nexperia

Product Change Notification CN-202405024F

Issue date: 19 Sep 2024

Effective date: 01 Jan 2025

Here's your personalized quality information concerning products our customers and partners purchased from Nexperia.

For more details please contact your respective Nexperia CSR/AM.

Release of 8 inch wafer diameter for low VCEsat transistors in SOT223 and SOT23 package

Change Category

[X] Wafer Fab Process	[ ] Assembly Process	[ ] Product Marking	[ ] Test Location	[X] Design
[X] Wafer Fab Materials	[ ] Assembly Materials	[ ] Mechanical Specification	[ ] Test Process	[ ] Errata
[ ] Wafer Fab Location	[ ] Assembly Location	[ ] Packing/Shipping/Labeling	[ ] Test Equipment	[ ] Electrical spec./Test coverage

Details of this change

Release of 8 inch wafer diameter for low VCEsat transistors in SOT223 and SOT23 package.

The release of 8 inch wafer diameter is accompanied by a change of the lithography process, die design / layout, substrate doping, protection layer, front site metal thickness and back side metal.

To support the increased demand and the phase-out of 6 inch production, originated by discontinuation of substrate delivery by its manufacturer, Nexperia recommends a fast PCN acceptance to maintain the high quality of supply chain.

new products:
- 6 inch or 8 inch wafer diameter
- 6 inch or 8 inch die design / layout
- 6 inch: full field lithography or 8 inch: stepper lithography
- 6 inch substrate doping NPN: Phosphorus (P) or Arsenic (As), PNP: High-doped Boron (B) or 8 inch Substrate doping NPN: Arsenic (As), PNP: Standard Boron (B)
- 6 inch: WTi protection layer or 8 inch: GOV protection layer
- 6 inch: 4.1 µm Al front metal thickness or 8 inch: 2.2 µm Al front metal thickness
- 6 inch: Au(As)/Ni(V)/Ag back side metal or 8 inch: Ti/NiV/Ag back side metal

Due to the improvement of the typical electrical performance of the 8 inch devices, the data sheet will be updated and typical values will be adapt to the new 8 inch performance. 8 inch as well as 6 inch devices will be within the specified data sheet limits which will not change.

For details of the changes please refer to the Self Qualification Report (SQR).

SelfQualificationReportCN-20240524F.pdf: https://qcm.nexperia.com/Document/DOC-580984/SelfQualificationReportCN-20240524F.pdf

PCN-FORM-Rev_5_0_2.xlsm: https://qcm.nexperia.com/Document/DOC-580983/PCN-FORM-Rev_5_0_2.xlsm

PCN-Delta-Qualification-Matrix-ZVEI-5_0_16.xlsm: https://qcm.nexperia.com/Document/DOC-580982/PCN-Delta-Qualification-Matrix-ZVEI-5_0_16.xlsm

CN-20240524F_changematrix_29052024.xlsx: https://qcm.nexperia.com/Document/DOC-580979/CN-20240524F_changematrix_29052024.xlsx

Why do we implement this change?

- 8 inch release supports capacity expansion in wafer fab and increase flexibility and volume ramp-up.
- die design / layout change will have improvement of typical electrical performance.
- substrate doping change will increase the efficiency of volume production due to process standardization
- GOV protection layer will have improved scratch protection and will be more robust against humidity
- change to single-layer Al front metal standard 8 inch process which will have less mask steps and less process variation
- change of back side metal will increase the efficiency of volume production

Identification of affected products

Changed products can be identified by the different die design and date code after implementation.

Management summary

Release of 8 inch wafer diameter for low VCEsat transistors in SOT223 and SOT23 package.
The release of 8 inch wafer diameter is accompanied by a change of lithography from full field lithography to stepper lithography and is combined with a change of die design / layout, substrate doping, Al front metal thickness (single layer), protection layer and back side metal stack.

Product availability

Production

Planned first shipment: 01 Jan 2025

Existing inventory will be shipped until depleted

Sample information

Samples are available upon request

Impact

No impact to the product's functionality anticipated

Data sheet revision

A new datasheet will be issued

Feedback

Your acknowledgement of this change, conform JEDEC J-STD-046, is expected till 19 Oct 2024. Lack of acknowledgement of the PCN constitutes acceptance of the change.

Additional information

View Change Notification Online

Contact and support

For all Quality Notification content inquiries, please contact your local Nexperia Sales Support Team.

For specific questions on this notice or the products affected please contact our specialist directly: pcn@nexperia.com

In case of distribution, please contact you distribution partner.

About Nexperia B.V.

We at Nexperia are the efficiency semiconductor company. We deliver over 90 billion products a year and as such service thousands of global customers, both directly and through our extensive network of channel partners. We are at the heart of billions of electronic devices in the Automotive, Mobile, Industrial, Consumer, Computing, and Communication Infrastructure segments.

SalesItem_name	SalesItem_orderablePartNumber	SalesOrder_customerPartNumber	ProductType_name	BasicType_description	PackageOutlineVersion_description	PackageType_description	SalesItem_state	SalesItem_customerSpecificIndicator	BusinessLine_description
934062761215	PBSS4021NT,215	PBSS4021NT,215	PBSS4021NT	20 V, 4.3 A NPN low VCEsat	SOT23	TO-236AB	RFS	No	Bipolar Discretes
934667738215	PBSS4021NT-QR		PBSS4021NT-Q	20 V, 4.3 A NPN low VCEsat	SOT23	TO-236AB	RFS	No	Bipolar Discretes
934063393115	PBSS4021NZ,115	PBSS4021NZ,115	PBSS4021NZ	20 V, 8 A NPN low VCEsat (	SOT223	SC-73	RFS	No	Bipolar Discretes
934667739115	PBSS4021NZ-QX		PBSS4021NZ-Q	20 V, 8 A NPN low VCEsat (	SOT223	SC-73	RFS	No	Bipolar Discretes
934062762215	PBSS4021PT,215	PBSS4021PT,215	PBSS4021PT	20 V, 3.5 A PNP low V CEsa	SOT23	TO-236AB	RFS	No	Bipolar Discretes
934664880215	PBSS4021PT-QR		PBSS4021PT-Q	20 V, 3.5 A PNP low V CEsa	SOT23	TO-236AB	RFS	No	Bipolar Discretes
934063394115	PBSS4021PZ,115	PBSS4021PZ,115	PBSS4021PZ	20 V, 6.6 A PNP low VCEsat	SOT223	SC-73	RFS	No	Bipolar Discretes
934667741115	PBSS4021PZ-QX		PBSS4021PZ-Q	20 V, 6.6 A PNP low VCEsat	SOT223	SC-73	RFS	No	Bipolar Discretes
934062763215	PBSS4041NT,215	PBSS4041NT,215	PBSS4041NT	60 V, 3.8 A NPN low VCEsat	SOT23	TO-236AB	RFS	No	Bipolar Discretes
934664876215	PBSS4041NT-QR		PBSS4041NT-Q	60 V, 3.8 A NPN low VCEsat	SOT23	TO-236AB	RFS	No	Bipolar Discretes
934063395115	PBSS4041NZ,115	PBSS4041NZ,115	PBSS4041NZ	60 V, 7 A NPN low VCEsat (	SOT223	SC-73	RFS	No	Bipolar Discretes
934664878115	PBSS4041NZ-QX		PBSS4041NZ-Q	60 V, 7 A NPN low VCEsat (	SOT223	SC-73	RFS	No	Bipolar Discretes
934062764215	PBSS4041PT,215	PBSS4041PT,215	PBSS4041PT	60 V, 2.7 A PNP low VCEsat	SOT23	TO-236AB	RFS	No	Bipolar Discretes
934664874215	PBSS4041PT-QR	PBSS4041PT-QR	PBSS4041PT-Q	60 V, 2.7 A PNP low VCEsat	SOT23	TO-236AB	RFS	No	Bipolar Discretes
934063396115	PBSS4041PZ,115	PBSS4041PZ,115	PBSS4041PZ	60 V, 5.7 A PNP low VCEsat	SOT223	SC-73	RFS	No	Bipolar Discretes
934664879115	PBSS4041PZ-QX		PBSS4041PZ-Q	60 V, 5.7 A PNP low VCEsat	SOT223	SC-73	RFS	No	Bipolar Discretes