

Connectors EN 60 603 (DIN 41 612)

General Technical Notes

Selection criteria for connectors

The technical information helps in the selection of connectors to EN 60 603 (DIN 41 612):

- Reference voltage
- Minimum creepage distance
- Pollution level
- Derating diagrams
- Requirement classes

Contamination level 1

None or dry, non-conductive contamination. Contamination has no effect.

Contamination level 2

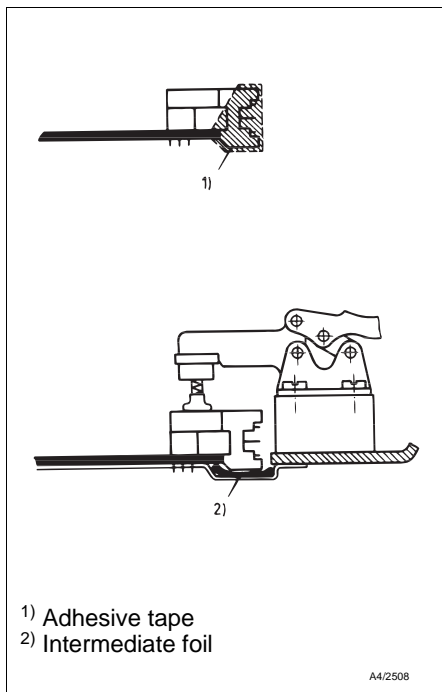
Non-conductive contamination only. Occasional transient conductivity may occur with condensation. Contamination levels 3 and 4 are not taken into account here as they do not apply to the connectors shown in this documentation.

The minimum creepage distances shown in the table refer to the CTI values of insulation groups III a/b.

Reference voltage, minimum creepage distance and contamination level

The table shows the relationship.

Reference voltage V $U_{\approx \text{eff}}$ or U	125	25	32	50	63	80	100	125	160	200	250	320	400	500	630	800	1000
Minimum creepage distance mm																	
- Contamination level 1	0.09	0.125	0.14	0.18	0.20	0.22	0.25	0.28	0.32	0.42	0.56	0.75	1	1.3	1.8	2.4	3.2
- Contamination level 2	0.42	0.500	0.53	1.20	1.25	1.30	1.40	1.50	1.60	2.00	2.50	3.20	4	5.0	6.3	8.0	10



Soldering the male connectors in printed boards

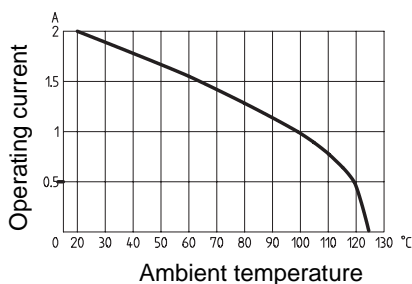
The male pins of the connectors to EN 60 603 (DIN 41 612) must be protected during flow, wave or dip soldering against contamination or any change in the shape of the plastic body as a result of the effect of the heat.

- 1) For sample runs and small batches the male connectors are covered with a suitable adhesive tape. Tesaband 4657 gray, for example, has proved effective. The underside and front and narrow sides of the printed board and the male connector are masked. Correct masking effectively prevents the penetration of solvents, soldering tin and vapours and provides adequate insulation against heat. Length of the adhesive tape: 140 + 5 mm.
- 2) For the manufacture of large batches, a soldering frame is required where the clamping device mechanically connects the male connector to the printed board during the soldering process. This method can be optimised by placing an intermediate foil between the cover plate and the male connector for better heat insulation.

Connectors EN 60 603 (DIN 41 612)

Derating diagrams

Types B, C, R

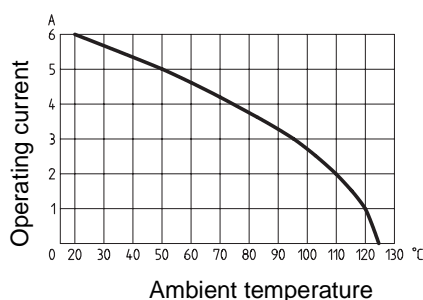


The thermal behaviour of the materials, the contact elements – including connections – and the insulation parts limit the current load-carrying capacity of connectors.

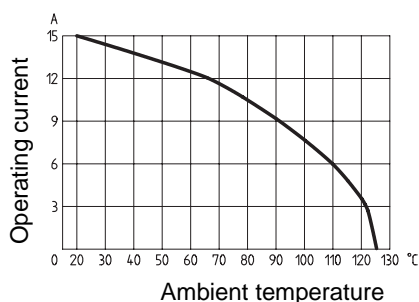
The derating curve therefore applies to currents which should flow continuously (not intermittently) through each contact element of the connector at the same time without exceeding the permitted upper temperature limit.

Measurement and test procedures to DIN 41 640, part 3.

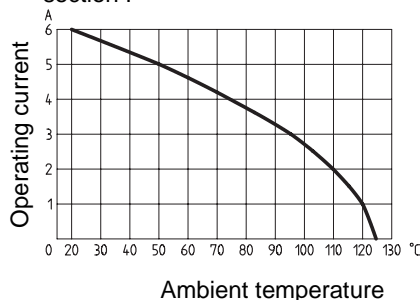
Types D, E, F, G



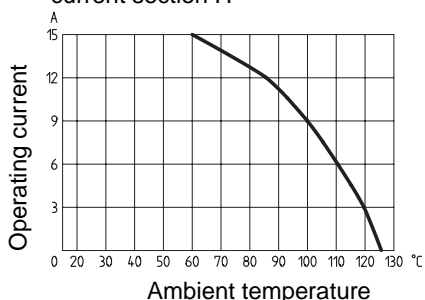
Type H



Combined connectors F + H; Low current section F



Combined connectors F + H; High current section H



SVA42501 SVA42502 SVA42503 SVA42504 SVA42505

Requirement classes EN 60 603 (DIN 41 612), part 5

Requirement class 1

500 connector cycles, consisting of:

- 250 connector cycles
2-day gas test with 10 ppm SO₂ measurement of the contact resistance.
- 250 connector cycles
followed by visual inspection. No rubbing off of the contact surface revealing the base material.
Function not impaired.

Requirement class 2

– 400 connector cycles, consisting of:

- 200 connector cycles
4-day gas test with 10 ppm SO₂ measurement of the contact resistance.
- 200 connector cycles
followed by visual inspection. No rubbing off of the contact surface revealing the base material.
Function not impaired.

Requirement class 3

50 connector cycles

- No gas test.
- Visual inspection.
- Function not impaired.

Requirement class VG 95 324, part 1

500 connector cycles,
followed by 1-day gas test with 10,000 ppm SO₂ and
1-day gas test with 10,000 ppm H₂S. Followed by
visual inspection. No rubbing off of the contact surface
revealing the base material.
Function not impaired.