

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

Contact	Title	Phone	Email
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Part Number	MSL Rating	Peak Body Temp C	MaxTime(Sec)	Cycles	Unit Type
LM5116WG NOPB	1	NA	NA	NA	Each

Document Date	European RoHS Compliant. NOT China RoHS Compliant.	Weight (mg)	Does NOT Contain Halogens
01-17-2012		634.88	

Material Composition Declaration for Electronic Products

Item	Weight (mg)	Component	CAS#	Weight (mg)	Item-ppm	Part-ppm
Leadframe	54.300	Fe	7439-89-6	31.494	580,000	49,606
		Ni	7440-02-0	22.806	420,000	35,922
Ext. LeadFinish	5.200	Sn	7440-31-5	5.018	965,000	7,904
		Ag	7440-22-4	0.156	30,000	246
		Cu	7440-50-8	0.026	5,000	41
Ceramic Body	414.502	Al2O3	1344-28-1	367.123	885,700	578,253
		MnO2	1313-13-9	13.969	33,700	22,002
		SiO2	60676-86-0	12.021	29,000	18,934
		TiO2	13463-67-7	7.710	18,600	12,144
		Cr2O3	1308-38-9	5.762	13,900	9,076
		Fe2O3	1309-37-1	4.667	11,260	7,351
		MgO	1309-48-4	2.168	5,230	3,415
Chip	2.990	Si	7440-21-3	2.972	994,000	4,681
		Al	7429-90-5	0.018	6,000	28
Die Attach	2.940	Ag	7440-22-4	2.352	800,000	3,705
		Lead Borate Glass	65997-18-4	0.588	200,000	926
Seal Glass	154.800	PbO	1317-36-8	93.252	602,400	146,881
		SnO2	18282-10-5	23.065	149,000	36,330
		B2O3	1303-86-2	15.449	99,800	24,334
		SiO2	60676-86-0	7.786	50,300	12,264
		Al2O3	1344-28-1	7.779	50,250	12,253
		MgO	1309-48-4	2.933	18,950	4,620
		TiO2	13463-67-7	2.926	18,900	4,609
Wires	0.151	Al	7429-90-5	0.149	990,000	235
		Si	7440-21-3	0.002	10,000	3

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:

- One or more dopant materials may be present in the silicon die at sub-ppm levels to provide semiconductor properties.
- 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
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Subject to the limitations below, National Semiconductor Corporation ("National") certifies the following information as of the document date.

1. National products designated "ROHS Compliant" comply with the European Unions Directive on the Restriction of the Use of Hazardous Substances 2002/95/EC ("RoHS"). Certain National products contain lead in RoHS exempt applications 7(a) or 7(c)-1.
2. National products do not contain and are not manufactured with ozone depleting compounds.
3. National products do not contain substances identified by the European Chemical Agency ("ECHA") as substances of very high concern ("SVHC") per REACH Regulation (EC) No 1907/2006. National also complies with use restrictions as stipulated in Annex XVII of REACH.
4. National products are manufactured in conformance with National specifications (SC)CSP-9-111C1 Supplier Environmental Requirements for Materials and Products and (SC)CSP-9-111S2 Banned and Reportable Substances.
5. National's list of banned and reportable substances and management system is based on the current version of the Joint Industrial Guide, JIG-101.

National has taken commercially reasonable steps to provide representative and accurate information but may not have independently verified information provided or conducted chemical analysis of incoming materials. Equivalent compliant materials may have been substituted for those stated herein. Material concentrations are the maximum expected concentration of the substance in the device and may not represent the actual concentration. National and its suppliers consider certain limited information to be confidential and thus CAS numbers and other limited information may not be available for release. National's Standard Terms and Conditions of Sale apply to any issue arising out of or in connection with the information provided herein unless otherwise provided by a written contract signed by both parties.

NATIONAL ACCEPTS NO DUTY TO NOTIFY USERS OF THIS DECLARATION OF UPDATES OR CHANGES TO THIS DECLARATION.



John L. Conn
Vice President Quality

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Vice President Quality

Banned Substance Monitoring

Part Number		Document Date
LM5116WG	NOPB	01-17-2012

European RoHS Compliant.

China RoHS Compliant.

Item#	Material	Cd	CrVI	Pb	Hg	PBB	PBDE	Cl	Br	Ref#
1	CHIP	<1	<1	<1	<30	<10	<10	<75	<50	1000
2	PASTE	<2	<2	<2	<2	<5	<5	<50	<50	150
3	WIRE	<2	N/D	<2	<2	<5	<5	N/A	N/A	604

* Cd: Cadmium, CrVI: Hexavalent Chromium, Pb: Lead, Hg: Mercury, NA: Not Applicable

* Unless otherwise noted, units are in PPM (parts-per-million)

Ref#	3rd Party Analysis (available upon request, subject to a non-disclosure agreement)
1000	Analysis on 01/24/2011 by Balazs as per Report# 11-00322-00
150	Analysis on 04/29/2011 by SGS per Report# LPCI/04437(B)/11
604	Analysis on 04/29/2011 by SGS per Report# LPCI/04451(B)/11

部件名称 Part	有毒有害物质或元素 Toxic and harmful substances or elements					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
集成电路 Integrated Circuit	X	○	○	○	○	○

○ : 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006标准规定的限量要求以下。

○ : Indicates that this hazardous substance contained in all homogeneous materials of this part is below the limit requirement in SJ/T 11363-2006.

X : 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006标准规定的限量要求。

X : Indicates that this hazardous substance contained in at least one of the homogeneous materials of this part is above the limit requirement in SJ/T 11363-2006.

美国国家半导体的产品不会含有镉、汞、六价铬、多溴联苯(PBB)和二苯醚(PBDE)。

National Semiconductor's products will not contain cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBBs) and diphenyl ether (PBDE).



环保使用期限(epup) 是指以符号在这里展出. 环保使用期限(epup)的有效期只有当产品使用范围以内的数据表中的规格.

The Environmental Protection Use Period (EPUP) is defined by the symbol shown here. The Environmental Protection Use Period (EPUP) is valid only when product is used within the limits of the data sheet specifications.