



PRODUCT / PROCESS CHANGE NOTIFICATION

PCN-000693

Date: APR-13-2021

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Semtech Corporation, 200 Flynn Road, Camarillo CA 93012

Change Details

Part Number(s) Affected: GN3052-3EA5AG9E3 GN3052-3EA5AM3E3 GN3068-3EB6AL3E3	Customer Part Number(s) Affected: <input checked="" type="checkbox"/> N/A
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Description, Purpose and Effect of Change:

ROSA product's window cap is currently made of PbO seal glass material which will be changed to a Pb free seal glass material. This does not affect the window cap, only the type of material will be changed.

Change Classification	<input type="checkbox"/> Major <input checked="" type="checkbox"/> Minor	Impact to Form, Fit, Function	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Impact to Data Sheet	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	New Revision or Date	<input checked="" type="checkbox"/> N/A

Impact to Performance, Characteristics or Reliability:

No impact to performance, characteristics or reliability.

Implementation Date	May 13, 2021	Work Week	19
Last Time Ship (LTS) <small>Of unchanged product</small>	N/A	Affecting Lot No. / Serial No. (SN)	N/A
Sample Availability	Available Upon Request	Qualification Report Availability	See following pages

Supporting Documents for Change Validation/Attachments:

- Pb-free Window Cap Reliability Qualification Report (PRODDOC024048) – see following pages
- Data Sheets of GN3052 and GN3068 have been updated by adding the RoHS environmental statement. The data sheets are available upon request.
- Substance information of the Pb free window cap:

Component	Subcomponent	Weight of Component mg	Substance	Weight of Substance mg	Homogeneous material		
					%	ppm	
Window Cap	Seal Glass (Lead free)		B2O3	0.37	2.31	23148	
			Bi2O3	3.44	21.60	216047	
			Pb	0.00	0.01	63	
			Mg-Al-Si Oxide	1.54	9.65	96481	
			Glass without declarable substances	0.80	5.01	50122	
	Window Glass		Glass, oxide, chemicals	9.77	61.29	612885	
			MgF2	0.01	0.06	627	
			Al2O3	0.01	0.06	627	
			15.94	Subtotal	15.94	100	1000000



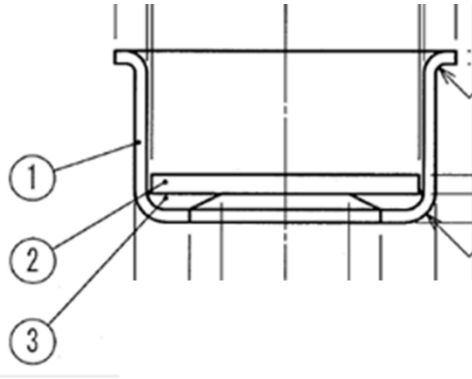
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- Seal glass material to be changed is item #3 in the drawing below.



Issuing Authority	
Semtech Business Unit:	Signal Integrity Product Group (SIP)
Semtech Contact Info:	<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> Pedro Jr. Bernas Quality Assurance pbernas@semtech.com (289) 856-9326 x1162 </div> <div style="width: 35%; text-align: center;"> </div> </div>
FOR FURTHER INFORMATION & WORLDWIDE SALES COVERAGE: http://www.semtech.com/contact/index.html#support	



SEMTECH

Pb-free Window Cap for Yamamura Reliability Qualification Report

Revision History

Version	ECO	Date	Modifications
0	ECO-055883	Mar 2021	New Release

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1 Background

Yamamura Photonics is the supplier of window caps used in certain Semtech's ROSA products and the window cap is currently made of PbO type of glass. Yamamura recently requested a change for moving to a Pb free seal glass material. The purpose of this report is to document the qualification of Pb-free lens cap for the ROSA products manufactured at Hisense.

2 Product Scope

Please refer to table 1 for more information about all products that are affected by this change.

Table 1: all products covered in this qualification

Product
GN3052
GN3068

3 Device Specific

3.1 Qualification Approach

Since the change was only the glass materials of the window cap and no change has been made in the optical design and optical patch materials, the risk of optical performance change is minimal. As a result, it is not necessary to test the optical performance in this qualification. Leakage, damped heat and mechanical shock tests were performed on Pb-free type of glass to examine the mechanical properties of the material. Same stresses were carried out on current glass (PbO type) material for comparison.

GN3052 and GN3068 are fully qualified Semtech's product. For more information about the qualification of those products, please refer to GENDOC-051065 and GENDOC-058317 for the reliability report of GN3052 and GN3068 respectively. This qualification is only intended to assess the reliability impact of changing the PbO type glass to Pb-free type glass.

4 Reliability Qualification Stresses

4.1 Qualification Tests

Table 2: Reliability qualification stresses for PbO and Pb-free type of glass

Stress	Conditions	Duration	Vehicle	Sample Size	Result
Temp Cycling	GR-468 Method 3.3.2.2, -55°C/125°C, Visual Inspection	1000 cycles	PbO type glass	10	Pass
			Pb-free type glass	10	Pass
Damp Heat	GR-468-CORE Issue 2, Section 3.3.3.3 85°C,85%, Visual Inspection	1000 hours	PbO type glass	10	Pass
			Pb-free type glass	10	Pass
Mechanical Shock Test	GR-468 Method 3.3.1.1 1500G, 0.5ms, 5 times/X, Y, Z directions	NA	PbO type glass	10	Pass
			Pb-free type glass	10	Pass

4.2 Pass/Fail Criteria

Table 1.: Qualification Stresses

Parameter	Criterion
Hermeticity	< 1 x 10 ⁻⁹ [Pa·m ³ /s]
Visual Inspection*	No physical damage after testing

*Not applicable in Mechanical Shock Test



5 Conclusion

In conclusion, all parts passed this qualification. Thus, the change of Pb-free seal glass material in windows caps for GN3052 and GN3068 has been qualified.