

Preliminary PCN

AO-PCN-2022-025-P

Introduction of Wavelength
Stabilized Technology for
4-Channel SMT Laser

15.06.2022

Dear Customer,

please review this **Preliminary PCN** and provide your feedback in the **Customer approval form** (at the end of this PCN document) to your ams OSRAM sales partner.

This Preliminary PCN is intended

- to inform our customers about upcoming important product / process changes – upfront of the corresponding final PCN.
- to provide to our customer the background of the intended change and the qualification plan.
- **to get approval** on specific customer requirements at an early stage **before evaluation plan execution**.

The corresponding **Final PCN** with number “AO-PCN-2022-025-A” containing the results from reliability testing is scheduled to be published on **15.12.2022**.

Your prompt reply will help ams OSRAM to assure a smooth and well executed transition. If ams OSRAM does not hear from your side by the due date, we will assume your full acceptance to this proposed plan and will start with the execution of the plan.

ams OSRAM understands the time requirements your organization needs to approve this Preliminary PCN. However, if you can provide ams OSRAM an estimated date your organization will approve this Preliminary PCN, ams OSRAM can use this date for proper project planning.

Your attention and response to this matter is highly appreciated.

Please direct your inquiries to your local Sales office.

Subject of change: Introduction of Wavelength Stabilized Technology for 4-Channel SMT Laser

Affected products: SPL S4L90A_3 A01

Reason for change: Reduction of wavelength shift over temperature

Description of change: For details refer to file 2_Prel-PCN_cip_AO-PCN-2022-05-P

Product identification: Date code / Laser marking on device

Intended final PCN publication: 15.12.2022

| | | |
|---|-----------------------------|--|
| Time schedule for PCN material: (after implementation of change): | Final qualification report: | 15.11.2022 |
| | Samples available: | On request |
| | Intended Start of delivery: | 01.04.2023 ^{*)} <small>*) or earlier if released by customer and upon mutual agreement</small> |

Assessment: No changes in physical dimensions
Relevant information will be updated in the product data sheet

Documentation: 2_Prel-PCN_cip_AO-PCN-2022-05-P

Note:

Pre-PCN material: Products of current status, means before implementation of the changes as described in the PCN.

PCN material: Products with implementation of the changes as described in the PCN.

Customer approval form

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Introduction of Wavelength Stabilized Technology for 4-Channel SMT Laser

Please list product(s) affected in your application(s):

Please check the appropriate box below:

- | | |
|---|---|
| <input type="radio"/> Approval: We agree with the proposed plan | <input type="radio"/> Not relevant: Change is not relevant for products in use. |
|---|---|

Plan cannot be accepted:

- We have objections:**
- We request following Information:**
- We request following Samples (according to PPAP requirement):**
- Expected approval date (for Preliminary PCN):**

Remarks:

Sender:

Company:

Address / Location:

Signature:

Date:

Please return this approval form to your Sales partner.

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Customer information package

Department
2022-06-15

Agenda

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Reason for change

| Description |
|--|
| Reduction of wavelength shift over temperature |

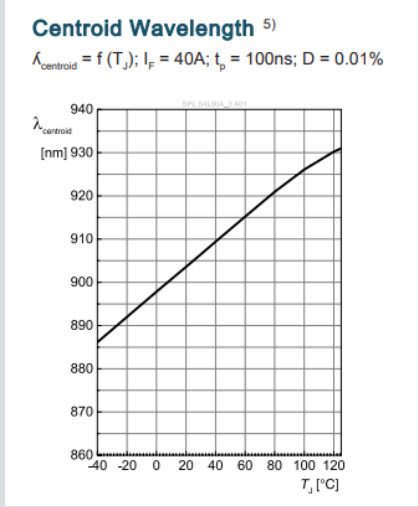
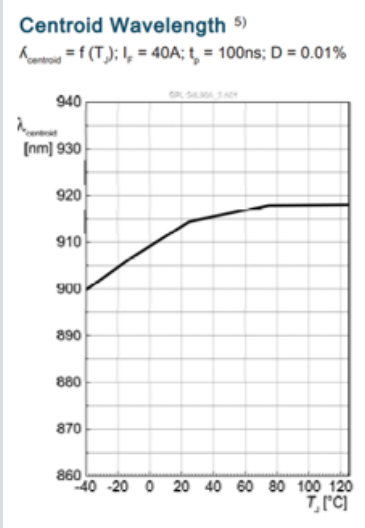
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Description of change

| Current status | New status |
|-------------------------------------|---|
| No temperature stabilized laser die | Improved temperature stabilized laser die |

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Changes in the data sheets

| Current status | New status |
|--|--|
| <p>Wavelength over temperature behavior</p>  <p>Centroid Wavelength ⁵⁾ $\lambda_{\text{centroid}} = f(T_j); I_F = 40\text{A}; t_p = 100\text{ns}; D = 0.01\%$</p> | <p>Wavelength over temperature behavior</p>  <p>Centroid Wavelength ⁵⁾ $\lambda_{\text{centroid}} = f(T_j); I_F = 40\text{A}; t_p = 100\text{ns}; D = 0.01\%$</p> |
| <p>Typical wavelength @ 25°C: 905 nm</p> | <p>Typical wavelength @ 25°C: 915 nm</p> |
| <p>Typical threshold current I_{th}: 0,6 A</p> | <p>Typical threshold current I_{th}: 0,9 A</p> |

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Changes in the data sheets: Updated Data Sheet Version

| Product type | Data sheet version <u>before PCN</u> | Data sheet version <u>after PCN</u> |
|------------------|--------------------------------------|-------------------------------------|
| SPL S4L90A_3 A01 | 1.0 | 1.1 |

Note: After approval of final PCN and shipment of new material, the new data sheet versions will be valid.
Latest version of data sheet is accessible on the ams OSRAM homepage after publication of the final PCN.

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List of affected products

SMT Laser



SPL S4L90A_3 A01

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PCN Samples (planned availability at Final PCN publication)

SMT Laser

SPL S4L90A_3 A01

Color code:  available  on request

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Qualification Plan

| Test item | Test condition | Test duration |
|---|--|---------------|
| Wet High Temperature Operating Life WHTOL1 | $T_A = 85^\circ\text{C}$; r.H. = 85%; $I_F = 40\text{A}$; $t_p = 100\text{ns}$; $D = 0,05\%$ per channel; $T_{\text{on/off}} = 30\text{ min}$ | 1000 h |
| Power Temperature Cycle PTC | $-40^\circ\text{C}/+90^\circ\text{C}$; $I_F = 40\text{A}$; $t_p = 100\text{ns}$; $D = 0,05\%$ per channel; $T_{\text{on/off}} = 4\text{ min}$ | 1000 h |
| Temperature Cycle TC | $-40^\circ\text{C}/+125^\circ\text{C}$ | 1000 c |
| High Temperature Operating Life HTOL1 | $T_S = 105^\circ\text{C}$; $I_F = 40\text{A}$; $t_p = 100\text{ns}$; $D = 0,05\%$ per channel | 1000 h |
| Low Temperature Operating Life LTOL | $T_A = -40^\circ\text{C}$; $I_F = 40\text{A}$; $t_p = 100\text{ns}$; $D = 0,05\%$ per channel; $T_{\text{on/off}} = 5\text{ min}$ | 500 h |

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Qualification Plan

| Test item | Test condition | Test duration |
|---------------------------------------|--|---------------|
| DEW | $T_{A,min} = 10^{\circ}\text{C}$; $T_{A,max} = 80^{\circ}\text{C}$; r.H. = 53-100% | 10 c |
| Hydrogen Sulphide H ₂ S | $T_A = 40^{\circ}\text{C}$; r.H. = 90%; 15 ppm H ₂ S | 336 h |
| Flowing Mixed Gas FMG | $T_A = 25^{\circ}\text{C}$, r.H. = 75%; Test method 4 | 500 h |
| Board Flex BF | 2 mm | 1 x |
| Electrostatic Discharge HBM | Human body model | 2 kV |
| Electrostatic Discharge CDM | Charged device model | 1 kV |

Note:

- Planned Devices for Qualification Tests: SPL S4L90A_3 A01
- Qualification tests acc. to AEC Q102 Rev. A
- Qualification results expected for: November 2022

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Time schedule

| | |
|--|---|
| for publication final PCN: | 15.12.2022 |
| for PCN material (<u>after</u> implementation of change): | |
| Final qualification report | 15.11.2022 |
| Samples available | On request |
| Intended Start of delivery | 01.04.2023 *) *) or earlier if released by customer and upon mutual agreement |

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Sensing is life

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