



SEK 19 male straight LP solder pins



General information

| | | | |
|-------------------------------------|---|---|------------------|
| Design | IEC 60603-13 | | |
| No. of contacts | 6,10,14,16,20,26,30,34,40,50,60,64 | | |
| Contact spacing | 2,54 mm x 2,54 mm | | |
| Test voltage Ur.m.s | 1 kV | | |
| Working voltage | 500 V for pollution degree 1 | | |
| Contact resistance | max. 20mOhm | | |
| Insulation resistance | min. 10 ⁹ Ohm | | |
| Working current acc. to IEC 60512-2 | See derating diagram | | |
| Temperature range | -55°C ... +125°C | | |
| Termination technology | Solder | | |
| Clearance & creepage distance | min. 0,5 mm clearance min. 0,56 creepage | | |
| Insertion and withdrawal forces | 6-poles max. 12N for PL1-2 / 18N for PL3 | ; 26-poles max. 52N for PL1-2 / 78N for PL3 | |
| | 10-poles max. 20N for PL1-2 / 30N for PL3 | ; 34-poles max. 68N for PL1-2 / 102N for PL3 | |
| | 14-poles max. 28N for PL1-2 / 42 for PL3 | ; 40-poles max. 80N for PL1-2 / 120N for PL3 | |
| | 16-poles max. 32N for PL1-2 / 48N for PL3 | ; 50-poles max. 100N for PL1-2 / 150N for PL3 | |
| | 20-poles max. 40N for PL1-2 / 60N for PL3 | ; 60-poles max. 120N for PL1-2 / 180N for PL3 | |
| Mating cycles | S4 surface treatment | 0,76 µm Au or PdNi equivalent | |
| | PL 1 acc. to IEC 60603-13 | 500 mating cycles | 10 days gas test |
| | PL 2 acc. to IEC 60603-13 | 250 mating cycles | 4 days gas test |
| | PL 3 acc. to IEC 60603-13 | 50 mating cycles | No gas test |
| UL file | No | | |
| RoHS - compliant | Yes | | |
| Leadfree | Yes | | |
| Hot plugging | No | | |

Insulator material

| | | | |
|---------------------------------|---|--|--|
| Material | PCT (thermoplastics, glass fiber reinforcement 30%) | | |
| Color | Black (RAL 7001) or beige | | |
| UL classification | UL94-V0 | | |
| Material group acc. IEC 60664-1 | II (400 < CTI < 600) | | |
| NF F 16-101 classification | No | | |

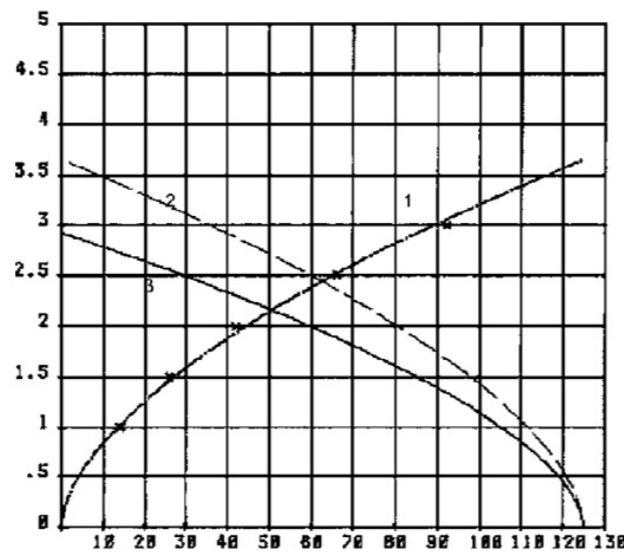
Contact material

| | | | |
|------------------------------|---|--|--|
| Contact material | Copper alloy | | |
| Plating termination zone | Sn over Ni | | |
| Plating contact sliding side | Au or PdNi according to Performance level | | |

Derating diagram acc. to IEC 60512-2 (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, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given without exceeding the maximum temperature. Control and test procedures according to DIN IEC 60512.

- 1) Temperature rise
- 2) Derating
- 3) Derating curve at I max x 0.8(IEC 60512-2)



Soldering instructions

SMC (Surface Mount Compatible) connectors are designed to be used in the 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 millimeters 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

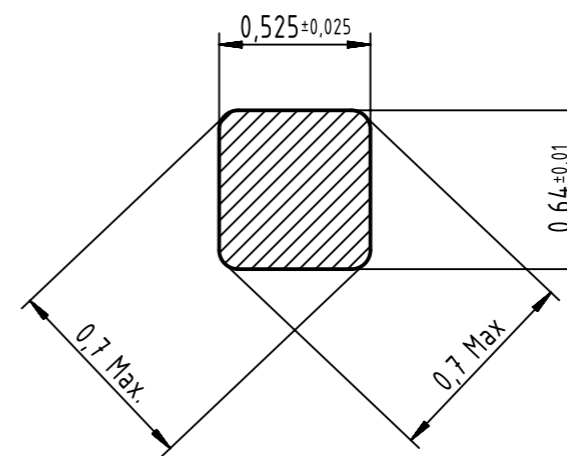
Before the components are assembled, solder paste must be applied to all solder pads (for connecting surface-mount components) and the plated through holes. To ensure that the plated through holes are completely filled, significantly more solder paste must be applied than traditional solder pads on the PCB. The following rule of thumb has proved valuable in practice:

$$V_{paste} = 2(V_H - V_P)$$

in which:
 V_{paste} = Required volume of solder paste
 V_H = Volume of plated through hole
 V_P = 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 terminations



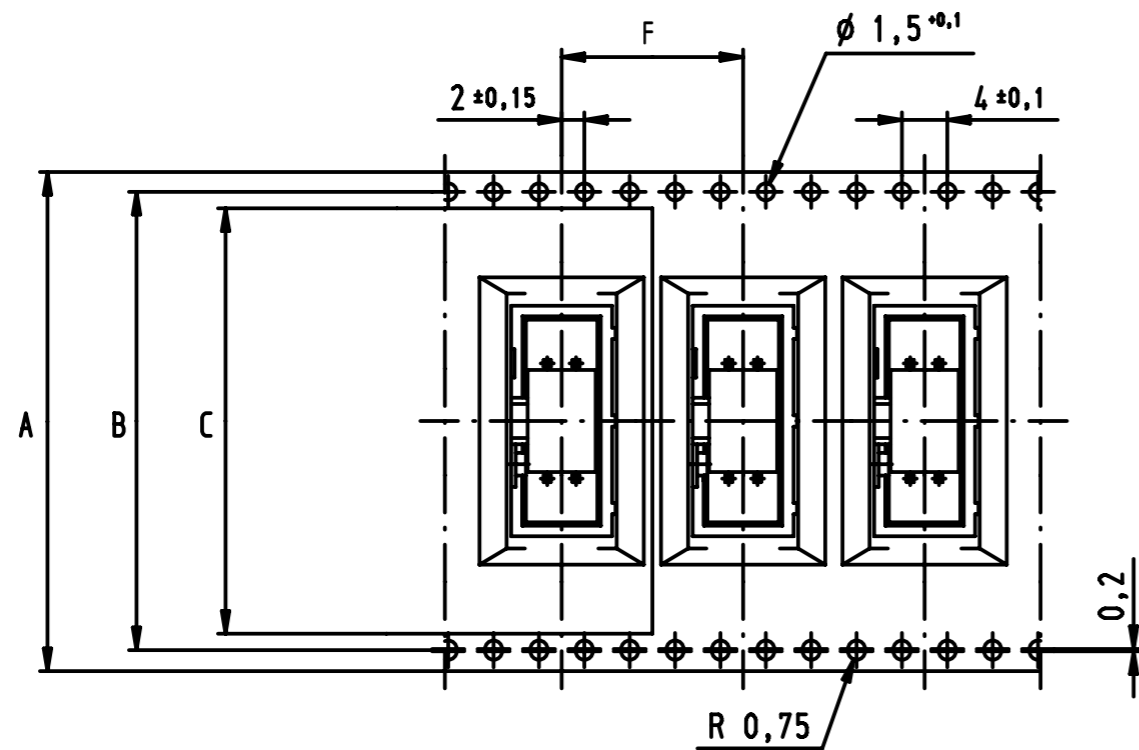
| | | | | | | | |
|--------------------------|-----------------------|--|--------------|-----------------|------------|-------------------------------------|--|
| | All rights reserved | Created by | Inspected by | Standardisation | Date | State | |
| | Department EC PD - FR | DOUGE | BAGDIKIAN | HOFFMANN | 2014-10-10 | Final Release | |
| HARTING Electronics GmbH | | Title | | | | Doc-Key / ECM-Nr. | |
| D-32339 Espelkamp | | SEK 19 male straight Low profile solder pins | | | | 100555108/UGD/001/C 500000080387 | |
| | | Type | Number | | Rev. | Page | |
| | | DS | 09191130202 | | C | 1/2 | |



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RoHS compliant

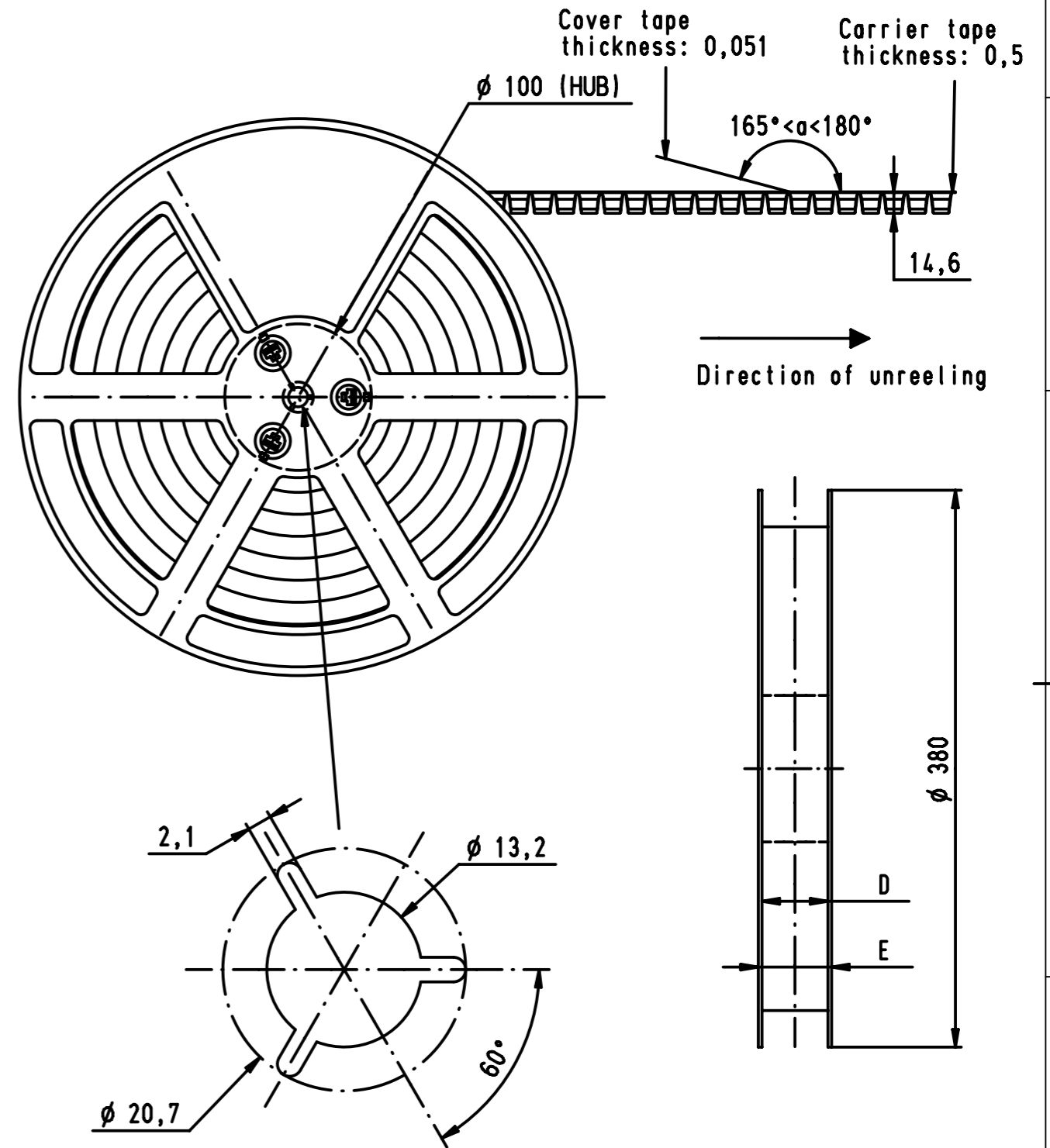
Tape layout & packaging



| colour | Part number |
|--------|-------------------|
| beige | 0919 5xx x32x 740 |
| black | 0919 5xx x32x 741 |

| | | | | | | | | | |
|------|----|------|------|----|----|----|--------------------------------------|-------------------------|-------------------------------------|
| 40 | 72 | 68,4 | 65,5 | 73 | 78 | 20 | 14 | 325 | 16 |
| 34 | 72 | 68,4 | 65,5 | 73 | 78 | 16 | 14 | 325 | 16 |
| 30 | 56 | 52,4 | 49,5 | 57 | 62 | 16 | 14 | 325 | 16 |
| 26 | 56 | 52,4 | 49,5 | 57 | 62 | 16 | 14 | 325 | 16 |
| 20 | 56 | 52,4 | 49,5 | 57 | 62 | 16 | 14 | 400 | 16 |
| 16 | 44 | 40,4 | 37,5 | 45 | 50 | 16 | 14 | 400 | 16 |
| 14 | 44 | 40,4 | 37,5 | 45 | 50 | 16 | 14 | 400 | 16 |
| 10 | 44 | 40,4 | 37,5 | 45 | 50 | 16 | 14 | 400 | 16 |
| 6 | 32 | 28,4 | 25,5 | 33 | 38 | 16 | 14 | 400 | 16 |
| Pins | A | B | C | D | E | F | -Trailer- Nb of empty Cavities | Nb of Conn. per Reel | -Leader- Nb of empty Cavities |

Reel dimension



All Dimensions in mm
Original Size DIN A3

Scale
1:1

Free size tol.

Ref.

Sub.



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Created by
DOUGE

Inspected by
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Standardisation
HOFFMANN

Date
2014-10-10

State
Final Release

Title
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