



M12 X-coded 1G transformer receptacles



GENERAL INFORMATION

| | |
|--|---|
| No. of contacts | 8 poles |
| Contact resistance | < 5 mOhm |
| Working temperature range | -40°C - +85°C |
| Termination technology | SMT |
| Reflow processing temperature | 245°C Max. |
| Total insertion force | 30N Max. according to IEC 61076-2-109 |
| Total withdrawal force | 30N Max. according to IEC 61076-2-109 |
| Mating cycles | 100 mating cycles, according to IEC 61076-2-109 |
| Shock and vibration proof | according to IEC 61076-2-109 |
| RoHS - compliant | Yes |
| Lead free | Yes |
| PSL level acc. ECA/IPC/JEDEC J-STD-075 | R7 |

INSULATION MATERIAL

| | |
|---------------------------------|----------------------------------|
| Material | LCP (liquid crystalline polymer) |
| Color | Black |
| UL classification | UL94-V0 |
| Material group acc. IEC 60664-1 | IIIa (175 ≤ CTI < 400) |

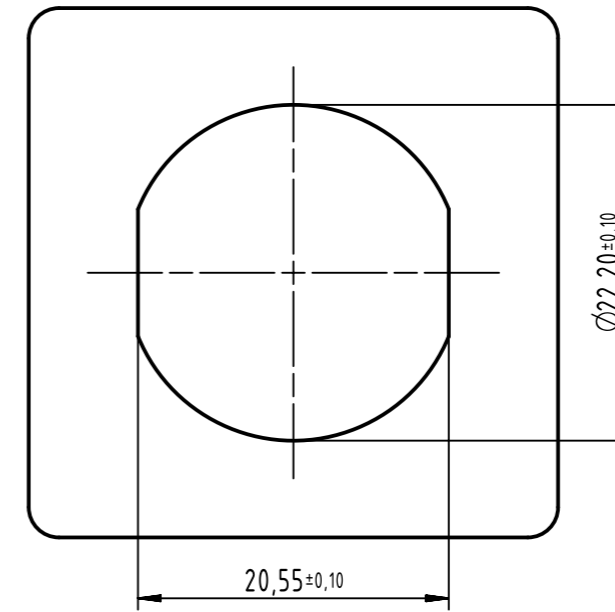
CONTACT MATERIAL

| | |
|------------------------------|--------------|
| Contact material | Copper alloy |
| Plating termination zone | Tin |
| Plating contact sliding side | Gold |

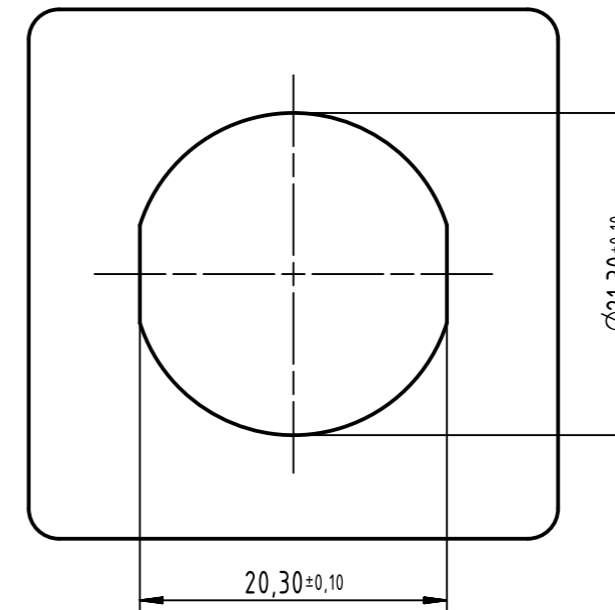
SHIELDING MATERIAL

| | |
|--------------------|--------------|
| Shielding material | Copper alloy |
| Plating | Tin |

Recommended Panel cut out



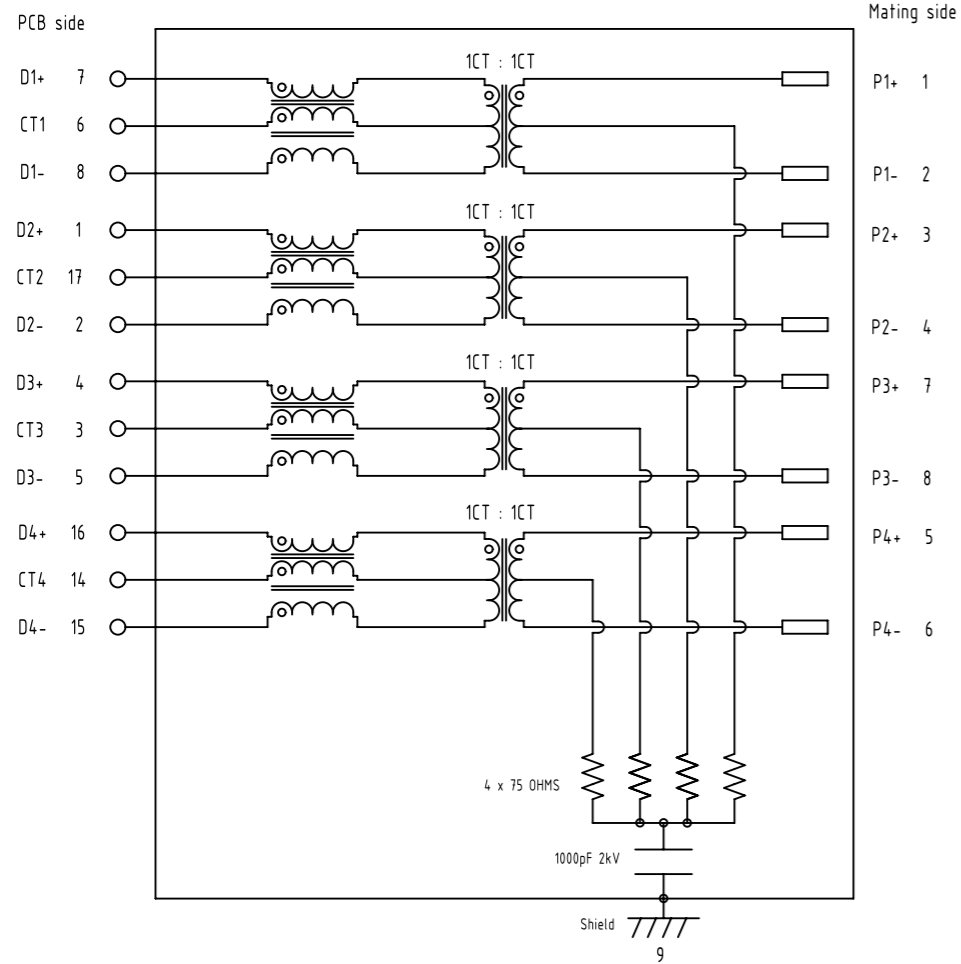
Front mounting use
Detail see drawing 21033012006



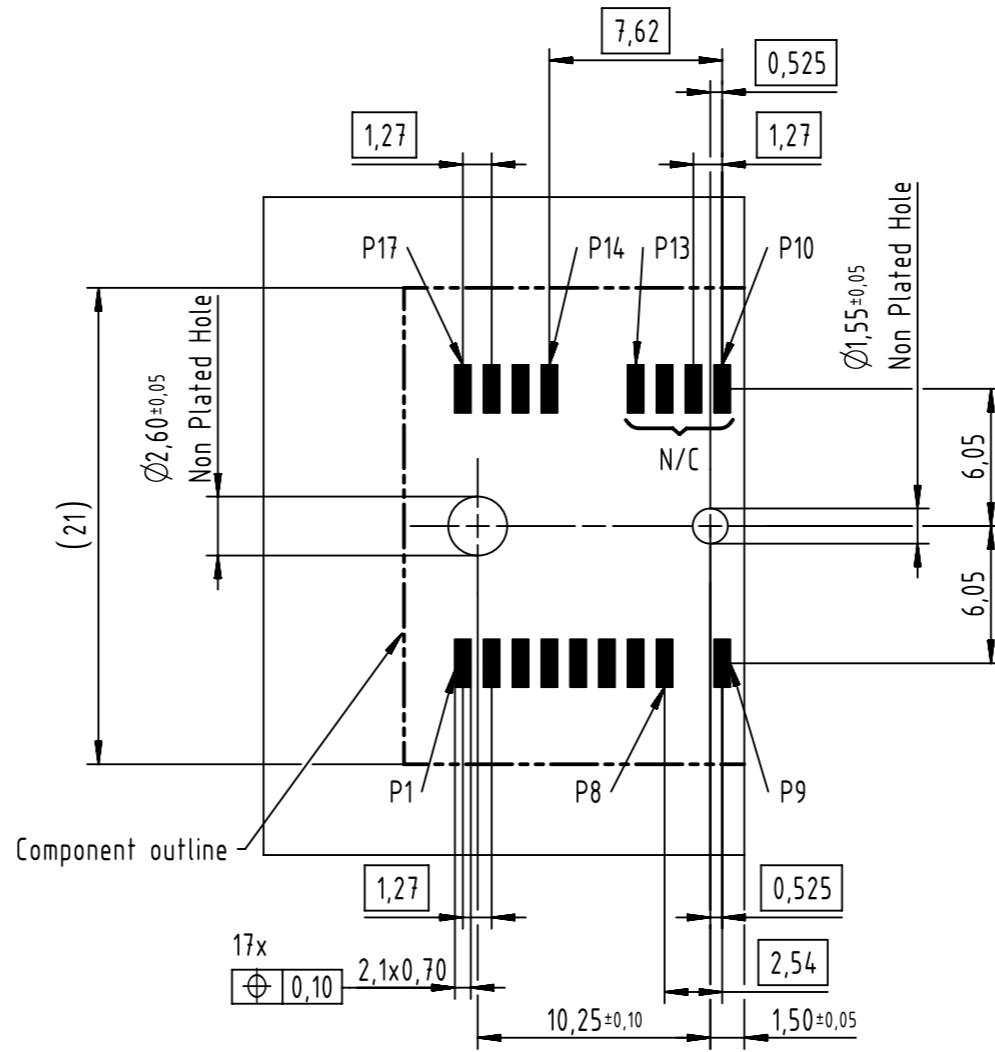
Rear mounting use
Detail see drawing 21033012007

| | | | | |
|------------------------------|--|--|-----------------------|--|
| | All Dimensions in mm Original Size DIN A3 | Scale 1:1 | Free size tol. | Ref. |
| | | | | Sub. |
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| | Department EL PD | Date 2021-03-15 | | State Final Release |
| HARTING D-32339 Espelkamp | | Title M12 transformer receptacles X-coded 1G angled,SMT | | Doc-Key / ECM-Nr. 100723280/UGD/001/E 500000191093 |
| | | Type DS | Number 21033810202 | Rev. E Page 1/4 |

Schematic



Recommended PCB layout



Electrical Characteristics @+25°C unless otherwise noted
 Meets IEEE802.3 specification
 RoHS compliant

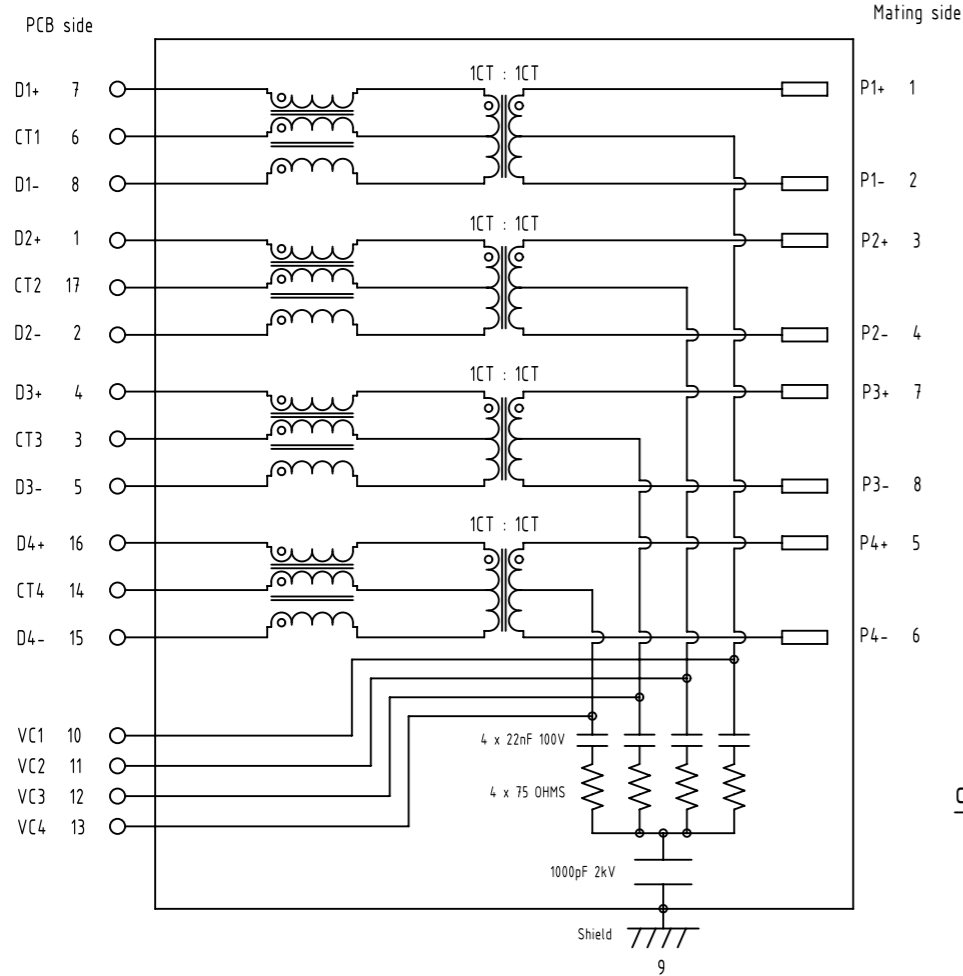
| Parameter | Specification/ Limit Values |
|---------------------------|--|
| Operating Temperature | -40°C - +85°C |
| Turn Ratio (+/- 2%) | 1CT : 1CT |
| OCL | min 350µH @ 100KHz , 100mV with 8mA bias current |
| Isolation (Input- Output) | 2.25kV VDC , for 60sec. min f ≤ 100MHz |
| Insertion Loss | 1.3 db |
| Return Loss | 9 db |
| Crosstalk | 30 db |
| CMRR | 30 db |
| CDMR | 30 db |

NOTE: 1. f is the frequency in MHz
 2. The Product has been tested for DC isolation. HARTING assumes no liability or obligation for AC isolation testing.

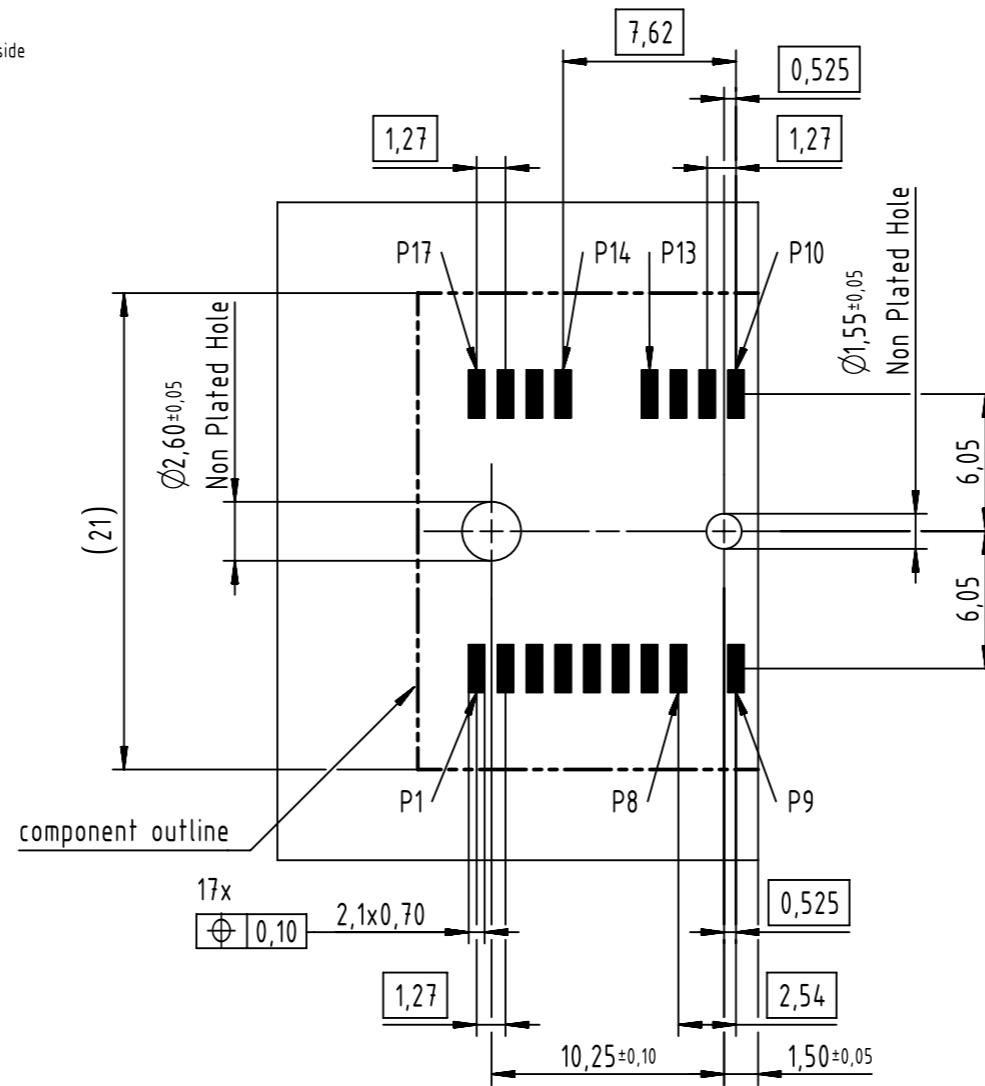
For X-coded 1G without PoE version only
 N/C: leave all pins floating. Do not connect to any of the pins to any net

| | | | | | | |
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Schematic



Recommended PCB layout



Electrical Characteristics @+25°C unless otherwise noted
 Meets IEEE802.3 specification
 RoHS compliant

| Parameter | Specification/ Limit Values |
|---------------------------------------|--|
| Operating Temperature | -40°C - +85°C |
| Turn Ratio (+/- 2%) | 1CT : 1CT |
| Current Capacity Pins 1-8/ VC1-VC4 | 750mA DC |
| OCL | min 350µH @ 100KHz , 100mV with 8mA bias current |
| Isolation (Input- Output) | 2.25kV VDC , for 60sec. min f ≤ 100MHz |
| Insertion Loss | 1.3 db |
| Return Loss | 9 db |
| Crosstalk | 30 db |
| CMRR | 30 db |
| CDMR | 30 db |

NOTE: 1. f is the frequency in MHz
 2. The Product has been tested for DC isolation. HARTING assumes no liability or obligation for AC isolation testing.

For X-coded 1G with PoE+ version only

| | | | | | | |
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TAPE LAYOUT & PACKAGING

RECOMMENDATION FOR SOLDER PROCESSING

1. PCB pad plating

The M12 transformer receptacle connectors are solderable on lead-free pad surfaces like HAL,NiAu,Immersion Sn.

2. Stencil recommendation

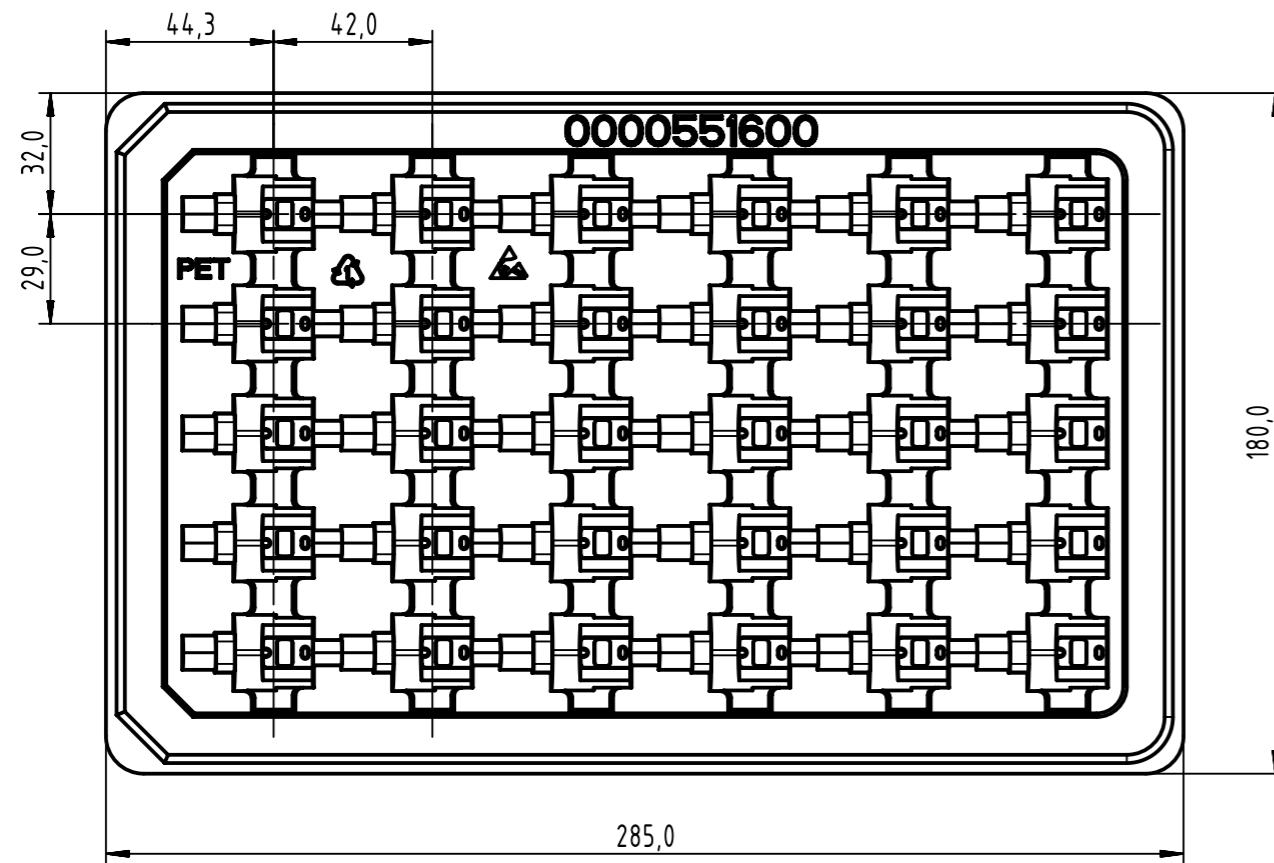
The size of the solder stencil apertures is depending on the thickness of the stencil.

In general, thinner stencils will need larger apertures to result in the required volume of solder paste.

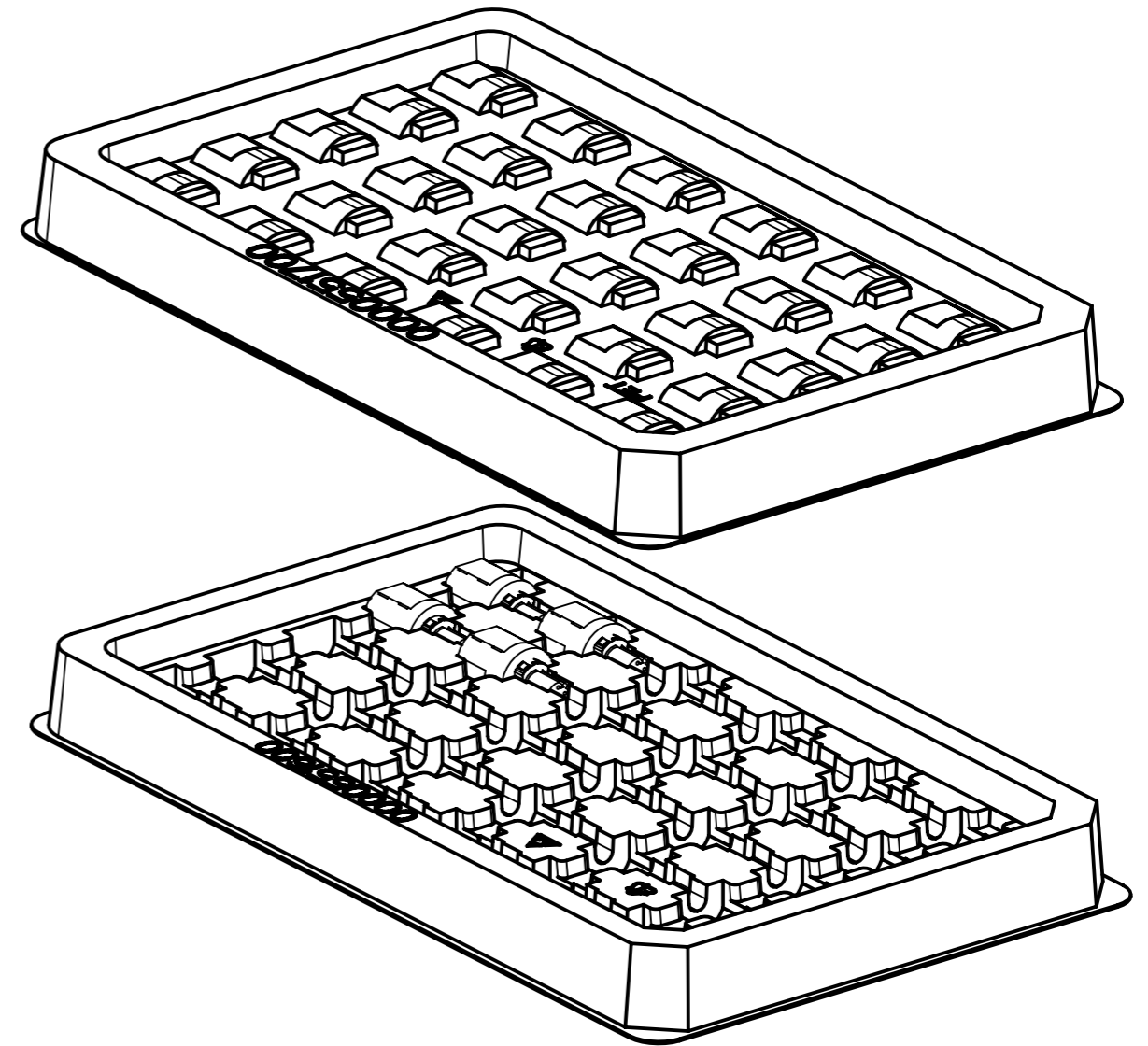
The minimum required solder paste volume for the signal pins is 0,160mm³,For example, this can be achieved with the following stencil data :

| Single pin | | | |
|-------------------|--------------|--------------------------------|--------------------------------|
| Stencil thickness | PCB pad size | proposal stencil aperture size | calculated solder paste volume |
| 120 µm | 2,1 x 0,7 mm | 2,05 x 0,65 mm | 0,160 mm ³ |

HARD TRAY LAYOUT & PACKAGING



APPLICATION INFORMATION



| | | | | | | | |
|--|---|--|-----------------------|---------------------------|--------------------|--|--------------|
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