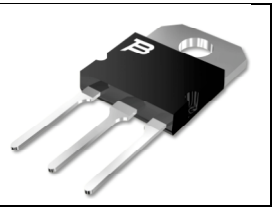
MATERIAL DECLARATION SHEET

Reliable Electronic Solutions

Package Type	SOT-93		
Product Line	TSP (Transistors & Thyristors)		
Compliance Date	November 30, 2004		
RoHS Compliant	Yes (-S suffix)	MSL	N/A



Bourns Transistor products complying with RoHS legislation are identified with a "-S " suffix in the component part number e.g. TIP34C-S.

No.	Construction Element (subpart)	Homogeneous Material	Material weight [g]	Homogeneous Material\ Substances	CASRN if applicable	Materials Mass %	Material Mass % of total unit wt.	Subpart mass of total wt. (%)
1	Encapsulation	Epoxy resin	1.174629	Fused Silica (SiO2)	60676-86-0	71.00	21.148	29.785
				Resin		19.00	5.659	
				Epoxy Resin	29690-82-2	5.00	1.489	
				Antimony Oxides	1309-64-4	3.00	0.893	
				Silica Quartz	14808-60-7	1.00	0.298	
				Carbon Black	1333-86-4	1.00	0.298	
2	Leadframe	Copper alloy	2.730549	Copper	7440-50-8	99.62	68.978	69.240
				Iron	7439-89-6	0.10	0.069	
				Phosphorous	7723-14-0	0.03	0.020	
				Nickel	7440-02-0	0.25	0.173	
3	Chip	Silicon	0.011952	Silicon	7440-21-3	97.57	0.295	0.301
				Aluminium	7429-90-5	1.66	0.005	
				Titanium	7440-32-6	0.14	0.0004	
				Nickel	7440-02-0	0.54	0.001	
				Gold	7440-57-5	0.09	0.0002	
4	Die Attach	Solder	0.006934	Lead	7439-92-1	95.50	0.168	0.175
				Silver	7440-22-4	2.50	0.004	
				Tin	7440-31-5	2.00	0.003	
5	Bond wires	Aluminium	0.000139	Aluminium	7429-90-5	99.99	0.003	0.003
6	Terminal Finish	Solder Dip	0.019297	Tin	7440-31-5	96.50	0.472	0.489
				Silver	7440-22-4	3.00	0.015	
				Copper	7440-50-8	0.50	0.002	
		Total weight	3.943500					

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RoHS Compliance Verification.

The substance content of Bourns products in SOT-93 package has been verified for RoHS compliance. The following is a summary of analytical analysis reports from external laboratories provided to Bourns by its suppliers.

Substance	Analysis Method	Detect Limit	Unit	Material	Package Body	Leadframe	Die Attach Solder	Bond Wire	Terminal Finish
Lead (Pb)	ICP-AES US EPA 3050B or other acid digestion.	2	ppm	Pb/Hg/Cd &Cr+6 Analysis Result	N.D.	N.D.	-	N.D.	215
Mercury (Hg)	ICP-AES or Mercury Analyzer US EPA 3052 or other acid digestion	2	ppm		N.D.	N.D.	N.D.	N.D.	N.D.
Cadmium (Cd)	ICP-AES EN1122, Method B:2001, US EPA 3050B or other acid digestion.	2	ppm		N.D.	N.D.	N.D.	N.D.	N.D.
Hexavalent Chromium (Cr+6)	UV-Vis US EPA 7196A, US EPA 3060A	2	ppm		N.D.	N.D.	N.D.	N.D.	N.D.
Polybrominated biphenyls (PBBs)	GC/MS, ECDMS, LC/MS or HPLC/DAD	5	ppm	PBBs / PBDEs Analysis Result	N.D.	-	-	N.D.	-
Polybrominated diphenyl ethers (PBDEs)	GC/MS, ECDMS, LC/MS or HPLC/DAD	5	ppm		N.D.	-	-	N.D.	-

Note: N.D. = Not Detected (<Minimum detection limit)
- = Not Applicable

Important remarks:

1. **RoHS exemptions -** Bourns SOT-93 package utilizes a high Lead (Pb) content solder for internal contacting between the chip and leadframe. The Pb content of the solder exceeds 85% by weight and is exempt from the current EU RoHS directive 2002/95/EC and amending directive 2005/618/EC which recognize the technical barrier in replacing this material.
2. It is the responsibility of the user to verify they are accessing the latest version.