

## Product Change Notice

Doc. No.: RF-008-0002  
Revision: E

**PCN-200917-02**

**C19\_070\_8 inch BSI products change from laser anneal process  
to High-K process \_TSMC**

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## Product Change Notice

<b>PCN Number</b>	200917-02	<b>PCN Date</b>	Nov-11, 2020	<b>Effective Date</b>	April-5, 2021
<b>PCN Revision</b>	0				
<b>Title</b>	TSMC 8 inch BSI products change from laser anneal process to High-K process				
<b>Customer Contact</b>	OV06946/OVM6946; OV06948/OVM6948; OV09728; OV05640 customers				
<b>Proposed Ship Date</b>	TBD			<b>Sample Available date</b>	End of Dec, 2020

PCN Details	
<b>Description of Change</b>	
<ul style="list-style-type: none"> <li>- TSMC 8 inch BSI products to change from SiN Laser anneal process to High-K process.</li> <li>- TSMC will phase out 8 inch laser anneal tool due to tool vendor end of service.</li> <li>- There is no change to ordering part number.</li> </ul>	
<b>Reason for Change</b>	
Laser tool phase out at TSMC	
<b>Product Affected</b>	OV06946-xxxx-xx; OVM6946-xxxx-xxxx; OV06948-xxxx-xx; OVM6948-xxxx-xxxx; OV09728-xxxx-xx; OV05640-xxxx-xx.
<b>Addition Information</b>	
8 inch BSI products from Laser to High-K_ Summary (PCN_11112020)	

Notes: Customer should acknowledge receipt of PCN within 30 days. Lack of acknowledgement within 30 days constitutes change acceptance.

## 8 inch BSI products change from Laser process to High-K process \_ Summary

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**Description:**

- TSMC 8 inch BSI products change from SiN Laser anneal process to High-K process.
- TSMC will phase out 8 inch laser anneal tool due to vendor end of service.
- There is no change to ordering part number.

**Qualify Plan and schedule:**

- Reliability Qualification. (completed by Feb, 2021)
- Optical performance. (completed by Dec, 2020)

**Product Affected:**

- OV06946-xxxx-xx; OVM6946-xxxx-xxxx;
- OV06948-xxxx-xx; OVM6948-xxxx-xxxx;
- OV09728-xxxx-xx;
- OV05640-xxxx-xx.

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# SiN Laser anneal to High-K process change --- TSMC 8 inch BSI sensor

OVT

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## What is changing?

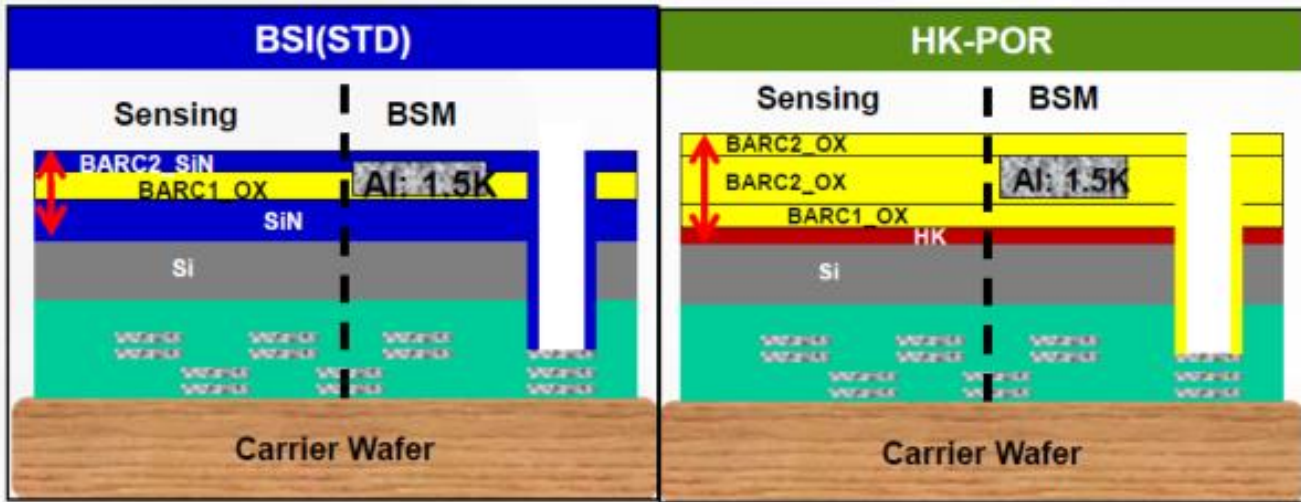
- TSMC 8 inch BSI products to change from 'SiN Laser anneal' process to 'High-K' process.
- TSMC will phase out 8" inch laser anneal tool due to tool vendor end of service.

## Process change details

1. The main purpose of Silicon Nitride (SiN) and High-K material is to act as Anti Reflecting Coating (ARC) and Si passivation layer.
2. Both SiN stack and High-K stack (as shown by the red arrows in the picture) have similar n, and k values (n= Refractive Index, K= Dielectric constant) which ensures similar ARC properties.  
(see next page for cross section)

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# Process change details



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# Performance Summary

## High-K over Laser anneal process

- Better Dark Current ,White Pixel, Noise, Large Photo Diode DINU, image mean, sensitivity, Full-Well Capacity and Quantum Efficiency performance
- All other parameters such as Color Ratio, Color Uniformity etc.. are comparable to that of laser anneal process

\*\*\* OV9728 production data is being collected and will be used to represent all products – Target will be completed by Mid-Dec

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# Qualification plan

- High-K process is also qualified for all other key products including high volume MP products such as OV10642 / OX03A10 etc.
- OVT will follow standard qualification procedure and perform qualification, estimate completed by Feb 2021 or sooner.

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**Thank you**

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