



Product Content Sheet							
Package family	TO220					Picture of typical product, optional	
Date	July 19, 2004						
Version	A						
Composition part	Material group	Materials	Test report	CAS if applicable	Average mass (weight-%)*	Sum (%)	Traces (PPM)
Copper	Leadframe			7440-50-8	0.8480 g	57.33	573214
Zinc	Leadframe			7440-66-6	0.0010 g	0.007	705
Phosphorous	Leadframe			7723-14-0	0.0003 g	0.002	176
Nickel	Leadframe			7440-02-0	0.0174 g	1.10	11752
Iron	Leadframe			7439-89-6	0.01998 g	13.50	13515
Silicon	Die			7440-21-3	0.01380 g	0.93	9333
Tin	Die attach			7440-31-5	0.0004 g	0.03	266
Lead	Die attach			7439-92-1	0.0075 g	0.51	5063
Aluminum	Bondwire			7429-90-5	0.0041g	0.28	2772
SbO2	Encapsulant			7440-36-0	0.00173 g	0.12	11688
Bromide	Encapsulant			21308-80-5	0.0058g	0.39	3896
Bromine	Encapsulant			10097-32-2	0.00001 g	0.001	8
Other	Encapsulant				0.553	37.39	374028
Tin	Plating			7440-31-5	0.0072 g	0.49	4869
Lead	Plating			7439-92-1	0.0008 g	0.05	541
						Sum in total	100.00
<p>*)Related to package weight; weight in particular, see corresponding package weight list</p> <p>**)Slug / wire / frame / terminal can be a combination for device leads</p> <p>***)Utilized as flame retardant</p>							

Package Weight List			Important remarks :
Package Family	Pin Count	Weight(grams)	
TO220	3	1.479	
	Weight range:	0.012	
	Fluctuation margin:	0.00094	
Company	Vishay Siliconix		
Address	2201 Laurelwood Dr Santa Clara, Ca 95054		
E-mail	Dave.macdonald@vishay.com		
Intrnet	www.vishay.com		

- 1) Traces are product parts, substances etc. that are below a percentage of 0.1% by weight. Higher limits are accepted if the substance or material is Legally regulated (see note no. 2).
- 2) Refer to ELV (end-of-life vehicles) and EU RoHS Directive at: <http://www.dti.gov.uk/environment/consultations/L269directive.pdf> <http://164.36.164.20/sustainability/pdfs/finalrohs.pdf>
- 3) Substances, materials etc. with possible harmful effects on Human beings and the environment are listed.
- 4) There are no risks for human beings and to the environment if products are properly used as designated. This shall not apply to risks caused during procedures for disposal etc.
- 5) All statements herein are based on our present knowledge. If our products are used properly, there are no risks to Human beings and/or the environment.



TO:

FROM:

SUBJECT: Warranty for Non-Inclusion of Hazardous Substances in Products

DATE: June 22, 2004

Dear Sir/Madam,

It is the policy of Vishay Siliconix to:

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, Distribution and operating systems with respect to their impact on the health and Safety of our employees and the public, as well as their impact on the environment.

It is of particular concern to control or eliminate the use of those substances with recognized hazardous properties.

It is the intention of Vishay Siliconix to provide products that meet the following environmental legislations:

- a) 2000/53/EC End of Vehicle Life Directive (EVL)
- b) 2000/53/EC Annex II to End of Vehicle Life (EVL II)
- c) 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)
- d) 2002/96/EC Waste Electrical and Electronic Equipment (WEEE)
- e) Montreal Agreement (ODS material)

We hereby warrant and guarantee that the Lead-free, customer approved version of this product (designated with an nE3 suffix) supplied by our Company complies fully with these directives and does not and will not contain any of the following substances:

- Cadmium and cadmium compounds;
- PBB (polybromobiphenyl) category and PBDE (polybrominated biphenyl ethers)category;
- Pentabromodiphenyl ether (Penta BDE) and Octabromodiphenyl ether (OctaBDE);
- Chlorinated paraffin (chlorine flame retarding materials / plasticizers);
- Polychloriated biphenyl (PCB) category;
- Polychlorinated naphthalene category;
- Organic tin compounds (Tributyl tin category & Triphenyl tin category);
- Asbestos, and
- Azo compounds.



In making this warranty we use the following exemptions as outlined in EVL II & RoHS.

Materials and Components	Scope of Exemption	Expiration Date of Exemption	Vishay Function/Application
Solder in electronic Circuit boards and other Electric applications	Lead in high melting temperature type solders(i.e. tin-lead solder alloys containing more than 85% lead).	None announced	Internal Die Attach
Electrical components Which contain lead in a glass or ceramic matrix Compound, except glass In bulbs and glaze of Spark plugs.		None announced	Glass passivation at die level.

Material Declaration

Material Declaration reports on individual part numbers of product families are available using any of the following internationally recognized formats.

	Application	Reference Link
1.	End-Of-Life Vehicles(ELV) EU RoHS Directive	http://www.dti.gov.uk/environment/consultations/L269directive.pdf http://164.36.164.20/sustainability/pdfs/finalrohs.pdf
2.	International Material Data System	http://www.eia.org/resources/2003-09-19.10.pdf

Lead Free Plating

The position of Vishay Siliconix regarding lead-free terminal plating has been published elsewhere. All products are available with a lead-free finish. Please Contact your Marketing or Customer Service Representative for details.

sign _____

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post and rank Technical Marketing Engineer
Vishay Siliconix
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