



Life Energy Motion

Product Change Notification

PCN-028_2023_0-OMTO2304801

EMC Robustness Improvement, RDL enlargement

GO-SMS series

Geneva, 26th May 2023

Based on the JEDEC Standard JESD46 standard (latest release), please kindly provide your approval for below change within 30 days.

Not for publication unless permission is granted by LEM

Dear customer,

To answer to continuous market requirement for improved performances, and in a permanent effort to improve the quality of its products, LEM intends to proceed to some modification on **GO-SMS series**.

Concerned products:

GO 4-SMS/SP3;

GO 8-SMS/SP4; GO 8-SMS/SP4 KIT 5P; GO 8-SMS/SP4 SET OF 50 PCS ESD;

GO 10-SMS; GO 10-SMS/SP3; GO 10-SMS KIT 5P; GO 10-SMS/SP3 KIT 5P;

GO 10-SMS SET OF 50 pcs ESD BAG; GO 10-SMS/SP3 SET OF 50 PCS ESD BAG;

GO 12-SMS/SP4;

GO 20-SMS; GO 20-SMS/SP3; GO 20-SMS KIT 5P; GO 20-SMS/SP3 KIT 5P;

GO 20-SMS SET OF 50 PCS ESD; GO 20-SMS/SP3 SET OF 50 PCS ESD bag;

GO 30-SMS; GO 30-SMS/SP3; GO 30-SMS KIT 5P; GO 30-SMS/SP3 KIT 5P;

GO 30-SMS SET OF 50 PCS ESD; GO 30-SMS/SP3 SET OF 50 PCS ESD;



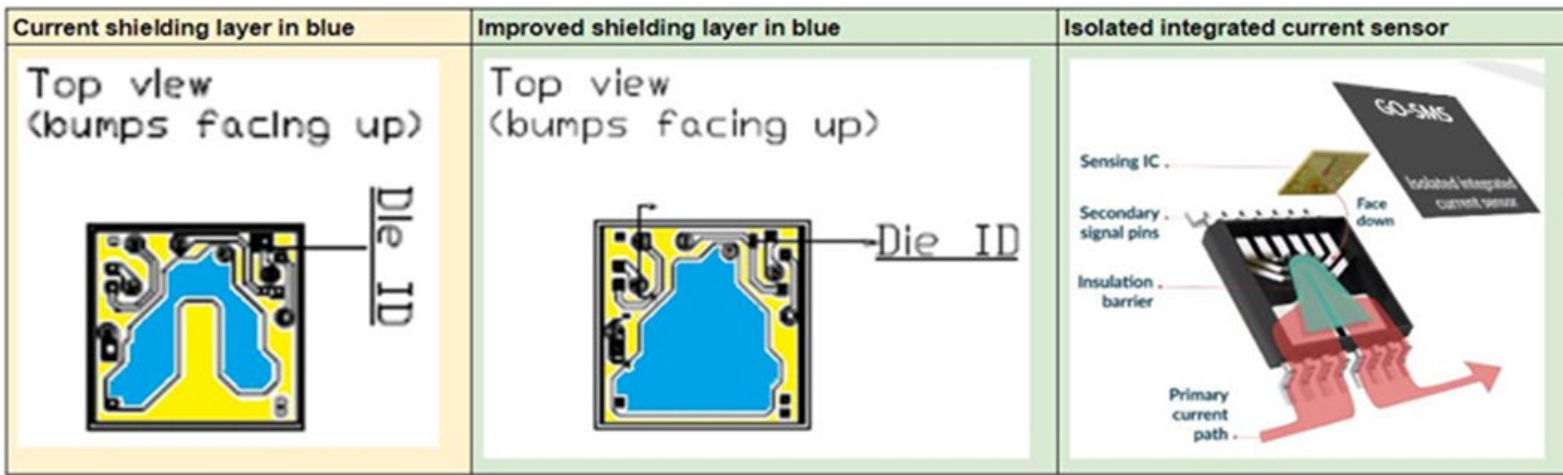
Change:

➤ **Description of the technical change:**

EMC Robustness Improvement.

Limited enlargement of the shielding layer (called RDL) inside the package, refer to following image.

No change on the CMOS design.



Validation Plan:

To verify that the RDL (Redistribution layer) change is not affecting the sensor performances (apart from avoiding OCD int false triggering), the following qualification plan has been performed (as per the enclosed file called "Enlarged RDL GO_SMS validation"), comparing small and large RDL devices:

- Risk assessment (hereafter)
- Voltage insulation effects
- dv/dt validation
- EMC validation
- Frequency response validation
- Qualification: AEC-Q100 compliance
- Product Performance: Ppk





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Risk assessment:

- Existing sensing functionalities are not impacted
- Datasheet specifications are not impacted
- Copper pillars and bond pad areas are not impacted → No impact on interface
- No change in biasing → Transistors keep the same biasing condition
- Metal limited enlargement → as RDL is fully covered by PI (polyimide) layer 2, no impact on delamination
- Enlarged metal plate design was already qualified in a previous version produced in the past
- **All tests performed show that RDL change is not affecting the sensor performances, with the exception of removing false triggering from OCD_int in the presence of large voltage variations dv/dt .**

➤ ***Reason of the technical change:***

This shielding layer enlargement leads to more robust EMC performance as semiconductor circuitry is better shielded from transients on the primary current path.

In currently produced GO-SMS models, RDL is not covering the OCD_int circuitry.

This may cause susceptibility of OCD_int to high voltage variations dv/dt .

It has been observed that for large dv/dt , the OCD_int might trigger even without any applied current.

Decision was taken to enlarge RDL, protecting OCD_int from capacitive coupling and therefore avoid false triggering.





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Impact on the product:

- On the form: NO, only RDL design modified, no change on visual appearance of the product
- On the fit: NO, only RDL design modified, no change on the package external dimensions
- On the function: NO, Existing sensing functionality not impacted. Datasheet specification not impacted
- On the reliability: NO, as RDL is fully covered by PI (polyimide) layer 2, no impact on delamination and enlarged metal plate design was already qualified in a previous version produced in the past
- On the data sheet: NO
- On the process: NO
- On the quality: NO, as RDL is fully covered by PI (polyimide) layer 2, no impact on delamination and enlarged metal plate design was already qualified in a previous version produced in the past
- On the functional safety characteristics: NO

Schedule of the modification:

Start of delivery of modified product	Week 34/2023 (from 21st August 2023).
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Customer feedback:

To ensure a smooth change, and in order to answer to any of your requirements issued by this change, please fill in the **Customer Return Sheet** (Annex 1 on page 6) and send it back to us **following 30 days at the latest.**

In case we do not receive any answer **following 30 days at the latest**, we will assume:

- Your acceptance to the change.
- No need for samples
- No additional need.

Please return the Customer Return Sheet to:

LEM

Mail to:

After customer acknowledgement, lack of additional customer response within the time defined until the change implementation constitutes acceptance of the change by the customer.

Sincerely yours,

Stéphane ROLLIER

Product Manager





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Customer Return Sheet

Annex 1

part of

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GO-SMS series**

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To: LEM

From:

Mail to:

Company:

Fax:

With this Customer Return Sheet, LEM asks you to fill in the requested information below.

**Please return this sheet to LEM in the following 30 days at the latest.
In case no answer will be received, your confirmation and no request for samples will be assumed.**





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Documentation required from LEM to release changed parts for delivery:

- Detailed Qualification tests report.
- (others, please specify).

Request for Samples

We ask you to fill in below if and how many samples you will need for own evaluation tests.

	Samples needed for customer approval tests
Type	
No. of Samples	
Delivery Date	

.....
(Date)

.....
(Authorized Customer) (Signature)

