

**CHANGE NOTIFICATION**

Analog Devices, Inc.  
 1630 McCarthy Blvd., Milpitas CA  
 (408) 432-1900

February 28, 2019

PCN\_022819

Dear Sir/Madam:

**Subject: Notification of Wafer Fab Location Change for LT8331**

This notice is to inform you of a change that will be made to LT8331 (see Appendix A) that you may have purchased in the last 2 years.

**Description Of Change:**

ADI is transferring LT8331 currently manufactured using the 0.35micron BCD process at the wafer fab facility located at 275 S. Hillview Dr., Milpitas, CA, USA to Vanguard International Semiconductor, Taiwan. The affected products will be manufactured using ADI specified manufacturing flows, materials, process controls, and monitors ensuring no degradation of quality and reliability performance. No new products are being released in the Hillview wafer fab and all affected products will be transferred into the Vanguard wafer fab by the end of 2019 and will cease to be manufactured in the Hillview facility by February 2021.

**Reason For Change:**

As part of ADI's overall manufacturing strategy, ADI has decided to close the Hillview wafer fab facility. Vanguard has been a successful wafer fab foundry partner for ADI, and this business expansion will ensure continuity of supply to our customers well into the future. Vanguard International Semiconductor third party certifications and capacity details are attached for your review. Additional information can be found at <http://www.vis.com.tw>.

**Impact of the change (positive or negative) on fit, form, function & reliability:**

The qualification of the Vanguard International Semiconductor consisted of 1,000 hours of op-life testing, temp cycle, highly accelerated stress test, autoclave, and 1,000 hours of bake at 150°C, and precondition. The initial products have passed AEC-Q100 Qualification testing. The devices have been characterized over the full operating temperature range and have been subjected to ESD testing and latch up immunity testing. The devices have been found to meet the ADI data sheets. Additionally, devices from Vanguard International Semiconductor were carefully compared to the ADI fabricated devices to ensure identical performance when installed in customer applications. Reliability test results are attached.

The devices manufactured in Vanguard International Semiconductor will have the same part number and the same top mark as those manufactured at ADI. However, when necessary we can use our lot number traceability system to identify where and when a device was fabricated.

Analog devices will accept sample requests for parts built at Vanguard Semiconductor International within 30 days of the date of this notification. If we do not hear back from your company within 30-day period, we will consider this change notice accepted by April 28, 2019. Production shipments of the products built at Vanguard Semiconductor International will begin no sooner than April 28, 2019.

Should you have any questions or concerns please contact your local Analog Devices sales representatives or you may contact me at 408-432-1900 ext. 2077, or by e-mail at [JASON.HU@ANALOG.COM](mailto:JASON.HU@ANALOG.COM). If I do not hear from you by April 28, 2019, we will consider this change to be approved by your company.

Sincerely,

Jason Hu  
Quality Assurance Engineer

**For questions on this PCN, please contact Jason Hu or you may send an email to your regional contacts below or contact your local ADI sales representatives.**

<b>Americas:</b> PCN_Americas@analog.com	<b>Europe:</b> PCN_Europe@analog.com	<b>Japan:</b> PCN_Japan@analog.com
		<b>Rest of Asia:</b> PCN_ROA@analog.com

	<b>Appendix A: Affected Part Numbers</b>
<b>1</b>	LT8331EMSE#PBF
<b>2</b>	LT8331EMSE#TRMPBF
<b>3</b>	LT8331EMSE#TRPBF
<b>4</b>	LT8331IMSE#3ZZPBF
<b>5</b>	LT8331IMSE#PBF
<b>6</b>	LT8331IMSE#TRPBF



## Vanguard International Semiconductor Corporation

### Vanguard International Semiconductor Summary

- Plant Address  
123, Park Ave-3rd, Science-Based Industrial Park, Hsinchu, Taiwan 30077, R.O.C.
- Headcount  
5,200
- Total Building size in sq. ft. and fab size in sq. meters  
880,543.3 sq. feet (Building 1)
- Clean room floor space in sq. meters  
12,600 sq. meters (Building 1)
- Fab utilization in percent  
Fab 1: 100%
- Land Area in sq. meters  
41,925 sq. meters
- Wafer capacity for each facility  
Fab 1: 87K wafers per month (ADI's material is scheduled to run in Fab 1)
- A list of certifications (i.e. TS16949, ISO-14001, etc.)
  - ISO 9001 Quality Management System (since 1996)
  - ISO 14001 Environment Management System (since 1997)
  - OHSAS 18001 Health & Safety Management System (since 2003)
  - QC 080000 Hazardous Substance Management System (since 2007)
  - ISO 27001 Information Security Management System (since 2015)
  - IATF 16949 Automotive Quality Management System (since 2018)



RELIABILITY DATA  
BCD 0.35um Fab Transfer  
1/18/2019

• OPERATING LIFE TEST					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS AT +150°C	NUMBER OF FAILURES
QFN	462	1741	1824	462	0
MSOP	231	1737	1810	231	0
SOT	231	1744	1802	231	0
<b>Total</b>	<b>924</b>			<b>924</b>	<b>0</b>
• EARLY LIFE FAILURE RATE					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS AT +150°C	NUMBER OF FAILURES
QFN	4108	1741	1824	197.2	0
SOT	2520	1744	1802	121	0
<b>Total</b>	<b>6628</b>			<b>318.2</b>	<b>0</b>
• HIGHLY ACCELERATED STRESS TEST (HAST) AT +130°C / 85%RH					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	Equivalent K DEVICE HOURS AT +130°C	NUMBER OF FAILURES
QFN	480	1741	1824	92.2	0
MSOP	539	1722	1810	103.5	0
SOT	240	1744	1802	46.1	0
<b>Total</b>	<b>1259</b>			<b>241.8</b>	<b>0</b>
• PRESSURE COOKER TEST (PCT) AT 15PSIG, +121°C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS	NUMBER OF FAILURES
QFN	540	1741	1824	181.4	0
MSOP	462	1722	1810	155.2	0
SOT	298	1744	1802	100.1	0
<b>Total</b>	<b>1300</b>			<b>436.7</b>	<b>0</b>
• TEMPERATURE CYCLE (TC) TEST AT -65°C to +150°C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	NUMBER OF FAILURES
QFN	530	1741	1824	829	0
MSOP	462	1722	1810	693	0
SOT	300	1744	1802	600	0
<b>Total</b>	<b>1292</b>			<b>2122</b>	<b>0</b>
• THERMAL SHOCK (TS) TEST AT -65°C to +150°C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	NUMBER OF FAILURES
MSOP	448	1722	1810	896	0
<b>Total</b>	<b>448</b>			<b>896</b>	<b>0</b>
• HIGH TEMPERATURE STORAGE LIFE TEST AT +150°C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS	NUMBER OF FAILURES
QFN	297	1741	1824	297	0
MSOP	461	1722	1810	461	0
SOT	49	1802	1802	98	0
<b>Total</b>	<b>807</b>			<b>856</b>	<b>0</b>
(1) Failure Rate Equivalent to +55C, Assuming 60% Confidence Level & Activation Energy of 0.7eV = 3.82FIT					
(2) Mean Time Between Failures (MTBF) = 29,919 yr					
Note: HAST, PCT, and TC tests are preceded by JEDEC Preconditioning: 168h 85°C/85% R.H. plus 3x IR at 260°C					
Note: 1 FIT = 1 Failure in One Billion Hours.					

Confidential Statement  
This change notice is for Analog Devices, Inc.'s customers only.  
Distribution or notification to third parties is prohibited.