



# Product Change Notification



Product Group: Vishay Siliconix/May 20, 2014/PCN- SIL-0442014 Rev1

## Fab Site Transfer

**DESCRIPTION OF CHANGE:** For the 45M cell products listed in this notification we are changing the Fab site from Santa Clara, California, USA and Global Foundries, Singapore to Vishay Siliconix Itzehoe GmbH (VSIG) located at Fraunhoferstraße 1, 25524 Itzehoe, Germany. VSIG has been an automotive Fab with ISO14001 and TS16949 certifications for more than 10 years.

No changes have been made to the silicon process technology, wafer test, assembly process and final test. ***Production of the affected part from Santa Clara Fab and Global Foundries will be terminated per the time schedule in this notification and last time buy orders must be received within the specified timeframe.***

**CLASSIFICATION OF CHANGE:** Fab Site Transfer

**REASON FOR CHANGE:** Closure of Santa Clara Fab and Global Foundries

**EXPECTED INFLUENCE ON QUALITY/RELIABILITY/PERFORMANCE:** None

**PRODUCT CATEGORY:** Automotive MOSFETs

**VISHAY PART NUMBERS AFFECTED:** Affected part numbers are listed on the following page

**VISHAY BRAND(s):** Vishay-Siliconix

**TIME SCHEDULE:** Last time buy orders are required by 01-Oct-2014 for Global Foundries and 31-Dec-2014 for Santa Clara Fab. Last shipments should be scheduled before 30-June-2015.

**QUALIFICATION DATA:** All products listed in this notification are manufactured using 45M cell process technology which is AEC Q101 qualified. Please refer to subsequent pages to see summary of qualification report for the lead 45M cell product from VSIG Fab. Qualification report for individual part type will be provided in PPAP and upon request.

**SAMPLE AVAILABILITY:** Schedule of availability of qualified samples from VSIG Fab is listed on the following page. For samples, please email [automos.pcn@Vishay.com](mailto:automos.pcn@Vishay.com) with subject PCN-SIL-0442014 and include date by which samples are needed, required quantity and ship-to address.

**ISSUED BY:** Shishir Rai, Product Marketing Manager (E-mail: [Shishir.Rai@Vishay.com](mailto:Shishir.Rai@Vishay.com))

**For further information, please contact your regional Vishay office.**

### The Americas

Vishay Americas  
2201 Laurelwood Road  
Santa Clara, Ca 95054  
T: 408-988-8000  
F: 408-567-8500

### Europe

Vishay Electronic GmbH  
Geheimrat-Rosenthal-Strasse 100  
D-95100  
Selb, Germany  
T: 49-9287-71 0  
F: 49-9287-70435

### Asia

Vishay Intertechnology Asia Pte. Ltd  
37A Tampines Street 92  
#07-00 Keppel Building  
Singapore 528886  
T: 65-6788-6668  
F: 65-6788-0988

Vishay Intertechnology, Inc.

Corporate Headquarters 63 Lincoln Highway, Malvern, PA 19355-2143 U.S.A. Phone (610) 644-1300 Fax (610) 296-0657 [www.vishay.com](http://www.vishay.com)

ONE OF THE WORLD'S LARGEST MANUFACTURERS OF DISCRETE SEMICONDUCTORS AND PASSIVE COMPONENT



# Product Change Notification



Product Group: Vishay Siliconix/May 20, 2014/PCN- SIL-0442014 Rev1

## VISHAY PART NUMBERS AFFECTED:

Affected Vishay Part Number	Qualified Sample Availability from VSIG Fab
SQM110N05-06L-GE3	Available
SQJ850EP-T1-GE3	Available
SQJ850EP-T2-GE3	Available
SQJ840EP-T1-GE3	Available
SQD40N10-25-GE3	Available
SQD40N10-25-T4-GE3	Available
SQD30N05-20L-GE3	Available
SQD25N06-22L-GE3	Available
SQD25N06-22L-T4GE3	Available
SQR40N10-25-GE3	Jun-14
SQJ968EP-T1-GE3	Jun-14
SQJ960EP-T1-GE3	Jun-14
SQJ844AEP-T1-GE3	Jun-14
SQD40N06-14L-GE3	Jun-14
SQ9945BEY-T1-GE3	Jun-14
SQ4946AEY-T1-GE3	Jun-14
SQ4850EY-T1-GE3	Jun-14
SQ4840EY-T1-GE3	Jun-14
SQ4410EY-T1-GE3	Jun-14

## QUALIFICATION REPORT:

Qualification report for lead product SQM100N10-10-GE3 manufactured using 45M cell process technology at VSIG Fab is provided in subsequent pages. Qualification report for the individual parts listed above will be provided in PPAP and upon request.

Vishay Intertechnology, Inc.

Corporate Headquarters 63 Lincoln Highway, Malvern, PA 19355-2143 U.S.A. Phone (610) 644-1300 Fax (610) 296-0657 [www.vishay.com](http://www.vishay.com)

ONE OF THE WORLD'S LARGEST MANUFACTURERS OF DISCRETE SEMICONDUCTORS AND PASSIVE COMPONENT



## Production Part Approval - Environmental Test Summary

Supplier:		Vishay Siliconix		General Specification:		AEC-Q101	
Supplier Part Number:		SQM100N10-10-GE3		Assembly Site:		Kaohsiung, Taiwan ROC	
Process Technology:		45M Cell N-Channel G2		Fab Site:		VSIG, Itzehoe Germany	
Item	Test	Test Conditions	# of Lots	S.S.	# Failed	Additional Requirements	Remarks
1	Pre- and Post Stress Electrical Test		*	All	0		
2	Pre-conditioning: Performed on surface mount devices (SMDs) prior to Temp Cycle, Autoclave, HAST, Power Cycle stresses only	J-STD-020C	*	All	0	@260 C	
3	External Visual: Inspect device construction, marking and workmanship. Electrical test not required.	Electricals per drawing	*	All	0		
4	Parametric Verification		3	30	0		Evaluation 1. 2. 3
5	High Temperature Reverse Bias (HTRB): 1000 hours max rated junction temperature specified in the user/supplier specification with device reverse biased to 80% of maximum breakdown voltage specified or max junction temperature to avoid thermal runaway. TEST before, at 500 hours, and 1000 hours. JESD22 A108	175C 1000 HRS	3	77	0	DEVICE SPECIFIC:	Evaluation 1. 1380271 2. 1380272 3. 1380273
6	High Temperature Gate Bias (HTGB): 1000 hours at Ta = device maximum rated junction temperature with gate biased at 100% of maximum gate voltage rating indicated in the detail specification with device OFF. TEST before, at 500 hours, and 1000 hours. JESD22 A108	175C 1000 HRS	3	77	0	DEVICE SPECIFIC:	Evaluation 1. 1380271 2. 1380272 3. 1380273
7	Temperature Cycling: JESD22 A-104, Air to air. (See Reliability Product Data Summary):	1000CYC -65C ~ 150C	3	77	0	DEVICE SPECIFIC:	Evaluation 1. 1380271 2. 1380272 3. 1380273
8	Autoclave (Pressure Pot)	Ta = 121C, RH = 100%, 15psig, 96 hrs: Test before and after AC.	3	77	0	DEVICE SPECIFIC:	Evaluation 1. 1380271 2. 1380272 3. 1380273
9 alt	HAST	130C, 85% RH, 100 HRS	3	77	0	DEVICE SPECIFIC:	Evaluation 1. 1380271 2. 1380272 3. 1380273
10	Intermittent Operational Life (Power Cycle) Delta Tj = 100C	8572 CYC	3	77	0	DEVICE SPECIFIC:	Evaluation 1. 1380271 2. 1380272 3. 1380273



## Production Part Approval - Environmental Test Summary

Supplier:		Vishay Siliconix		General Specification:		AEC-Q101	
Supplier Part Number:		SQM100N10-10-GE3		Assembly Site:		Kaohsiung, Taiwan ROC	
Process Technology:		45M Cell N-Channel G2		Fab Site:		VSIG, Itzehoe Germany	
Item	Test	Test Conditions	# of Lots	S.S.	# Failed	Additional Requirements	Remarks
11	ESD Characterization - NOTE: Unless protected by internal ESD-specific protection circuitry, MOSFETs only have intrinsic protection that is dependent on the size of die and other environmental and physical factors, making them very sensitive to potential ESD damage and industry standard precautions should be taken not to expose them to any ESD. Due to the small size of MOSFET packages, these devices are generally not affected by the Charged Device Model, and we therefore substitute Machine Model testing.	Human Model	1	10	0	Passed 5.40KV AEC Q101	Evaluation 1.1340081
		Machine Model	1	10	0	Passed 1.10KV AEC Q101	
12	Destructive Physical Analysis	Cross-section / Cratering, CDF-AEC-Q101-004 Section 4	1	2x2	0		Evaluation 1.1340081
13	Physical Dimensions: Verify physical dimensions to the applicable user device packaging specification for dimensions and tolerances.	Siliconix Print Dimensions	N/A	N/A	N/A		See PPAP
14	Terminal Strength		N/A	N/A	N/A		SMD Device
15	Resistance to Solvent		N/A	N/A	N/A		Laser Marked
16	Constant Acceleration		N/A	N/A	N/A		SMD Device
17	Vibration Variable Frequency		N/A	N/A	N/A		SMD Device
18	Mechanical Shock		N/A	N/A	N/A		SMD Device
19	Hermiticity		N/A	N/A	N/A		SMD Device
20	Resistance to Solder Heat (Solder Dunk)	JESD22 B-106-A, 260C, 10sec. Test before and after RSH. SMD devices shall be fully submerged during test	3	55	0	GENERIC	Evaluation 1. 2. 3.
21	Solderability	Pb-Free - JESD201	3	15	0	GENERIC	Evaluation 1. 2. 3.
22	Thermal Resistance	JESD24-3	1	10	0	DEVICE SPECIFIC:	Evaluation 1. 1340479 2. 3.
23	Wire Bond Strength	MIL-STD-750 Method 2037	3	40	0	GENERIC	Evaluation 1. 2. 3.



## Production Part Approval - Environmental Test Summary

<b>Supplier:</b>		<b>Vishay Siliconix</b>		<b>General Specification:</b>		<b>AEC-Q101</b>	
<b>Supplier Part Number:</b>		<b>SQM100N10-10-GE3</b>		<b>Assembly Site:</b>		<b>Kaohsiung, Taiwan ROC</b>	
<b>Process Technology:</b>		<b>45M Cell N-Channel G2</b>		<b>Fab Site:</b>		<b>VSIG, Itzehoe Germany</b>	
Item	Test	Test Conditions	# of Lots	S.S.	# Failed	Additional Requirements	Remarks
24	Bond Shear	AEC-Q101-003	3	40	0	GENERIC	Evaluation 1. 2. 3.
25	Die Shear	MIL-STD-750 Method 2017	3	10	0	GENERIC	Evaluation 1. 2. 3.
26	UIS Testing	Non-destructive mode	100%	100%	0		100% tested at Final Test
27	Dielectric Integrity	Non-destructive mode	100%	100%	0		100% tested at Final Test

Note: \* = Samples taken from many lots

Prepared by: Julian Chen Reliability Engineer	5/16/2014
--	-----------

Approved by: Arthur Chiang Director of Reliability	5/16/2014
---	-----------