

**CHANGE NOTIFICATION**

NOW PART OF



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

August 31, 2018

PCN\_083118

Dear Sir/Madam:

**Subject: Notification of Wafer Fab Location and Datasheet Change for LT8302**

Please be advised that Analog Devices, Inc. Milpitas, California is planning to close our Wafer Fab facility located at 275 S. Hillview Dr., Milpitas, CA in February 2021. Due to this future closure of Wafer Fab facility, the device LT8302 manufactured using 0.35 BCD process will be affected and transferred to Vanguard International Semiconductor, Taiwan as part of expanding our business partnership. 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>.

In addition, Analog Devices, Inc. has made a minor change to the LT8302 product datasheet to facilitate improvement in our manufacturing capability. The changes are shown on the attached page of the marked-up datasheet. There is no change in form, fit, function, quality or reliability of the product. The product shipped after October 31, 2018 will be tested to the new limits.

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. 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 the Vanguard International Semiconductor were carefully compared to the ADI fabricated devices to ensure identical performance when installed in customer applications.

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.

The first product manufactured in Vanguard Semiconductor International will have the effective date code of approximately 1815.

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 October 31, 2018. Production shipments of the products built at Vanguard Semiconductor International will begin no sooner than October 31, 2018.

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 October 31, 2018, 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



## 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**  
**LT8302 Fab Transfer**  
**8/23/2018**

• OPERATING LIFE TEST					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS AT +150°C	NUMBER OF FAILURES
SOIC	231	1744	1802	231	0
Total	231			231	0
• 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 +85°C	NUMBER OF FAILURES
SOIC	240	1744	1802	921.6	0
Total	240			921.6	0
• PRESSURE COOKER TEST (PCT) AT 15PSIG, +121°C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS	NUMBER OF FAILURES
SOIC	292	1744	1802	98.112	0
Total	292			98.112	0
• 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
SOIC	300	1744	1802	600	0
Total	300			600	0
• HIGH TEMPERATURE STORAGE LIFE TEST AT +150°C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS	NUMBER OF FAILURES
SOIC	149	1744	1802	149	0
Total	149			149	0
<p>(1) Sample size too small for meaningful FIT calculations.</p> <p>(2) Failure Rate Equivalent to +55C, Assuming 60% Confidence Level &amp; Activation Energy of 1.0eV = 1.4FIT</p> <p>(3) Mean Time Between Failures (MTBF) = 81,061 yr  Assumes 20X acceleration from +85°C to +130°C.</p> <p>Note: HAST, PCT, and TC tests are preceded by JEDEC Preconditioning: 192h 30°C/60% R.H. plus 3x IR at 260°C</p> <p>Note: 1 FIT = 1 Failure in One Billion Hours.</p>					

## LT8302

**ELECTRICAL CHARACTERISTICS** The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ .  $V_{IN} = 5\text{V}$ ,  $V_{EN/UVLO} = V_{IN}$ ,  $C_{INTVCC} = 1\mu\text{F}$  to GND, unless otherwise noted.

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT	
$V_{IN}$	$V_{IN}$ Voltage Range		● 2.8 [3]		42	V	
$I_Q$	$V_{IN}$ Quiescent Current	$V_{EN/UVLO} = 0.2\text{V}$		0.5	2	$\mu\text{A}$	
		$V_{EN/UVLO} = 1.1\text{V}$		53		$\mu\text{A}$	
		Sleep Mode (Switch Off)		106		$\mu\text{A}$	
		Active Mode (Switch On)		380		$\mu\text{A}$	
	EN/UVLO Shutdown Threshold	For Lowest Off $I_Q$	● 0.2	0.75		V	
	EN/UVLO Enable Threshold	Falling	● 1.178	1.214	1.250	V	
	EN/UVLO Enable Hysteresis			14		mV	
$I_{HYS}$	EN/UVLO Hysteresis Current	$V_{EN/UVLO} = 0.3\text{V}$	-0.1	0	0.1	$\mu\text{A}$	
		$V_{EN/UVLO} = 1.1\text{V}$	2.3	2.5	2.7	$\mu\text{A}$	
		$V_{EN/UVLO} = 1.3\text{V}$	-0.1	0	0.1	$\mu\text{A}$	
$V_{INTVCC}$	INTVCC Regulation Voltage	$I_{INTVCC} = 0\text{mA}$ to $10\text{mA}$	2.85	3	3.1	V	
$I_{INTVCC}$	INTVCC Current Limit	$V_{INTVCC} = 2.8\text{V}$	10	13	20	mA	
		INTVCC UVLO Threshold	Falling	2.39	2.47	2.55	V
		INTVCC UVLO Hysteresis			105		mV
		$(R_{FB} - V_{IN})$ Voltage	$I_{REF} = 75\mu\text{A}$ to $125\mu\text{A}$	-50		50	mV
	$R_{REF}$ Regulation Voltage	[3]	● 0.98	1.00	1.02	V	
	$R_{REF}$ Regulation Voltage Line Regulation	$2.8\text{V} \leq V_{IN} \leq 42\text{V}$	-0.01	0	0.01	%/V	
$V_{TC}$	TC Pin Voltage			1.00		V	
$I_{TC}$	TC Pin Current	$V_{TC} = 1.2\text{V}$	12	15	18	$\mu\text{A}$	
		$V_{TC} = 0.8\text{V}$		-200		$\mu\text{A}$	
$f_{MIN}$	Minimum Switching Frequency		11.3	12	12.7	kHz	
$t_{ON(MIN)}$	Minimum Switch-On Time			160		ns	
$t_{OFF(MAX)}$	Maximum Switch-Off Time	Backup Timer		170		$\mu\text{s}$	
$I_{SW(MAX)}$	Maximum Switch Current Limit		3.6	4.5	5.4	A	
$I_{SW(MIN)}$	Minimum Switch Current Limit		0.70	0.87	1.04	A	
$R_{DS(ON)}$	Switch On-Resistance	$I_{SW} = 1.5\text{A}$		80		m $\Omega$	
$I_{LKG}$	Switch Leakage Current	$V_{SW} = 65\text{V}$		0.1	0.5	$\mu\text{A}$	
$t_{SS}$	Soft-Start Timer			11		ms	

**Note 1:** Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Exposure to any Absolute Maximum Rating condition for extended periods may affect device reliability and lifetime.

**Note 2:** The SW pin is rated to 65V for transients. Depending on the leakage inductance voltage spike, operating waveforms of the SW pin should be derated to keep the flyback voltage spike below 65V as shown in Figure 5.

**Note 3:** The LT8302E is guaranteed to meet performance specifications from  $0^\circ\text{C}$  to  $125^\circ\text{C}$  junction temperature. Specifications over the  $-40^\circ\text{C}$  to  $125^\circ\text{C}$  operating junction temperature range are assured by design, characterization and correlation with statistical process controls. The

LT8302I is guaranteed over the full  $-40^\circ\text{C}$  to  $125^\circ\text{C}$  operating junction temperature range. The LT8302H is guaranteed over the full  $-40^\circ\text{C}$  to  $150^\circ\text{C}$  operating junction temperature range. The LT8302MP is guaranteed over the full  $-55^\circ\text{C}$  to  $150^\circ\text{C}$  operating junction temperature range. High junction temperatures degrade operating lifetimes. Operating lifetime is derated at junction temperature greater than  $125^\circ\text{C}$ .

**Note 4:** The LT8302 includes overtemperature protection that is intended to protect the device during momentary overload conditions. Junction temperature will exceed  $150^\circ\text{C}$  when overtemperature protection is active. Continuous operation above the specified maximum operating junction temperature may impair device reliability.

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For more information [www.linear.com/LT8302](http://www.linear.com/LT8302)

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<b>Affected Part Numbers</b>	
<b>1</b>	LT8302ES8E#PBF
<b>2</b>	LT8302IS8E#PBF
<b>3</b>	LT8302HS8E#PBF
<b>4</b>	LT8302MPS8E#PBF
<b>5</b>	LT8302ES8E#TRPBF
<b>6</b>	LT8302IS8E#TRPBF
<b>7</b>	LT8302HS8E#TRPBF
<b>8</b>	LT8302MPS8E#TRPBF