

# PCB specification : Refer to the LEM specification : General requirement for PCB CO.60.04.046.0 the latest revision

## Base material

	<input type="checkbox"/> Standard value	<input checked="" type="checkbox"/> Strengthen value	<input type="checkbox"/> High strengthen value
IPC4101/... :	21 or 24	98 or 99	126 or 129
Material composition :	FR4	FR4	FR4
UL Max.Operating Temp: C°	105 °C	130 °C	130 °C
Glass transition temp. (Tg) :	130 °C	150 °C	170 °C
Minimum UL94 :	V-0	V-0	V-0
Z - Axis CTE :	≤ 60ppm/°C	≤ 50ppm/°C	≤ 50ppm/°C
Moisture absorption (%) :	0.5	0.5	0.5
CAF Resistance :	NO	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	YES
Requirement Anti CAF (Q1000Performance)			

Main characteristic: Primary area

## Design

Solder mask	Blue
Minimum width track:	300 um
Minimum tracks gap:	300 um
Electrical test :	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO

Tracability marking on solder mask refer to Gerber file position

Acceptability of printed board IPC-A-600: ☒ Class II ☐ Class III

Acceptability of printed board IPC-6012B: ☒ Class 2 ☐ Class 3

## Gerbers and manufacturing files

Gerber file format : RS-274X

☒ PS2 (GTP) TOP Solder Paste (For information only)

☒ SM2 (GTS) TOP Solder Mask

☒ F2C (GTL) TOP Copper Layer

☒ INT1 (G1) INNER 1 Copper layer

☒ INT2 (G2) INNER 2 Copper layer

☒ INT3 (G3) INNER 3 Copper layer

☒ INT4 (G4) INNER 4 Copper layer

☒ F1W (GBL) BOTTOM Copper Layer

☒ SM1 (GBS) BOTTOM Solder Mask

☐ PS1 (GBP) TOP Solder Paste (For information only)

☒ EXTREP Description of Gerber files

☒ APR Aperture Data

☒ DDR NC Drill Report File

☒ GD1 Drill and Tool Drawing

☒ TXT NC Drill (Format Excellon)

☒ DRL NC Drill Binary Data

☒ Ascii PCB ASCII file

☒ CPLOC Pick and Place Files Part

☐ PTLOC Test point Report

☒ GKO Keepout layer Data (If no cutting drawing and DXF file)

Cutting Drawing : If no Gerber file GKO refer to cutting drawing and DXF file

Panelization: If no panelization drawing, no requirement

The stencil design is under the supplier's responsibility.

☐ Test coupon CAF:Conductive anodic filament: According to the IPC-2221A  
Used Gerber-Files definition No: 92.49.02.024.0

## Properties Laminate material

Manufacturing specification according to  
IPC-2222

Manufacturing specification according to IPC-2221A level: ☐ A ☒ B ☐ C

Layers Count: ☐ Single side ☐ Double side ☒ 4 Multi-layers

Board thickness(mm) : ☐ 0.5 ☐ 0.8 ☐ 1.2 ☒ 1.6 ☐ 2.0 ☐ 2.4 ☐ Other

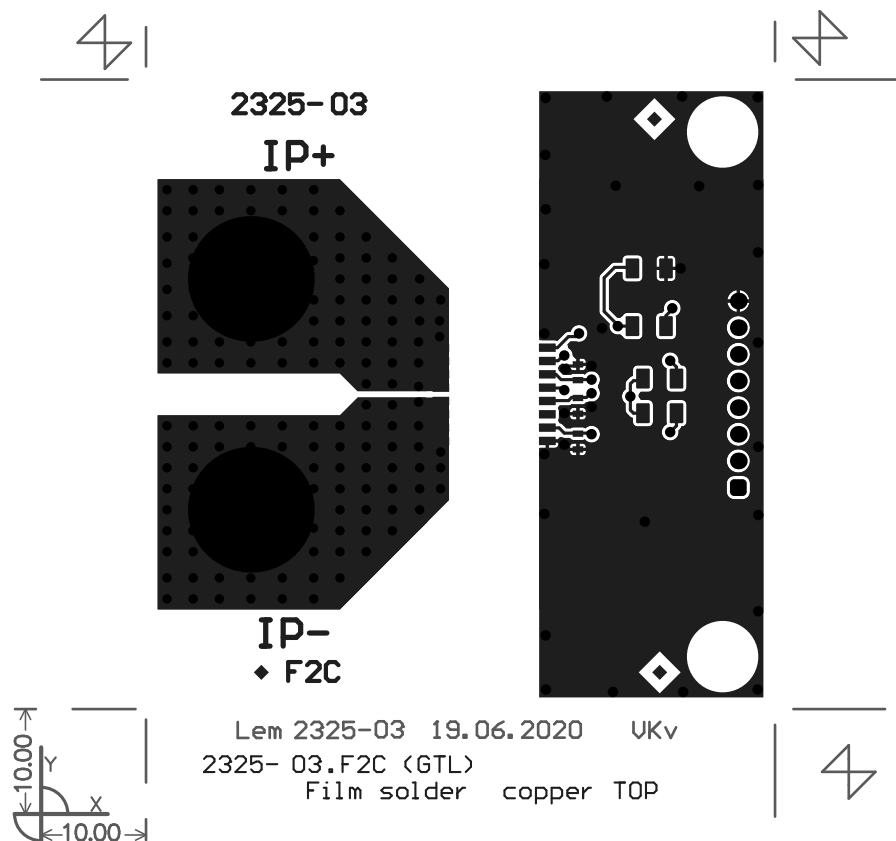
Board thickness Tolerance refer to IPC-2222 Class: B/L Example: 1.6mm ±0.13

Copper Thickness plated Through hole: ☒ 20um ☐ 25um (For pressfit connector)

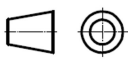




Finishing: ☐ HASL (no for QFN) ☒ Chemical Sn ☐ Gold ☐ Other

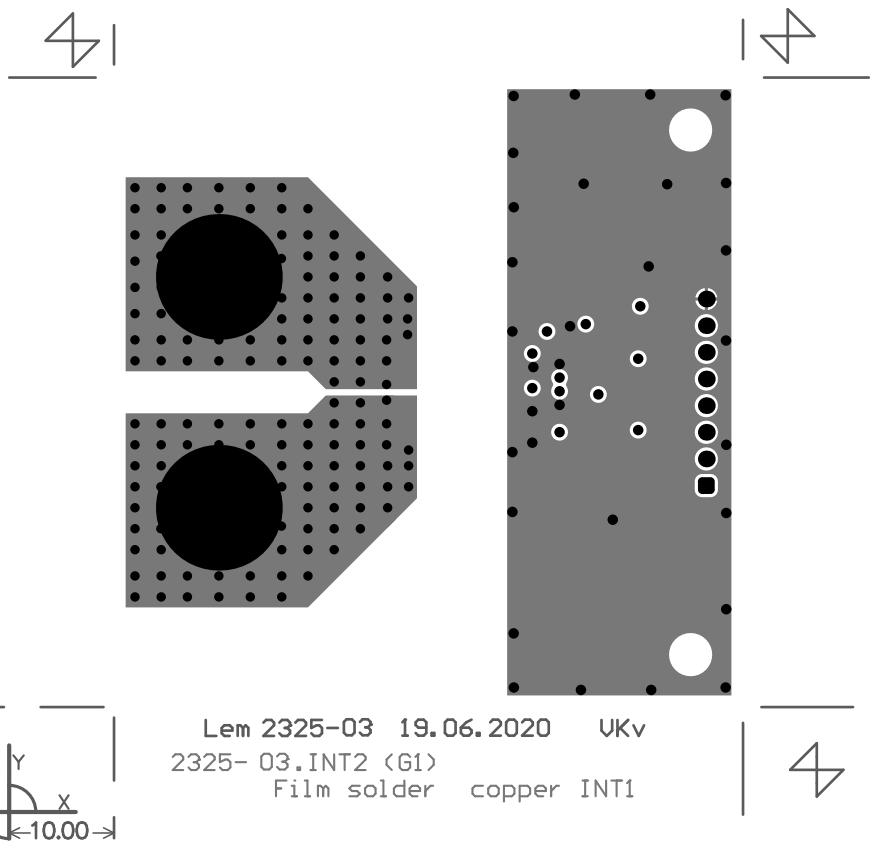
Finishing copper thickness (um)(Finished through hole) :

Single side				Double side				Multi-layers			
17	35	70	105	17	35	70	105	17	35	70	105
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>








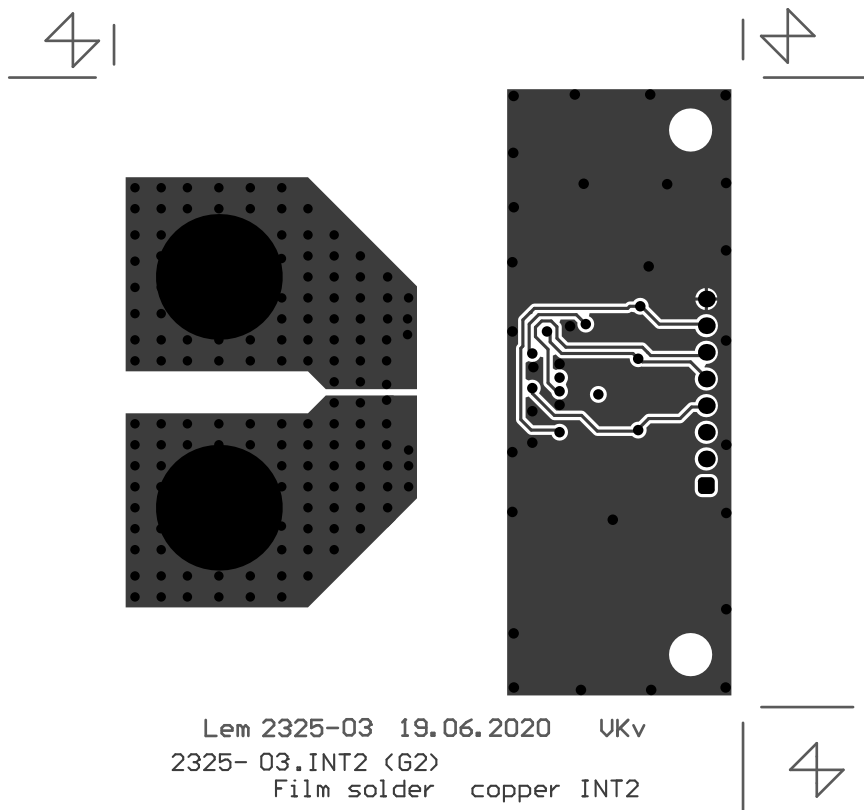
Lem 2325-03 19.06.2020 VKv  
 2325- 03.F2C (GTL)  
 Film solder copper TOP

03	06.19.2020	Layer count increased to 6;DUT side polygons were expanded			VKv			
02	09.13.2017	Drill 1mm => 0.6mm			ArB			
01	09.01.2017	Removed Jumper ,Res ExtBidir			ArB			
Rev.	Date (MM.DD.YYYY)	Modification			CFU	Name		
General tolerances Linear: Angular:			Folio: 2 / 11	LEM International SA 8, chemin des Aulx P.O Box 35 CH-1228 Plan-Les-Ouates Geneva Switzerland	 LEM Intellectual Property SA Avenue Beauregard 1 CH-1700 Fribourg Switzerland			
 SAFETY characteristics		 REGULATION characteristics		 SIGNIFICANT characteristics				
All linear dimensions are in millimeter. All angles are in degree.					Size A4 Scale %			
PCB 2325 GERBER  ORION SOIC16					This document is the property of LEM Intellectual Property SA. No copy without prior written permission.			
					Writer		07.23.2015	ArB
					Checker		SRy	
					Approval		06.22.2020	PMo
					Drawing reference		Revision	
					92.49.02.325.0		03	

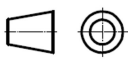






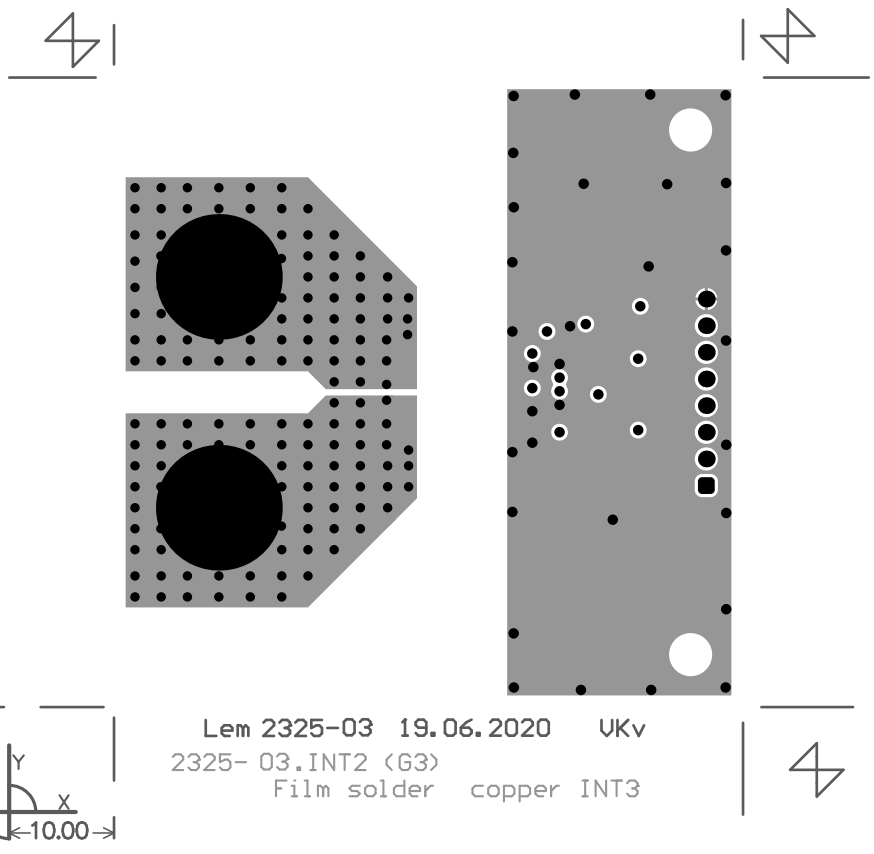
Lem 2325-03 19.06.2020 VKv  
2325- 03.INT2 (G1)  
Film solder copper INT1

03	06.19.2020	Layer count increased to 6;DUT side polygons were expanded		VKv
02	09.13.2017	Drill 1mm => 0.6mm	-----	ArB
01	09.01.2017	Removed Jumper ,Res ExtBidir	-----	ArB
Rev.	Date (MMDD.YYYY)	Modification	CFU	Name
General tolerances Linear: Angular:		Folio: 3 / 11	LEM International SA 8, chemin des Aulx P.O Box 35 CH-1228 Plan-Les-Ouates Geneva Switzerland	 LEM Intellectual Property SA Avenue Beauregard 1 CH-1700 Fribourg Switzerland
 SAFETY characteristics	 REGULATION characteristics	 SIGNIFICANT characteristics	Size A4	Scale %
All linear dimensions are in millimeter. All angles are in degree.			Writer	07.23.2015 ArB
PCB 2325 GERBER  ORION SOIC16			Checker	SRy
			Approval	06.22.2020 PMo
			Drawing reference 92.49.02.325.0	
			Revision 03	

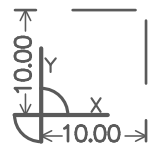


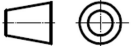




Lem 2325-03 19.06.2020 VKv  
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 Film solder copper INT2

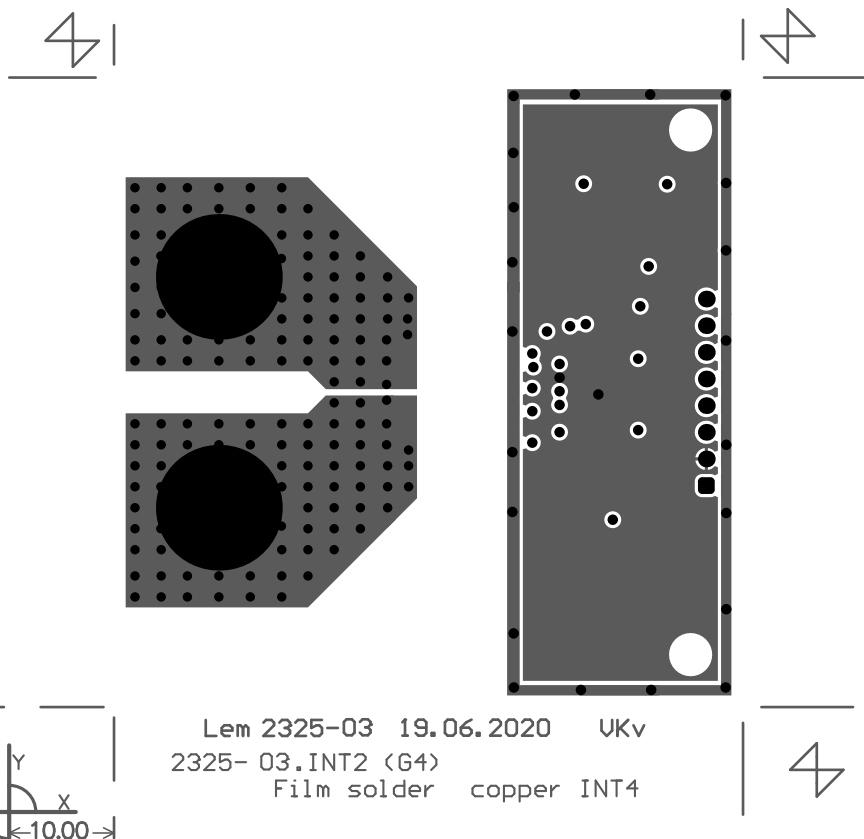
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02	09.13.2017	Drill 1mm ==> 0.6mm			ArB	
01	09.01.2017	Removed Jumper ,Res ExtBidir			ArB	
Rev.	Date (MM.DD.YYYY)	Modification			CFU	Name
General tolerances Linear: Angular:			Folio: 4 / 11	LEM International SA 8, chemin des Aulx P.O Box 35 CH-1228 Plan-Les-Ouates Geneva Switzerland	 LEM Intellectual Property SA Avenue Beauregard 1 CH-1700 Fribourg Switzerland	
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All linear dimensions are in millimeter. All angles are in degree.					Size A4	
PCB 2325 GERBER  						

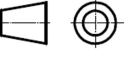





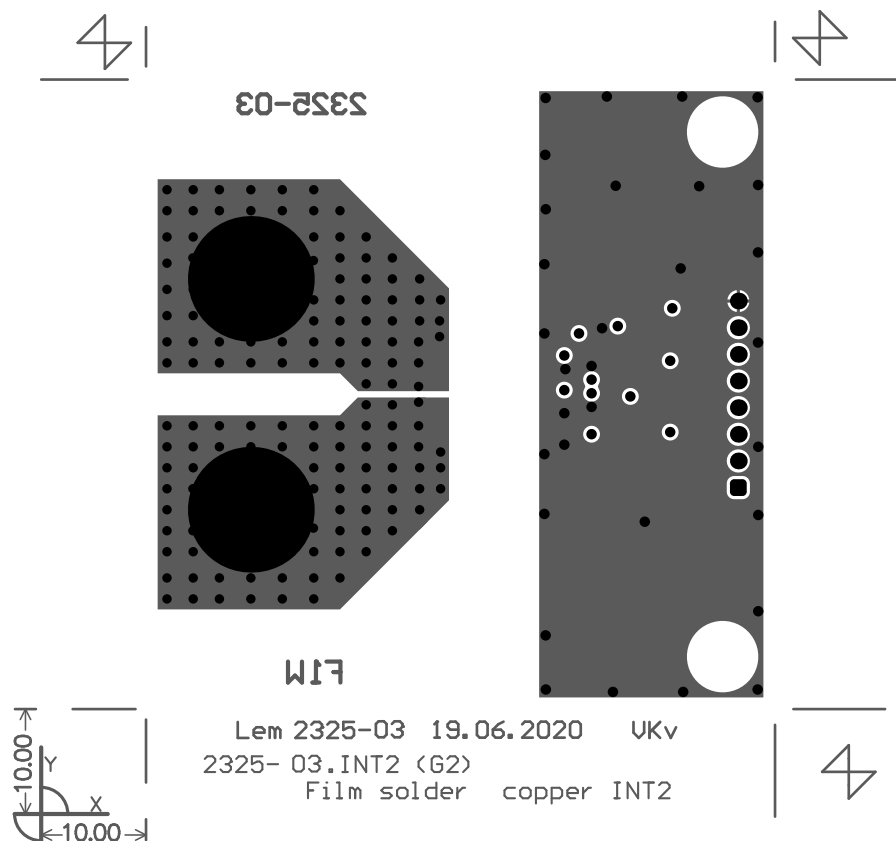
Lem 2325-03 19.06.2020 VKv  
 2325- 03.INT2 (G3)  
 Film solder copper INT3

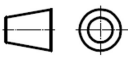






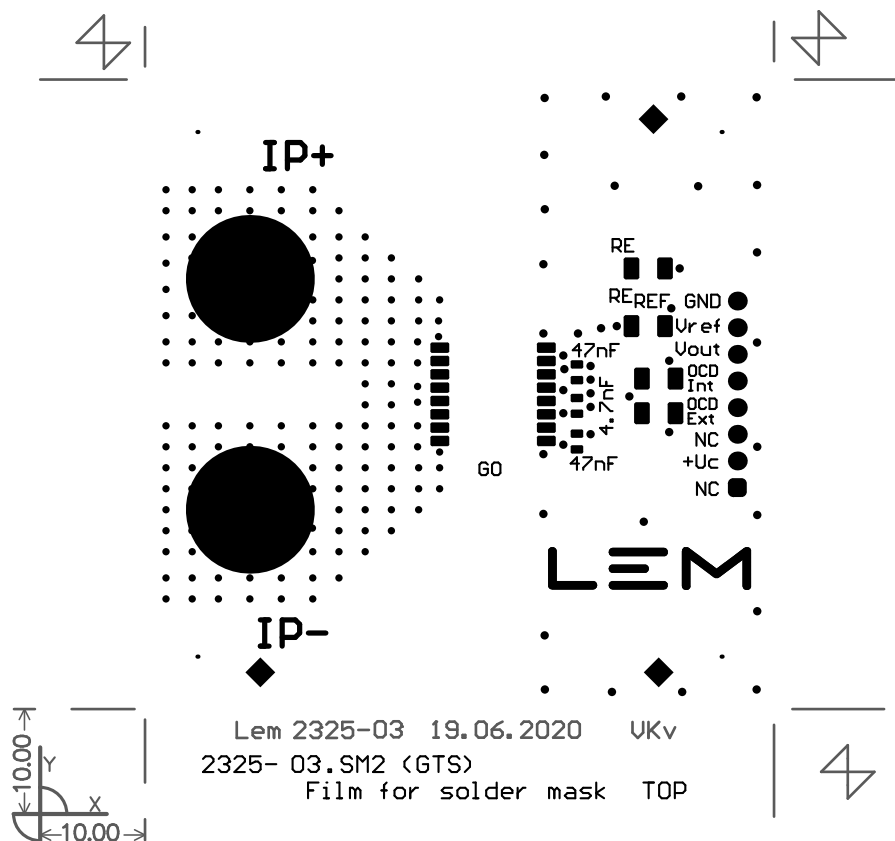
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01	09.01.2017	Removed Jumper ,Res ExtBidir			ArB
Rev.	Date (MM.DD.YYYY)	Modification			CFU Name
General tolerances Linear: Angular:			Folio: 5 / 11	LEM International SA 8, chemin des Aulx P.O Box 35 CH-1228 Plan-Les-Ouates Geneva Switzerland	 LEM Intellectual Property SA Avenue Beauregard 1 CH-1700 Fribourg Switzerland
 SAFETY characteristics		 REGULATION characteristics		 SIGNIFICANT characteristics	
Size A4 Scale % Writer 07.23.2015 ArB					
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Checker SRy					
Approval 06.22.2020 PMo					
Drawing reference Revision					
92.49.02.325.0 03					









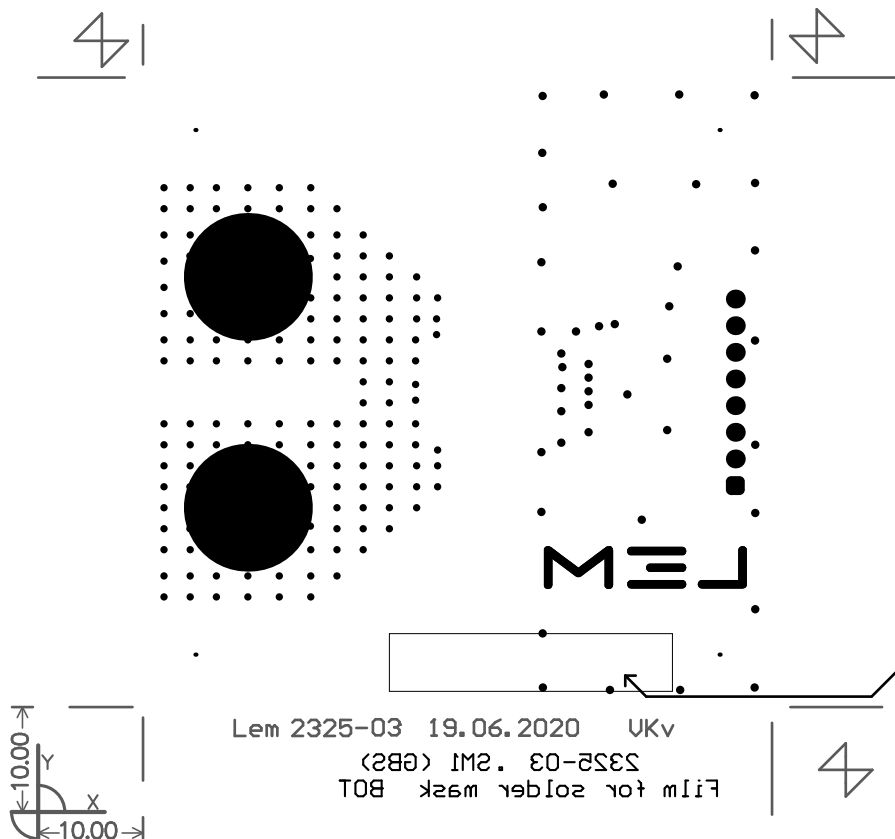
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Rev.	Date (MM.DD.YYYY)	Modification	CFU	Name
General tolerances Linear: Angular:		 Folio: <b>6 / 11</b>	<b>LEM</b> LEM Intellectual Property SA Avenue Beauregard 1 CH-1700 Fribourg Switzerland	
 SAFETY characteristics	 REGULATION characteristics	 SIGNIFICANT characteristics	Size <b>A4</b>	Scale <b>%</b>
All linear dimensions are in millimeter. All angles are in degree.			This document is the property of LEM Intellectual Property SA. No copy without prior written permission.	Writer 07.23.2015 ArB
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			Approval	06.22.2020 PMo
			Drawing reference <b>92.49.02.325.0</b>	Revision <b>03</b>



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General tolerances Linear: Angular:		 Folio: 7 / 11	 LEM Intellectual Property SA Avenue Beauregard 1 CH-1700 Fribourg Switzerland	
 SAFETY characteristics	 REGULATION characteristics	 SIGNIFICANT characteristics	Size A4	Scale %
All linear dimensions are in millimeter. All angles are in degree.			Writer	07.23.2015 ArB
PCB 2325 GERBER  ORION SOIC16			Checker	SRy
			Approval	06.22.2020 PMo
			Drawing reference	Revision
			92.49.02.325.0	03



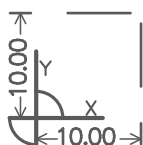
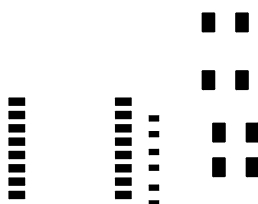
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			92.49.02.325.0	03



Reserved area for marking (the frame has to be removed) :  
 The trade mark. The production date YYYY (Year week).  
 The UL approval marking, including Company Name or logo or Trade Name & material type.  
 The self extinguishing level







Lem 2325-03 19.06.2020 VKv  
 2325-03 IM1 (GBS)  
 TOB

03	06.19.2020	Layer count increased to 6;DUT side polygons were expanded		VKv
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01	09.01.2017	Removed Jumper ,Res ExtBidir	-----	ArB
Rev.	Date (MMDD.YYYY)	Modification	CFU	Name
General tolerances Linear: Angular:		Folio: 9 / 11	LEM Intellectual Property SA Avenue Beaugard 1 CH-1700 Fribourg Switzerland	
SAFETY characteristics	REGULATION characteristics	SIGNIFICANT characteristics	Size A4	Scale %
All linear dimensions are in millimeter. All angles are in degree.			Writer	07.23.2015 ArB
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			Approval	06.22.2020 PMo
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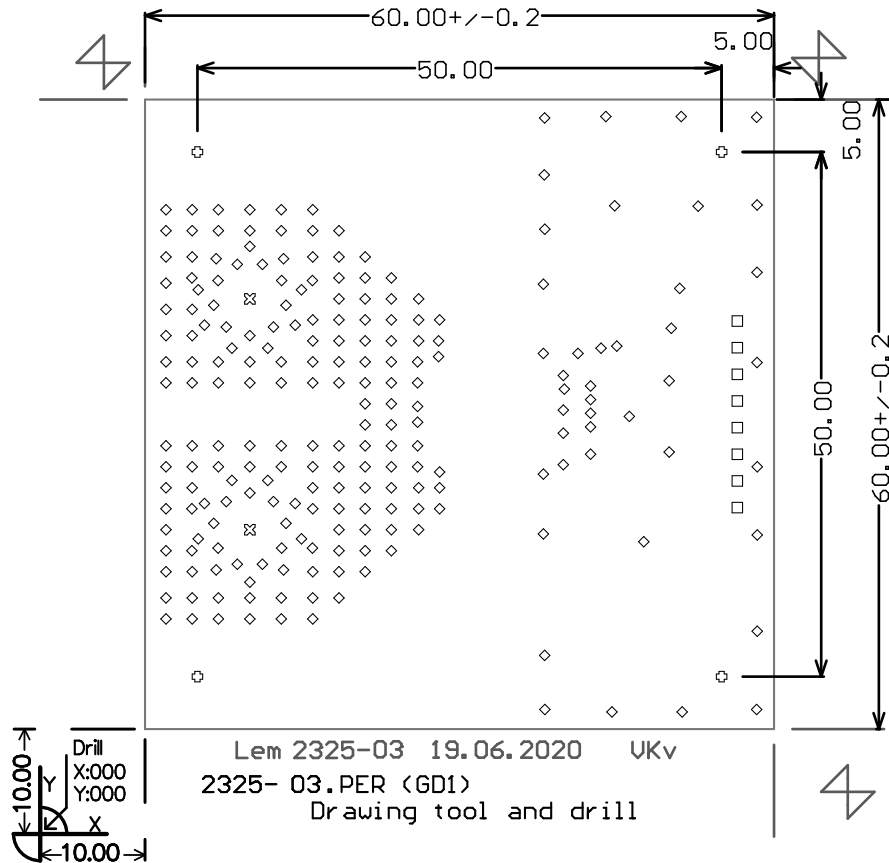


Lem 2325-03 19.06.2020 VKv  
2325- 03.PS2 (GTP)  
Film for solder paste TOP



03	06.19.2020	Layer count increased to 6;DUT side polygons were expanded							VKv
02	09.13.2017	Drill 1mm => 0.6mm						-----	ArB
01	09.01.2017	Removed Jumper ,Res ExtBidir						-----	ArB
Rev.	Date (MM.DD.YYYY)	Modification						CFU	Name
General tolerances Linear: Angular:		 	Folio:  10 / 11	LEM International SA 8, chemin des Aulx P.O Box 35 CH-1228 Plan-Les-Ouates Geneva Switzerland					LEM Intellectual Property SA Avenue Beauregard 1 CH-1700 Fribourg Switzerland
 SAFETY characteristics		 REGULATION characteristics		 SIGNIFICANT characteristics		Size A4	Scale %	Writer	07.23.2015 ArB
All linear dimensions are in millimeter. All angles are in degree.						This document is the property of LEM Intellectual Property SA. No copy without prior written permission.		Checker	SRy
<div>PCB 2325 GERBER</div> <div>ORION SOIC16</div>						Approval		06.22.2020	PMo
						Drawing reference		Revision	
						92.49.02.325.0		03	

Symbol	Hit Count	Finished Hole Size	Plated	Hole Type	Tolerance
◇	215	0.400mm (15.75mil)	PTH	Round	0/+0.15
□	8	0.600mm (23.62mil)	PTH	Round	0/+0.15
⊗	4	3.500mm (137.79mil)	NPTH	Round	0/+0.1
⊗	2	5.300mm (208.66mil)	PTH	Round	0/+0.15
	229 Total				



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PCB 2325 GERBER  ORION SOIC16			Checker	SRy
			Approval	06.22.2020 PMo
			Drawing reference 92.49.02.325.0	
			Revision 03	