Bauteilname/Part Name:	***5808 Transformer EE65_13:3:3 D02***			
Artikelnummer/Part Number:	***-***			
Author: Autor:	*Scherf, Marko*	Date of last revision: Datum der letzten Revision:	*07.09.2018*	*MS*
Release: Freigabe:		Date: Datum:		
Revision:	*D02*			
Confidentiality: Vertraulichkeit:	confidential			
Related documents:				
Mitgeltende Dokumente:				

Document History/ Dokumentenhistorie:			
Revision (R) Draft (D)	Modification / Änderung	Date Datum	Author Autor
D01	***5808 Transformer EE65_13:3:3 D01***	*20.04.2018*	*MS*
D02	***5808 Transformer EE65_13:3:3 D02*** - various minor changes	*07.09.2018*	*MS*

1. Image of an example

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2. Material

Magnetic Core: EE65/32/27, air gap: 3.8mm (appr.)➔Al= 264nH

- Please adjust air gap according to inductance tolerance!
- Air gap can be:
  - at inner leg only
  - or both at inner and outer legs, max. 50/50 (ungrinded cores)

Core material:	PC47 (TDK) alternatively: SAMWHA PL-15 TDG TP4D DMEGC DMR47
Conductor material:	HF litz wire (min. 630) x 0.071mm (as many single wires as possible) HF litz wire (min. 2000) x 0.071mm (as many single wires as possible)
Coil form:	horiz., w/o pins, EPCOS B66388A2000T001 or eq. + epoxy base plate
Isolation:	polyester film 39.5mm x 50µm (Teonex®), tube

3. Isolation Requirements

Creepage distance:	>/=8mm	(details ➔ chapter 4)
Temperature class IEC85:	class F	
Approval of the materials as „UL recognized component“:	yes	
Inflammability of plastic parts:	UL-V1 or better	
Comparative Tracking Index (CTI):	group III or better	

4. Windings/ Construction

4.1. Winding table:

Pin		Number of turns	L [µH]	Conductor	Winding	Comment
Start	End					
4	5	13	45	HF litz wire (min. 630) x 0.071mm	P1	Single layer
2 layers polyester film 39.5mm x 50µm						
1 2	8 7	3 3	2.4 2.4	2 x HF litz wire (min. 2000) x 0.071mm	S1 S2	2 fully tubed bifilar litz wires in one layer
2 layers polyester film 39.5mm x 50µm						
3	6	13	45	HF litz wire (min. 630) x 0.071mm	P2	Single layer
Cover Isolation: 2 layers polyester film 39.5mm x 50µm						

Remark:
Parallel connection of P1/P2, Pin assignment of starts (P1,P2) or/and ends (P1,P2) can be changed!

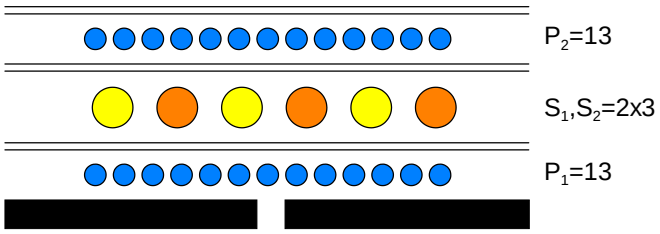
Insulation/ Clearance and creepage distances:

A) Reinforced Insulation
- P1, P2 belong to primary circuit
- S1, S2 belong to secondary circuit
- cl primary to secondary circuit: **>/= 6.4mm**
- cr primary to secondary circuit: **>/= 8.0mm**

Idea/ Approach:
- magnetic core is assigned to primary circuit (only functional insulation prim. to core)
- insulation is provided by fully tubing of secondary litz wires (or triple insulated wires)
- no additional spacers (or only small for functional insulation)

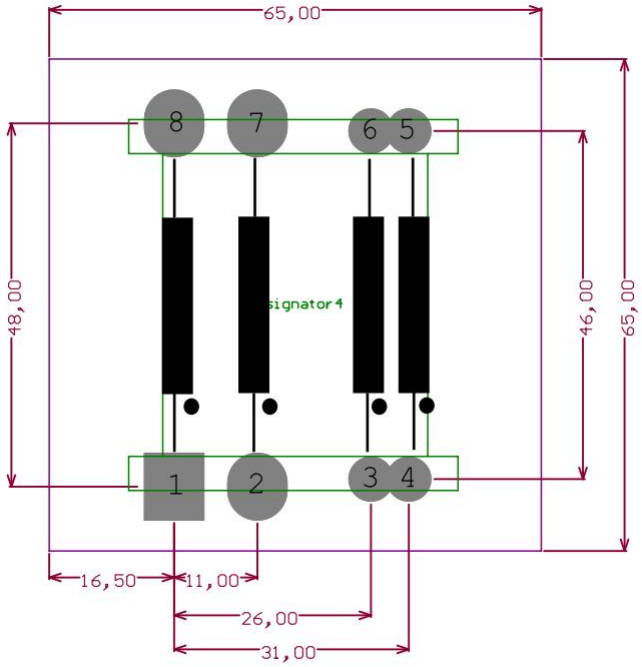
B) Functional Insulation
- cl primary to core: **>/= 1.5mm**
- cr primary to core: **>/= 2mm**

4.2. Sketch of Windings:



4.3. Sketch of Pin-Layout:

Top view: base, dimensions in [mm]



Max. height: 67mm! (underside epoxy base to top of part)

- Part must be impregnated!
- Part to base glue fixation!

5. Checks

Inductance:	yes [@10kHz], Tolerance: +/-5%
Turns ratio:	yes
Test voltage:	3.75 kVrms, all prim. windings P vs all sec. windings S