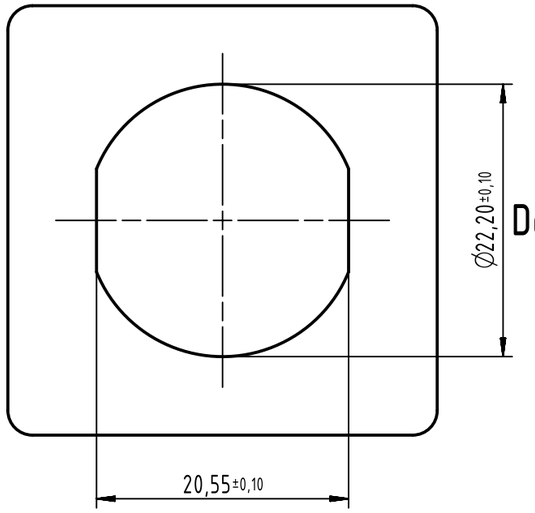
M12 D-coded 10/100M transformer receptacles

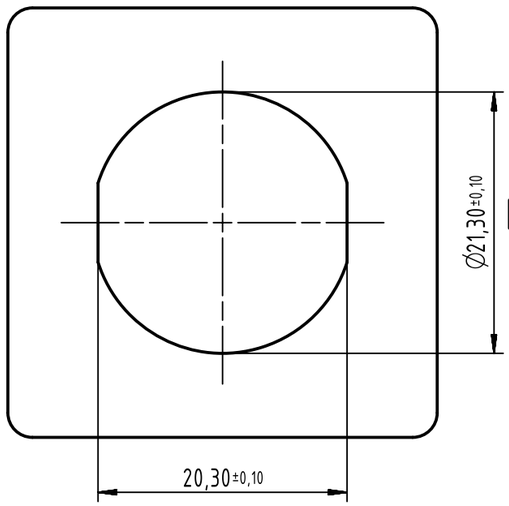
RoHS compliant

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.

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Department EC PD - CN

HARTING Electronics GmbH
D-32339 Espelkamp

Created by	Inspected by	Standardisation	Date	State
CHENSK	CHENSK	HOFFMANN	2017-06-02	Final Release

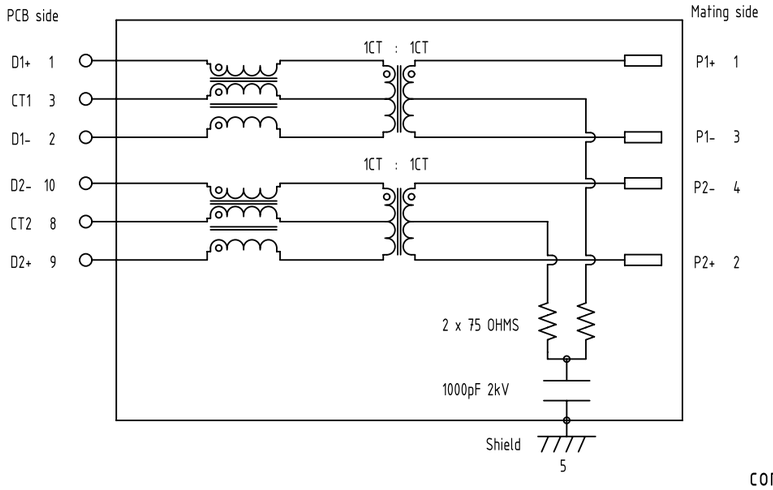
Title: M12 transformer receptacles D-coded angled,SMT

Doc-Key / ECM-Nr.: 100723279/UGD/001/B 500000119897

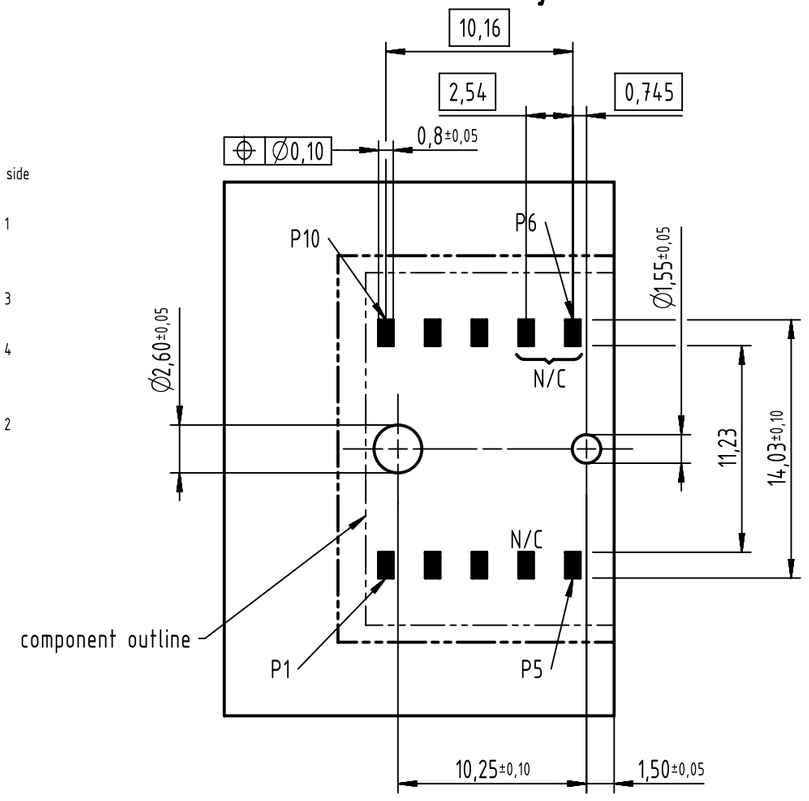
Type: DS | Number: 21033810201 | Rev.: B | Page: 1/4

A3

Schematic



Recommended PCB layout



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

Parameter	Specification/ Limit Values	
Turn Ratio (+/- 2%)	1CT : 1CT	
Working voltage	57V	
OCL	min 350µH @ 100KHz , 100mV with 8mA bias current	
Isolation (Input- Output)	1.5kV VAC RMS , for 60sec. min	
Insertion Loss	f ≤ 0.3MHz	0.3MHz < f ≤ 100MHz
	-3dB max	-0.6-0.002*f^1.25
Return Loss	f ≤ 10MHz	10MHz < f ≤ 100MHz
	-19dB min	-19+10*log (f/10)
Crosstalk	f ≤ 10MHz	10MHz < f ≤ 100Mhz
	-40dB min	-40+10*log(f/10)
CMRR	f ≤ 10Mhz	10MHz < f ≤ 100Mhz
	-37dB min	-37+14*log (f/10)
CDMR	f ≤ 10Mhz	10MHz < f ≤ 100Mhz
	-40dB min	-40+17*log (f/10)
NOTE: f is the freqency in MHz		

For D-coded without PoE version only
N/C: leave pins open, not connect to GND or VCC

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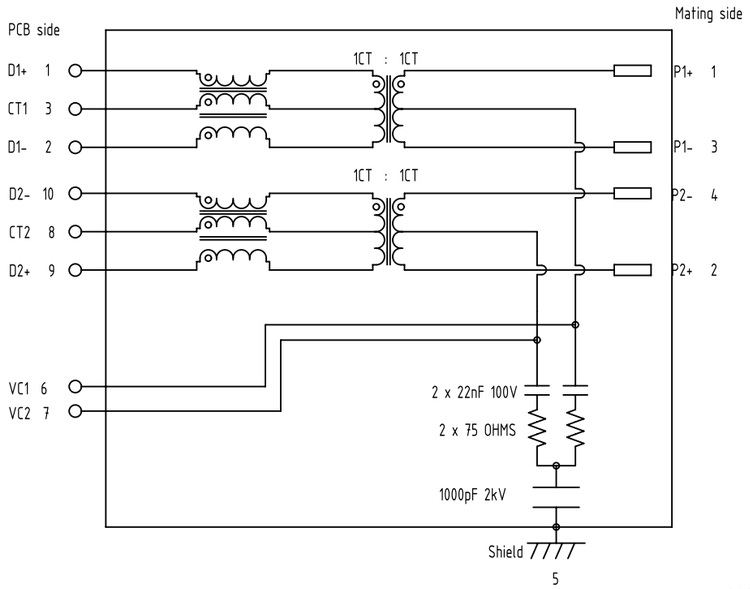
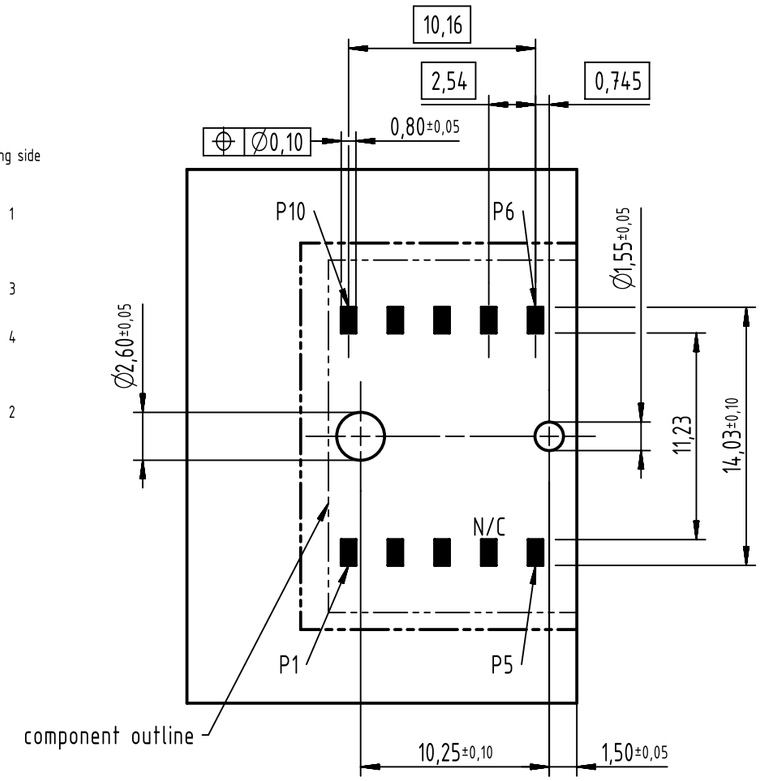
All Dimensions in mm Original Size DIN A3	Scale 2:1	Free size tol.		Ref.	Sub.
Department EC PD - CN	Created by CHENSK	Inspected by CHENSK	Standardisation HOFFMANN	Date 2017-06-02	State Final Release
HARTING Electronics GmbH D-32339 Espelkamp	Title M12 transformer receptacles D-coded angled,SMT				Doc-Key / ECM-Nr. 100723279/UGD/001/B 500000119897
	Type DS	Number 21033810201		Rev. B	Page 2/4

A3

Schematic



Recommended PCB layout



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

Parameter	Specification/ Limit Values	
Turn Ratio (+/- 2%)	1CT : 1CT	
Working voltage	57V	
Current Capacity Pins 1-8/ VC1-VC4	750mA DC	
OCL	min 350µH @ 100KHz , 100mV with 8mA bias current	
Isolation (Input- Output)	1.5kV VAC RMS , for 60sec. min	
Insertion Loss	f ≤ 0.3MHz	0.3MHz < f ≤ 100MHz
	-3dB max	-0.6-0.002*f^1.25
Return Loss	f ≤ 10MHz	10MHz < f ≤ 100MHz
	-19dB min	-19+10*log (f/10)
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CDMR	f ≤ 10Mhz	10MHz < f ≤ 100Mhz
	-40dB min	-40+17*log (f/10)
NOTE: f is the freqency in MHz		

For D-coded with PoE+ version only
N/C: leave pins open, not connect to GND or VCC

All Dimensions in mm
Original Size DIN A3

Scale 2:1

Free size tol.

Ref.

Sub.

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Page: 3/4

A3

TAPE LAYOUT & PACKAGING

RECOMMENDATION FOR SOLDER PROCESSING

1. Solder paste recommendation

The M12 transformer receptacles connecter are solderable with eatablished lead free SAC/SnNi solder but also leaded solder

2. PCB pad plating

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

3. Stencil recommendation

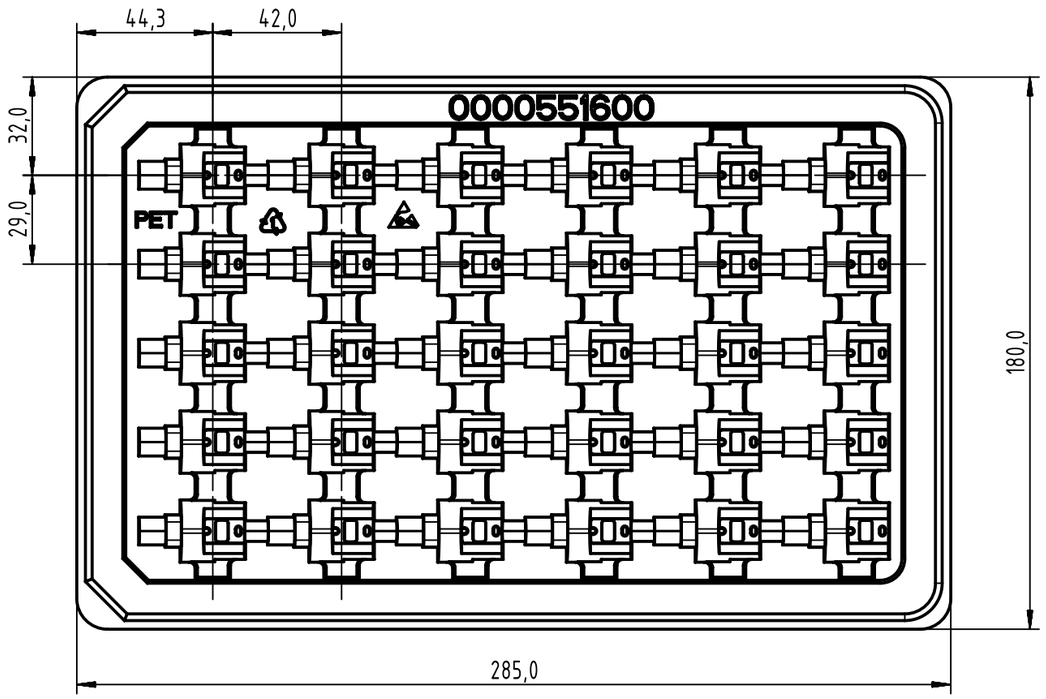
The size of the solder stencil apertures is depending on the thickness of the stencil.

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

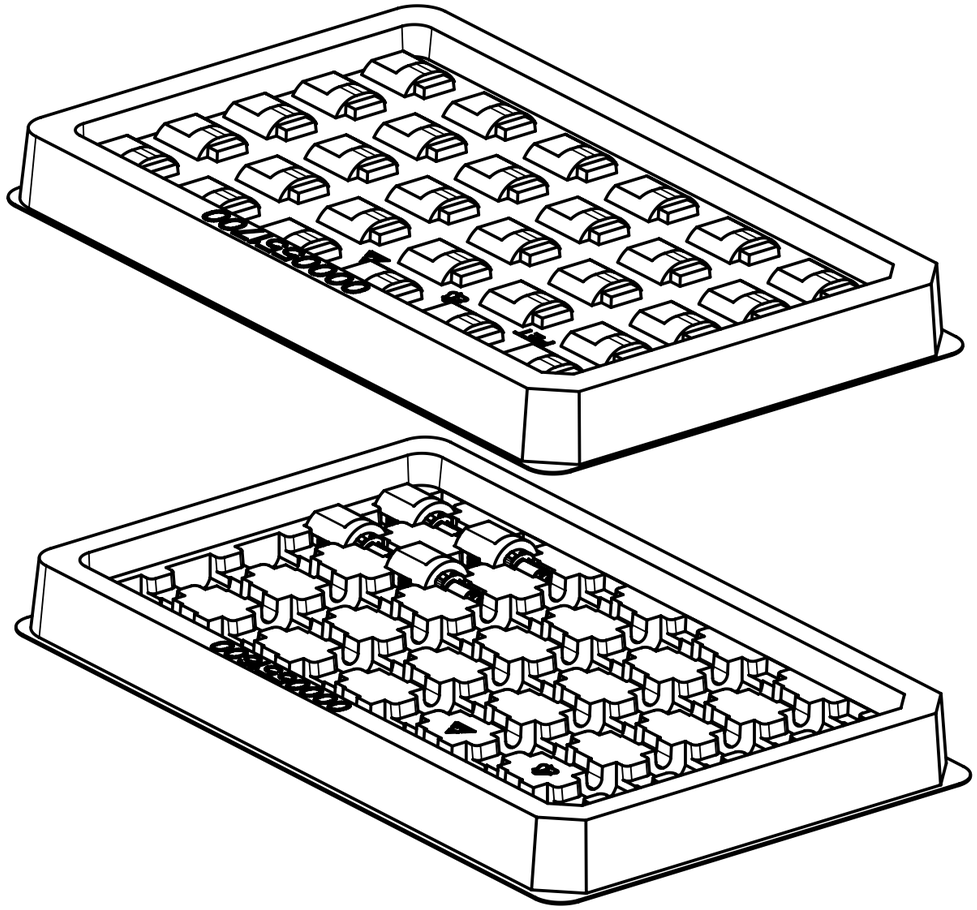
The minimum required solder paste volume for the signal pins is 0,114mm^3,For example, this can be achieved with the following stencil data :

	Single pin		
Stencil thickness	PCB pad size	proposal stencil aperture size	calculated solder paste volume
120 µm	1,4 x 0,8 mm	1,32 x 0,72 mm	0,114 mm³

HARD TRAY LAYOUT & PACKAGING



APPLICATION INFORMATION



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A3