TEXAS INSTRUMENTS

Company	National Semiconductor	DUNS#	URL For Additional Information
National Semiconductor		04-147-2986	http://www.national.com/analog/quality/green

Contact	Title	Phone	Email
Lorena Dudman	Product Stewardship Eng. Mgr	1-408-721-8180	Green.Project@nsc.com

Part Number	MSL Rating	Peak Body Temp C	MaxTime(Sec)	Cycles	Unit Type
LMK04808CISQE NOPB	3	260	40	4	Each

Document Date
04-27-2012

European RoHS Compliant.
China RoHS Compliant.

Weight (mg)
224.79

Does NOT Contain Halogens

Material Composition Declaration for Electronic Products

Item	Weight (mg)	Component	CAS#	Weight (mg)	Item-ppm	Part-ppm
Plastic	90.740	SiO2	60676-86-0	82.120	905,000	365,316
		Epoxy Resin	25928-94-3	8.620	95,000	38,347
Ext. LeadFinish	6.800	Sn	7440-31-5	6.800	1,000,000	30,250
Die Attach	2.697	Ag	7440-22-4	2.023	750,000	8,999
		Epoxy Resin	25928-94-3	0.674	250,000	2,998
Chip	12.600	Si	7440-21-3	12.524	994,000	55,714
		Al	7429-90-5	0.076	6,000	338
Leadframe	108.901	Cu	7440-50-8	106.123	974,500	472,094
		Fe	7439-89-6	2.614	24,000	11,629
		Zn	7440-66-6	0.131	1,200	583
		P	7723-14-0	0.033	300	147
Int. LeadFinish	1.927	Ag	7440-22-4	1.927	1,000,000	8,572
Wires	1.127	Au	7440-57-5	1.127	1,000,000	5,014

Note: The device content disclosed herewith is approximate and is based on engineering estimates only. It has not been verified through analytical testing.

Additionally, the following should be noted:

1. One or more dopant materials may be present in the silicon die at sub-ppm levels to provide semiconductor properties.
2. Epoxy resin components listed are generic and may or may not be the specific compound used, which is considered proprietary.

RoHS Material Composition Declaration

RoHS Directive 2002/95/EC	RoHS Definition: Quantity limit of 0.1% by mass (1000 PPM) in homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB),Polybrominated Diphenyl Ethers (PBDE) and quantity limit of 0.01% by mass (100 PPM) of homogeneous material for Cadmium

Texas Instruments Silicon Valley Analog (TI SVA), formerly National Semiconductor, certifies to the best of its knowledge that TI SVA semiconductor products designated as "NOPB" (Pb-Free).

- Do not exceed Joint Industry Guide ("JIG") Ed. 4.1 Regulated Substance thresholds
- Are compliant with the threshold requirements of the European Union's Restriction on Use of Hazardous Substances Directive, 2002/95/EC ("RoHS1"), as well as the recast Directive 2011/65/EU ("RoHS2"). Certain products contain lead in RoHS exempt applications 7(a) or 7(c)-I
- Meet the China Management Methods for controlling Pollution by Electronic Information Products ("China RoHS")
- Do not contain any of the Registration, Evaluation, Authorization and Restriction of Chemicals ("REACH") substances of very high concern (SVHC) above the regulatory threshold of 0.1%, including lists released through Dec 2011
- Do not contain and are not manufactured with ozone depleting compounds

Texas Instruments bases its material content knowledge on information provided by third parties and has taken and continues to take commercially reasonable steps to provide representative and accurate information, but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release. TI's standard warranty and limitation of liability provisions of TI's Standard Terms and Conditions (available at http://www.ti.com/sc/docs/stdterms.htm) apply to the representations herein unless otherwise provided by a written contract or other agreement signed by the parties.

Kyle Flessner

Kyle Flessner
Vice President, Worldwide Quality

SZZQ083

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as “components”) are sold subject to TI’s terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI’s terms and conditions of sale of semiconductor products. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers’ products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers’ products and applications, Buyers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of significant portions of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI components or services with statements different from or beyond the parameters stated by TI for that component or service voids all express and any implied warranties for the associated TI component or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI’s goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or “enhanced plastic” are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have ***not*** been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components which meet ISO/TS16949 requirements, mainly for automotive use. Components which have not been so designated are neither designed nor intended for automotive use; and TI will not be responsible for any failure of such components to meet such requirements.

Products		**Applications**	
Audio	www.ti.com/audio	Automotive and Transportation	www.ti.com/automotive
Amplifiers	amplifier.ti.com	Communications and Telecom	www.ti.com/communications
Data Converters	dataconverter.ti.com	Computers and Peripherals	www.ti.com/computers
DLP® Products	www.dlp.com	Consumer Electronics	www.ti.com/consumer-apps
DSP	dsp.ti.com	Energy and Lighting	www.ti.com/energy
Clocks and Timers	www.ti.com/clocks	Industrial	www.ti.com/industrial
Interface	interface.ti.com	Medical	www.ti.com/medical
Logic	logic.ti.com	Security	www.ti.com/security
Power Mgmt	power.ti.com	Space, Avionics and Defense	www.ti.com/space-avionics-defense
Microcontrollers	microcontroller.ti.com	Video and Imaging	www.ti.com/video
RFID	www.ti-rfid.com		
OMAP Applications Processors	www.ti.com/omap	**TI E2E Community**	e2e.ti.com
Wireless Connectivity	www.ti.com/wirelessconnectivity		

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2012, Texas Instruments Incorporated