



DIN power male connector SMC



General information

Design	IEC 60603-2 types: MH 24+7, 21+5 male	
No. of contacts	Signal: 21 or 24	Power: 5 or 7
Contact spacing	2,54 mm x 5,08 mm	
Test voltage	Signal: 1550V	Power: 3100V
Contact resistance	Signal: ≤ 15 mOhm	Power: < 8 mOhm
Insulation resistance	≥ 10 ¹² Ohm	
Working current (see derating diagram)	Signal: 6 A@20°C	Power: 15A@20°C
Temperature range	-55°C ... +125°C	
Termination technology	solder pins, faston	
Clearance	Signal: min. 1,6 mm	Power: min. 4,5 mm
Creepage	Signal: min. 3,0 mm	Power: min. 8,0 mm
Insertion and withdrawal force	≤ 85N	
Mating cycles	- PL1 acc. to IEC 60 603-2 =>	500 mating cycles
	- PL2 acc. to IEC 60 603-2 =>	400 mating cycles
	- PL3 acc. to IEC 60 603-2 =>	50 mating cycles
UL file	E102079	
RoHS - compliant	Yes	
Leadfree	Yes	
Hot plugging	No	

Insulator material

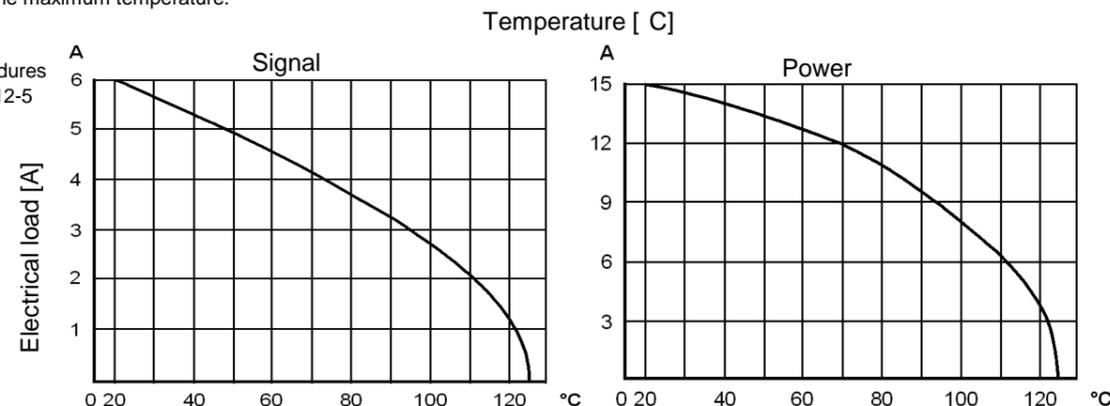
Material	PCT (thermoplastics, glass fiber reinforcement 30%)
Color	natural-colored, color deviations and speckles permitted
UL classification	UL 94-V0
Material group acc. IEC 60664-1	II (400 ≤ CTI < 600)
NFF classification	I3, F3

Contact material

Contact material	Copper alloy	
Plating termination zone	Signal: Sn over Ni	Power: Sn over Ag over Ni
Plating contact zone	Signal: Au over PdNi over Ni	Power: Ag over Ni

Derating diagram acc. to IEC 60512-5 (Current carrying capacity)

The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals.
The current capacity curve is valid for continuous, non interrupted current loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.



Soldering instructions

SMC (Surface Mount Compatible) connectors are designed to be used in a reflow oven together with other SMD (Surface Mount Device) components. In this process, called as well „Pin in Hole Intrusive Reflow“, the connectors are inserted into plated through holes in a comparable way to conventional component mounting. All other components can be assembled on the pcb surface.

The length of the connector contacts should be such that they protrude by no more than 1.5 millimetres after insertion to the pcb. Each contact collects solder on its tip as it penetrates the solder paste in the hole. So if the contact is too long, this solder would no longer be able to reflow back into the plated through hole by capillary action during the soldering process, therefore the quality of the soldered connection would suffer as a result.

Quantity of solder paste

Before the components are assembled, solder paste must be applied to all the solder pads (for connecting surface-mount components) and the plated through holes.

To ensure that the plated through holes are completely filled, significantly more solder paste must be applied than traditional solder pads on the pcb surface. There are numerous calculation methods available which are complicated to apply.

The following rule of thumb has proved valuable in practice:

$$VPaste = 2(VH - VP)$$

in which:

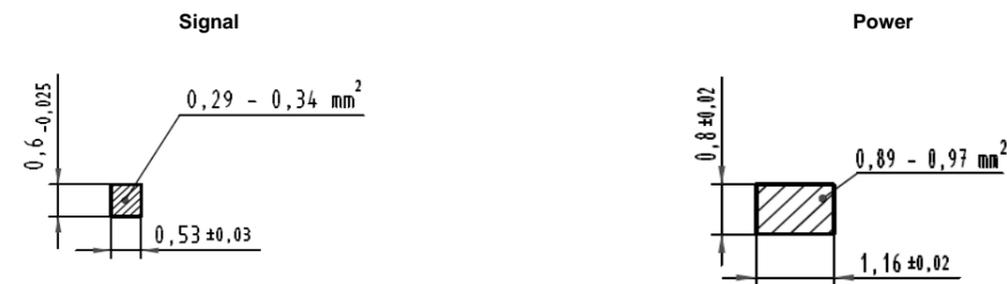
VPaste = Required volume of solder paste

VH = Volume of the plated through hole

VP = Volume of the connector termination in the hole

Comment: the multiplier "2" compensates for solder paste shrinkage during soldering. For this purpose, it was assumed that 50 % of the paste consists of the actual solder, the other 50 % being soldering aids.

Cross section of solder pins



State Approved		Sub.			Ref.	
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