



# M12 D-coded 10/100M transformer receptacles



## GENERAL INFORMATION

No. of contacts	4 poles
Contact resistance	10 mOhm Max.
Working temperature range	-40°C - +85°C
Termination technology	SMT
Reflow processing temperature	245°C Max.
Total insertion force	10N Max. according to IEC 61076-2-101
Total withdrawal force	15N Max. according to IEC 61076-2-101
Mating cycles	100 mating cycles, according to IEC 61076-2-101
Shock and vibration proof	according to IEC 61076-2-101
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)

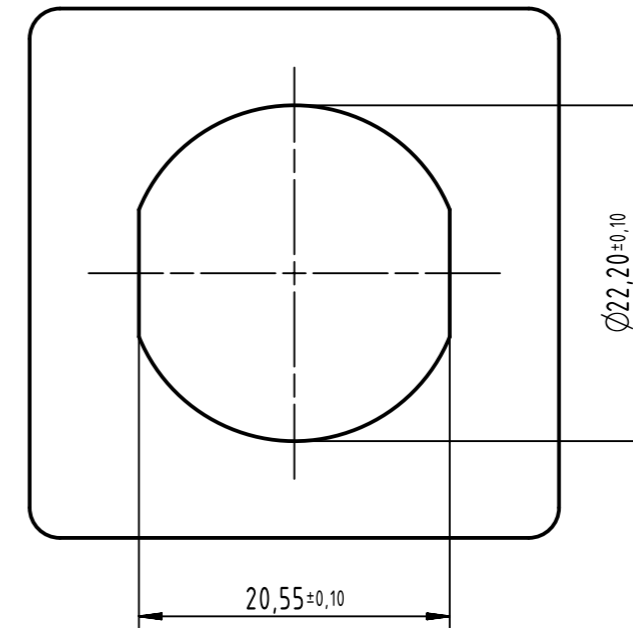
## CONTACT MATERIAL

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

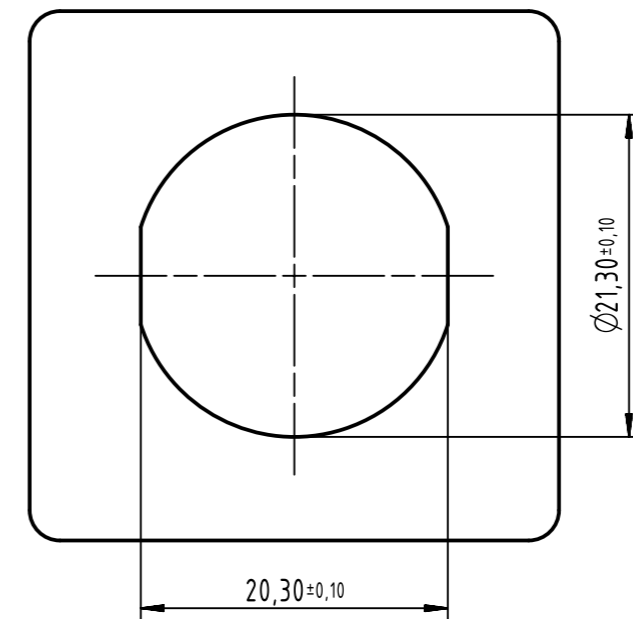
## SHIELDING MATERIAL

Shielding material	Copper alloy
Plating	Tin

## Recommended Panel cut out



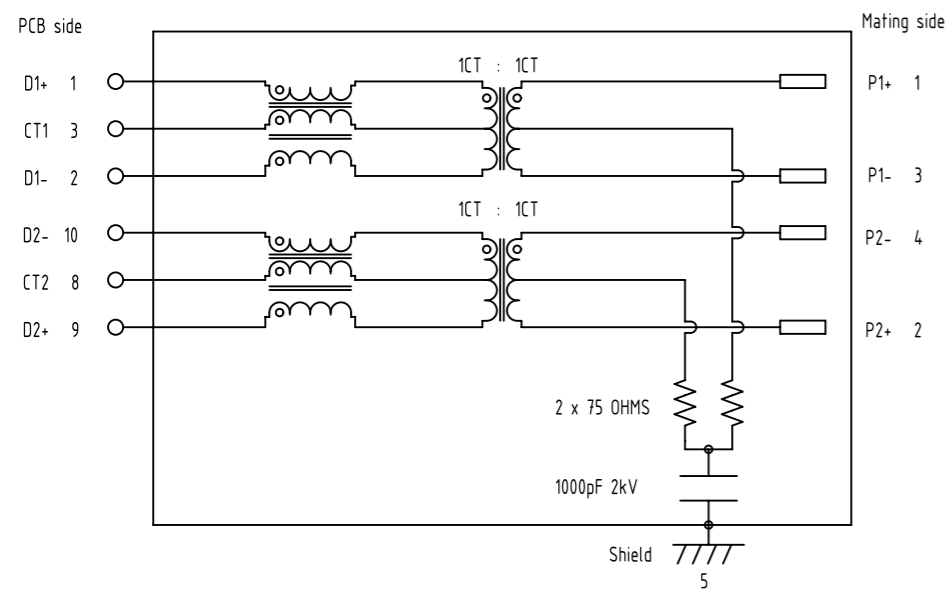
Front mounting use  
Detail see drawing 21033012006



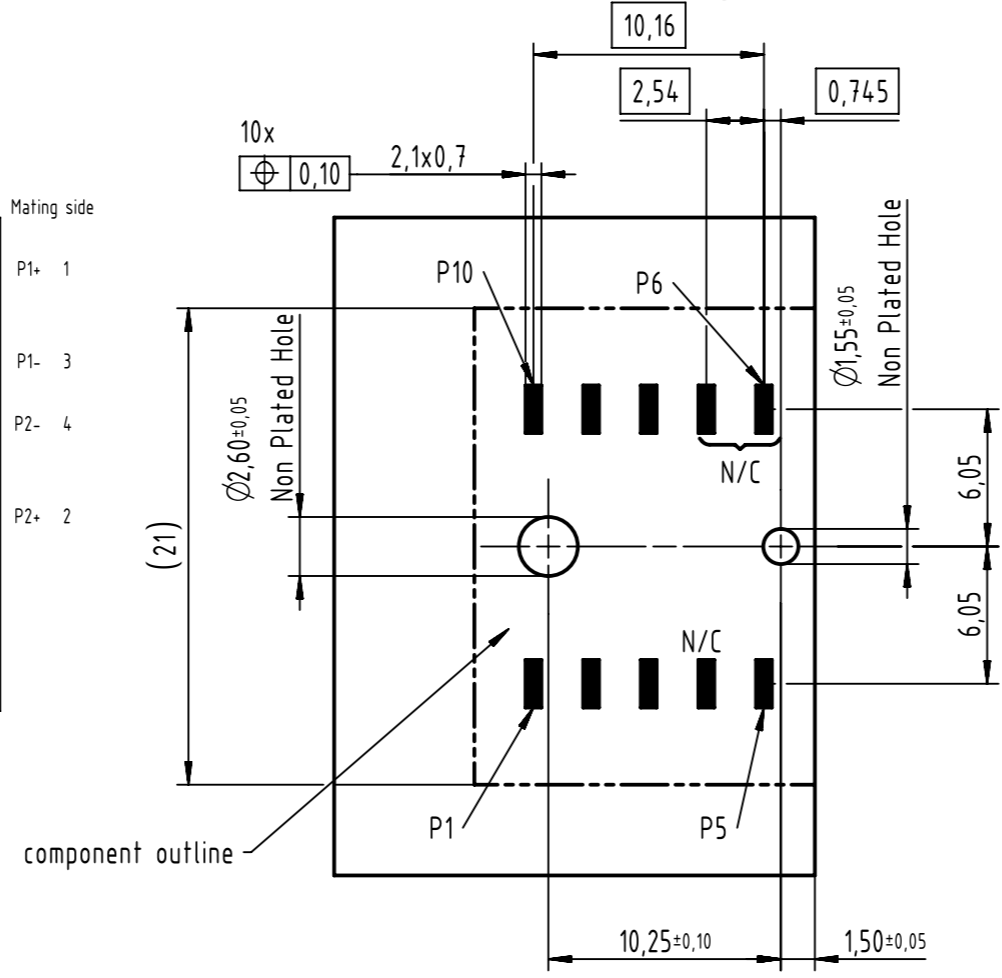
Rear mounting use  
Detail see drawing 21033012007

	All Dimensions in mm Original Size DIN A3	Scale 1:1	Free size tol.	Ref.
				Sub.
	All rights reserved	Created by 402664	Inspected by ZENGO	Standardisation 302077
	Department EL PD	Date 2021-03-15		State Final Release
HARTING D-32339 Espelkamp		Title M12 transformer receptacles D-coded angled,SMT		Doc-Key / ECM-Nr. 100723279/UGD/001/E 500000191093
		Type DS	Number 21033810201	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

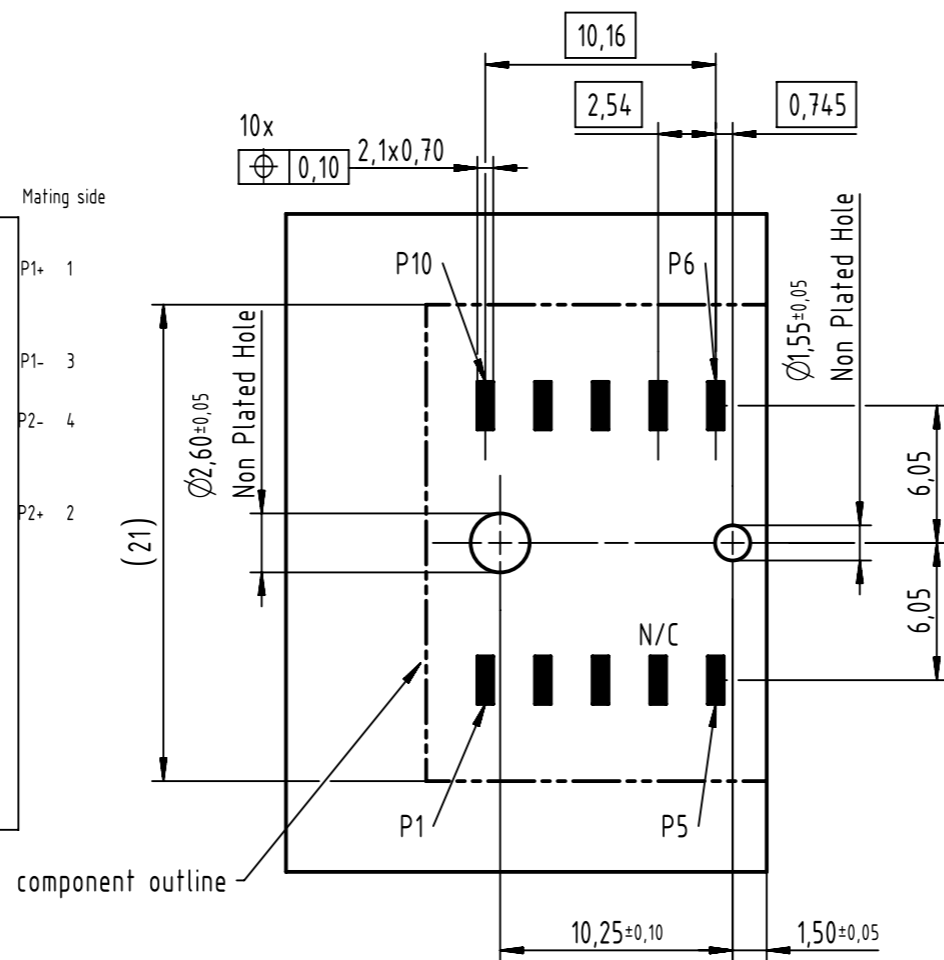
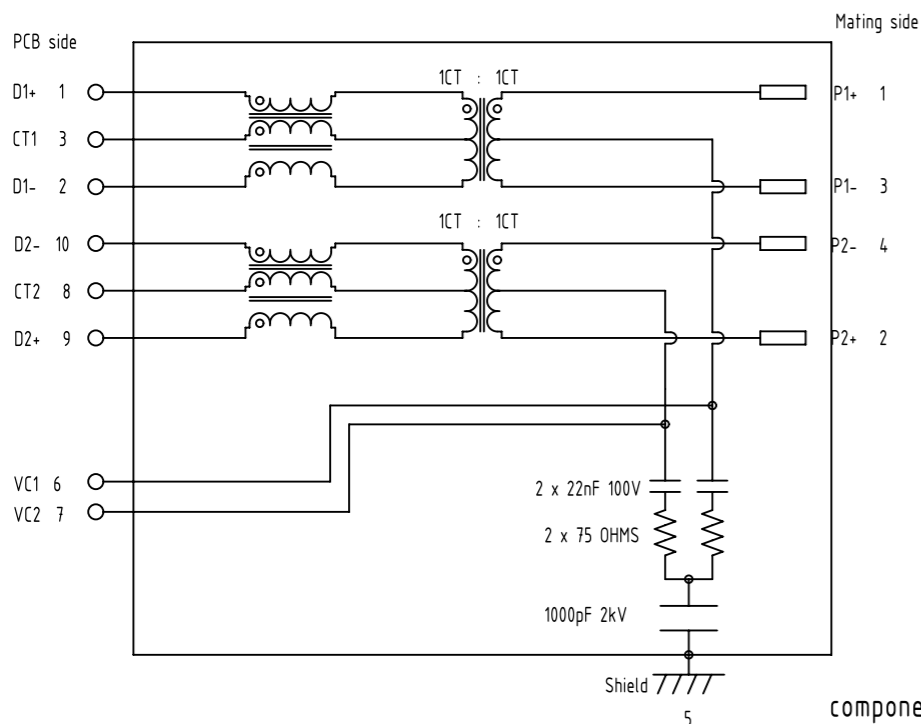
NOTE: 1. f is the frequency in MHz  
 2. The Product has been tested for DC isolation. HARTING assumes no liability or obligation for AC isolation testing.

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

	All rights reserved	Created by 402664	Inspected by ZENGO	Standardisation 302077	Date 2021-03-15	State Final Release
	Department EL PD	Title M12 transformer receptacles D-coded angled,SMT				Doc-Key / ECM-Nr. 100723279/UGD/001/E 500000191093
HARTING D-32339 Espelkamp		Type DS	Number 21033810201		Rev. E	Page 2/4

# Recommended PCB layout

## Schematic



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 D-coded with PoE+ version only  
N/C: leave all pins floating. Do not connect to any of the pins to any net

	All rights reserved	Created by 402664	Inspected by ZENGO	Standardisation 302077	Date 2021-03-15	State Final Release
	Department EL PD	Title M12 transformer receptacles D-coded angled,SMT			Doc-Key / ECM-Nr. 100723279/UGD/001/E 500000191093	
HARTING D-32339 Espelkamp		Type DS	Number 21033810201		Rev. E	Page 3/4

**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

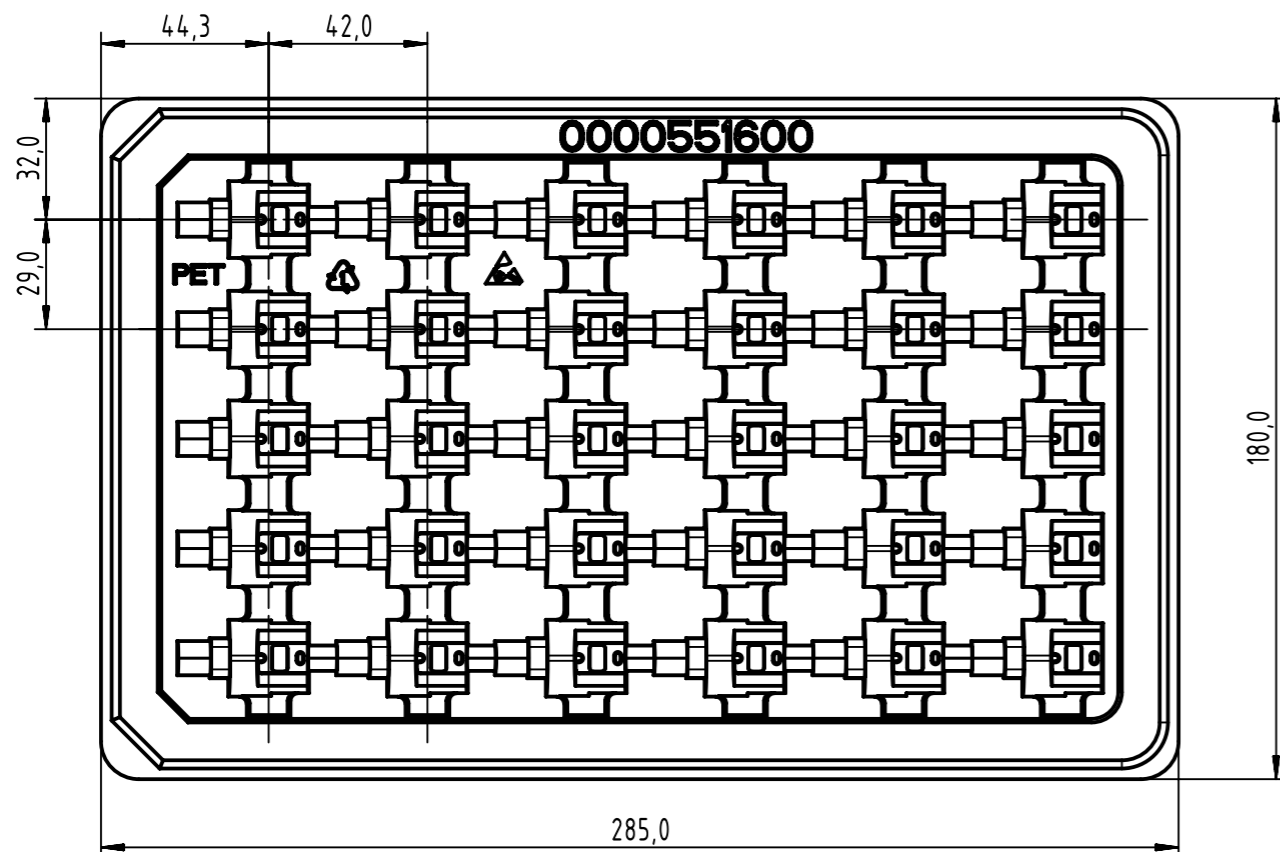
The size of the solder stencil apertures is depending on the thickness of the stencil.

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

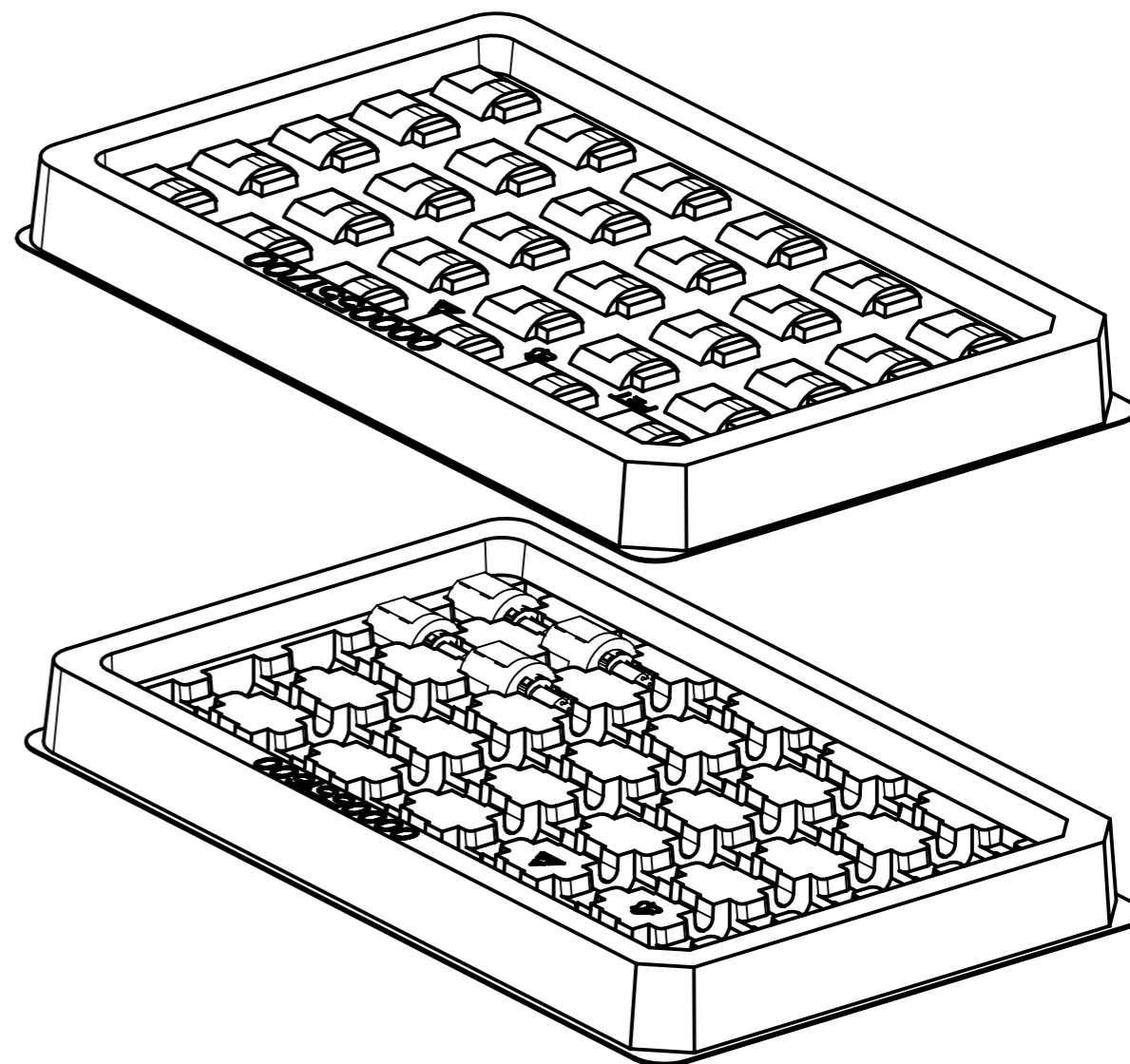
The minimum required solder paste volume for the signal pins is 0,160mm<sup>3</sup>,For example, this can be achieved with the following stencil data :

Stencil thickness	Single pin		
	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 <sup>3</sup>

HARD TRAY LAYOUT & PACKAGING



**APPLICATION INFORMATION**



	All rights reserved Department EL PD	Created by 402664	Inspected by ZENGO	Standardisation 302077	Date 2021-03-15	State Final Release	Ref. Sub.
	HARTING D-32339 Espelkamp	Title M12 transformer receptacles D-coded angled,SMT				Doc-Key / ECM-Nr. 100723279/UGD/001/E 500000191093	