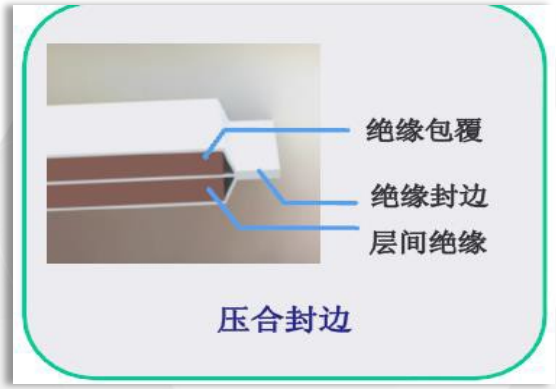
Laminated busbar

Structures:

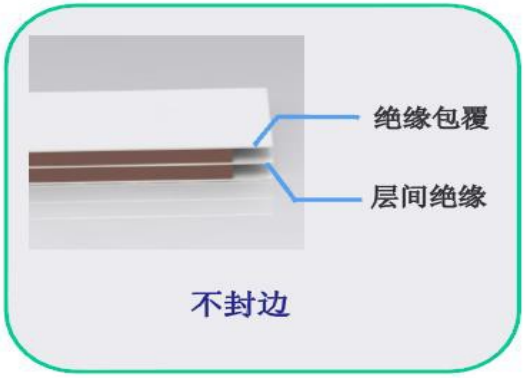
1、Epoxy resin potting



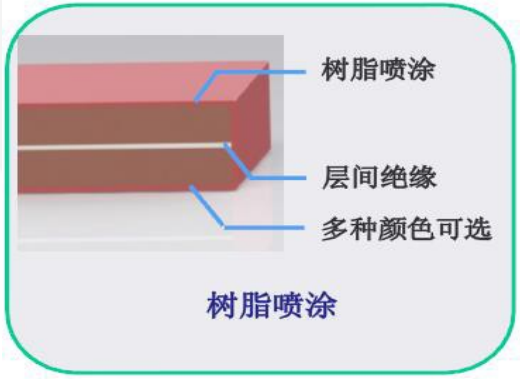
2、Edge sealed by tooling



3、Edge open



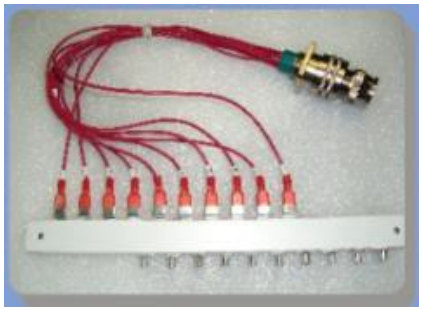
4、Powder coating



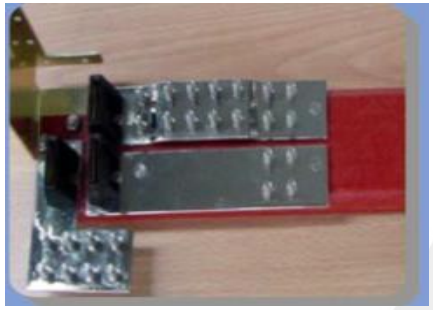
Product Introduction

Laminated busbar

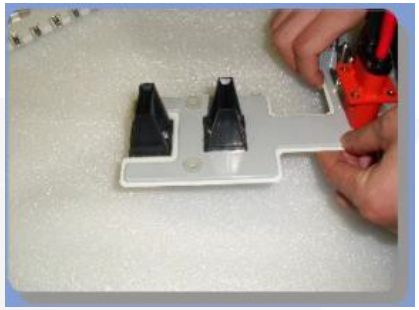
Power distribution solutions:



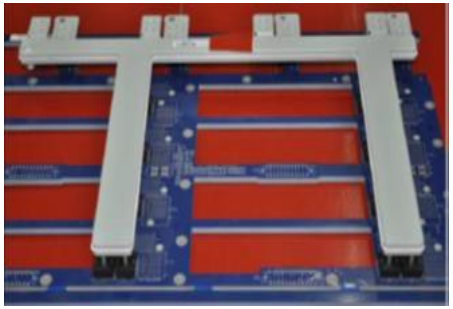
Wire harness & Ring terminal



Fasteners

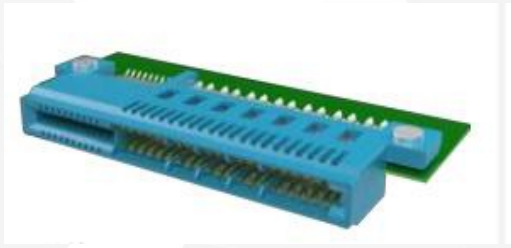


Busbar connectors



Intergrated with PCB

Mated with socket connectors



Inserted to card edger connectors

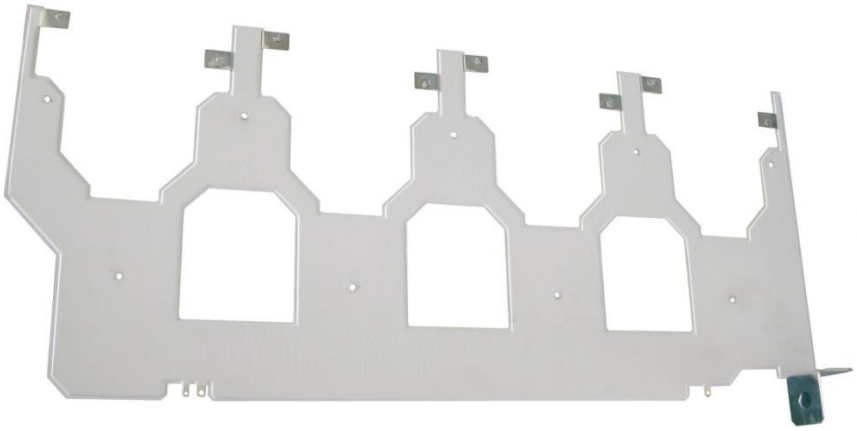
Product Introduction

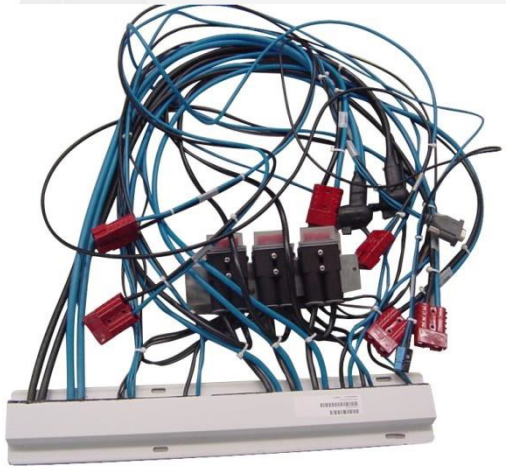
- **Laminated busbar**

Applications:

1. **Telecom and Datacom systems like servers, switches, base stations.**

Distribute powers from PSUs to backplanes and other circuits.





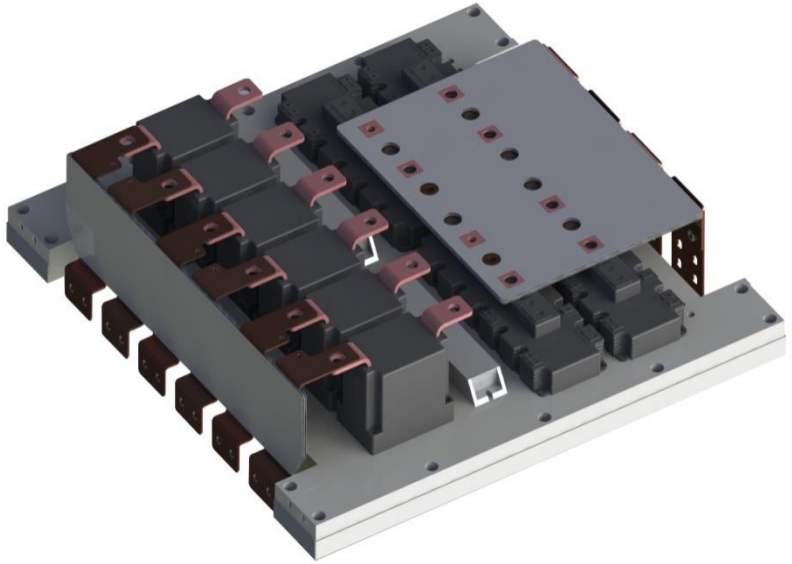
Product Introduction

- **Laminated busbar**

Applications:

2. Power converters and inverters.

Provide compact and low inductance connections between DC capacitors and IGBTs.



- **Laminated busbar**

Applications:

3. PDUs in EV.

Provide a highly compact power distribution solution for fuses, connectors ,resistances and relays.

Product Introduction

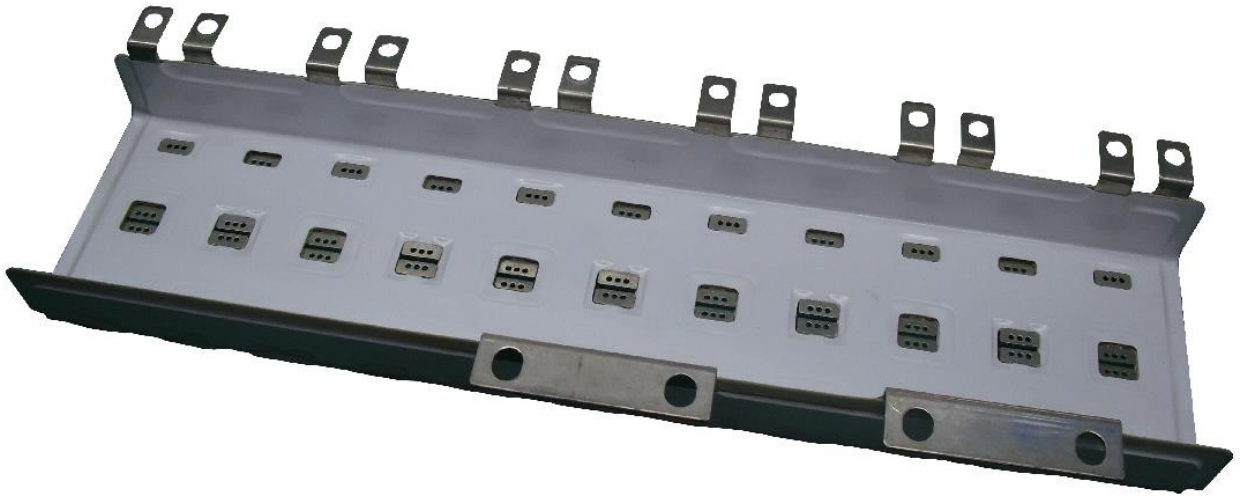
- **Laminated busbar**

Applications:

3. Film capacitors for inverter .

Provide excellent welding performance by using matte tin electro-plating.

Highly compact design using laminated busbar.



Laminated busbar

Conductor materials:

材料选择
Material Selection

导体材料选择
Conductive material selection

叠层母排的导体材料主要采用牌号为T2的紫铜板或1060的铝板。
Laminated busbar conductor material mainly use grades of T2 copper plate or 1060 aluminum plate.

名称 Name	牌号 Grade	密度 Density (g/cm^3)	导电率 Electrical Conductivity	导热性 Thermal Conductivity	电镀 Electroplating
紫铜 / Copper	T2/C11000/C1100	8.9g/cm^3	98.3%IACS	388W/m-K	Tin,Nickel,Silver,Gold
铝 / Aluminum	1060/A1030	2.7g/cm^3	62%IACS	243W/m-K	Tin,Nickel,Silver,Gold, Copper
碲铜 / Tellurium copper	CuTep/C14500	8.9g/cm^3	85%IACS	355W/m-K	Tin,Nickel,Silver,Gold
黄铜 / Brass	H62/C26000	8.53g/cm^3	27%IACS	116.7W/m-K	Tin,Nickel,Silver,Gold

Laminated busbar

Insulation materials:

绝缘材料选择

Insulation material selection

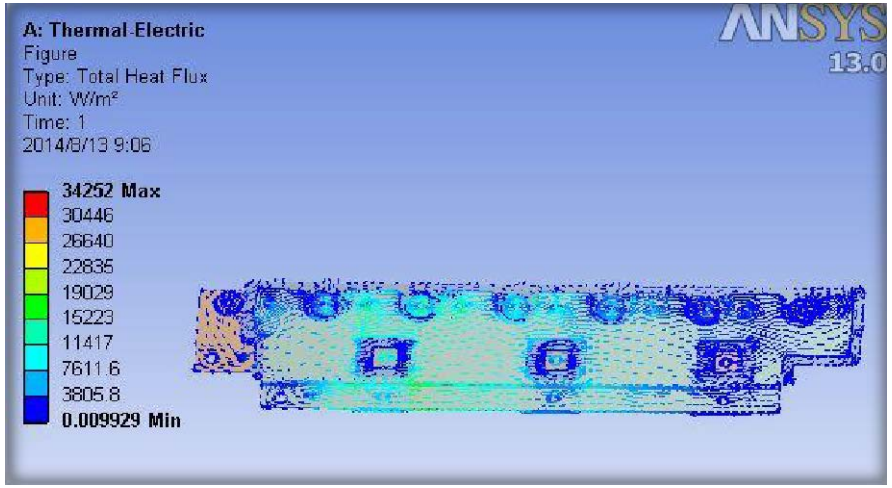
叠层母排的主要绝缘材料一般采用PET，这种材料的性价比最优。
如有特殊要求可选用其他材料。FR-4板及GPO-3板作为辅助绝缘材料使用。
Laminated busbar main insulation material use PET, the material with optimal cost performance.
If you have special requirements, it can choose other materials. FR-4 board and GPO-3 board also can be used as a supplementary insulation material.

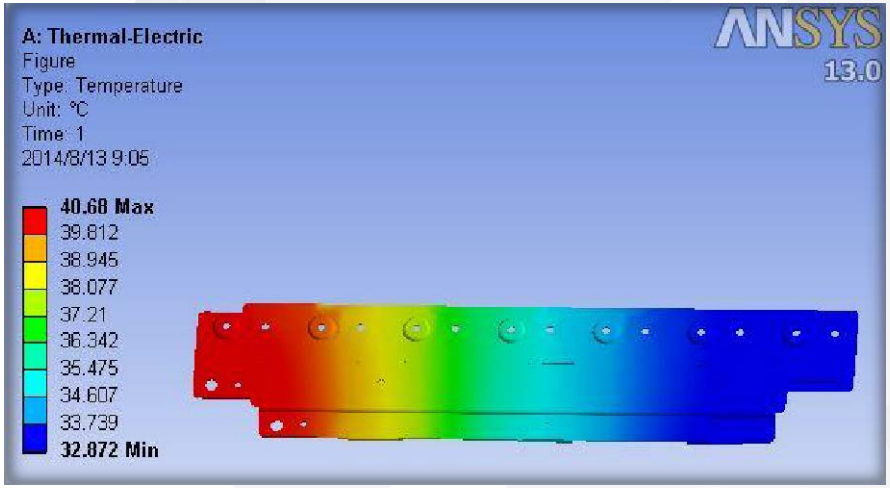
材料 Material	密度 Density (g/cm^3)	热导率 Thermal Conductivity (W/kg.k)	介电常数 Dielectric Constant (f=60Hz)	介电强度 Dielectric Strength (kv/mm)	阻燃等级 Flame Retardant Grade	绝缘耐热等级 Thermal Class	吸水性 Hygroscopicity (%)/24h
NOMEX	0.8~1.1	0.143	2.7	32	UL94-V0	220	10
PI	1.42	0.094	2.8	173	UL94-V0	220	0.24
PET	1.38	0.128	3.8	120	UL94-V0	105	0.1~0.2
FR-4	1.6	0.24	4.6	40	UL94-V0	130	0.15
GPO-3	1.95	0.2	4.5	40	UL94-V0	155	0.2~0.4

Laminated busbar

Design & simulation:

Current density, Temperature rise, Voltage drop;

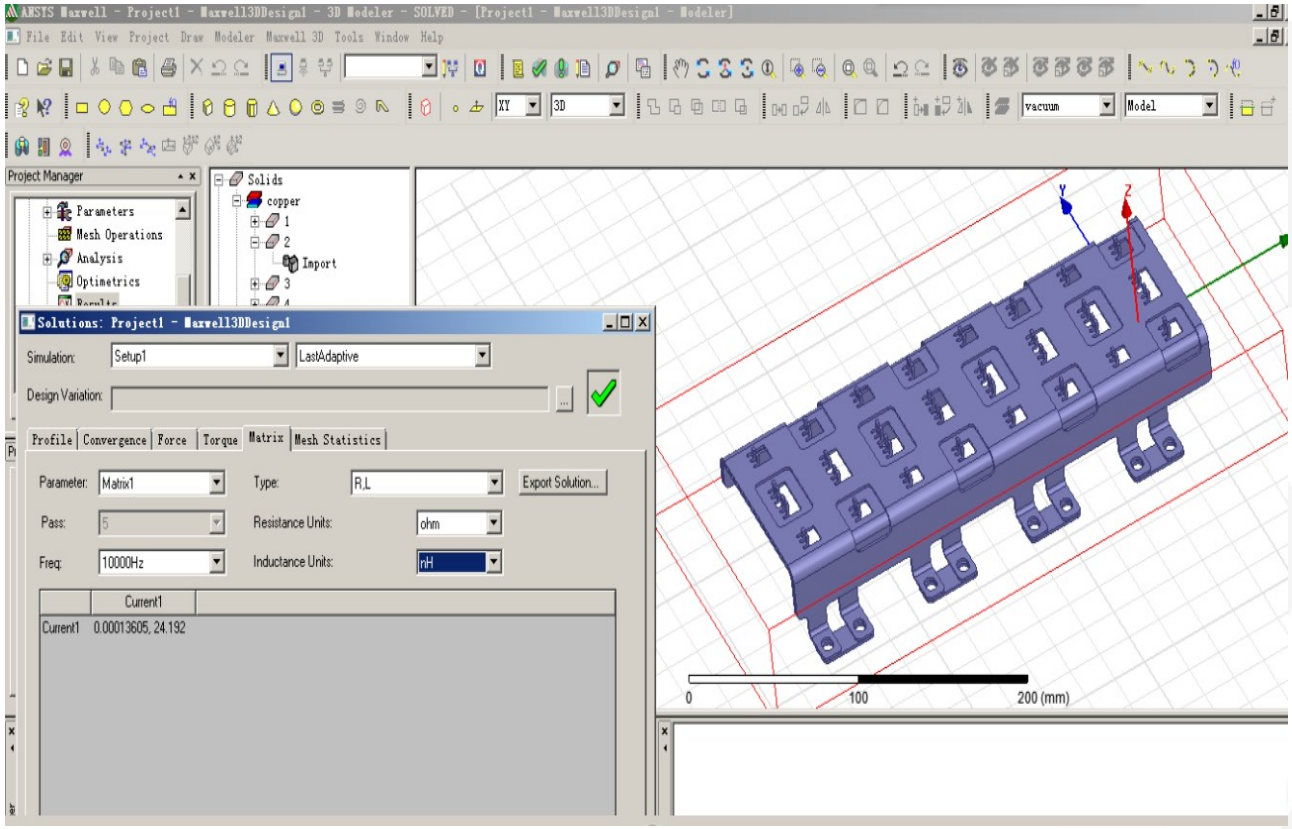




Laminated busbar

Design & simulation:

AC/DC resistance, inductance, capacitance;



Product Introduction

Laminated busbar

Manufacturing Process: