



## MODEL 532 SERIES OSCILLATOR

### MATERIAL CONTENT DECLARATION REPORT

CTS Electronic Components follows the Joint Industry Guidelines (JIG) industry consortia recommendations as defined in controlling document JIG-101 for “Green Compliance” Level A and Level B material content restrictions and standardized reporting.

RoHS COMPLIANT      YES  
 RoHS EXEMPTIONS    NO

Level A – Restricted Material/Substance	Material/Substance Category intentionally added or present (Y/N) above threshold level	If Yes, Material Substance Mass (g/PPM)	If Yes, Detailed Material Substance Information
Asbestos	N		
Azo colorants <sup>1</sup>	N		
Cadmium/Cadmium compounds <sup>2</sup>	N		
Hexavalent Chromium / Hexavalent Chromium Compounds <sup>2</sup>	N		
Lead / Lead Compounds <sup>2</sup>	N		
Mercury / Mercury Compounds <sup>2</sup>	N		
Ozone Depleting Substances (CFCs, HCFCs, HBFCs, carbon tetrachloride, etc)	N		
Polybrominated Biphenyls (PBBs) <sup>2</sup>	N		
Polybrominated Diphenylethers (PBDEs) <sup>2</sup>	N		
Polychlorinated Biphenyls (PCBs)	N		
Polychlorinated Naphthalenes (more than 3 chlorine atoms)	N		
Radioactive Substances	N		
Shortchain Chlorinated Paraffins	N		
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	N		
Tributyl Tin Oxide (TBTO)	N		

(1) Applicable to products and subparts that may come into direct contact with human skin.  
 (2) Reported substances per EU RoHS Directive 2002/95/EC.

Level B – Reported Material/Substance	Material/Substance Category intentionally added or present (Y/N) above threshold level	If Yes, Material Substance Mass (g/PPM)	If Yes, Detailed Material Substance Information
Antimony/Antimony Compounds	N		
Arsenic/Arsenic Compounds	N		
Beryllium/Beryllium Compounds	N		
Bismuth/ Bismuth Compounds	N		
Brominated Flame Retardants (other than PBBs or PBDEs)	N		
Nickel/Nickel Compounds (external applications only)	N		
Phthalates	N		
Selenium/Selenium Compounds	N		
Polyvinyl Chloride (PVC)	N		



**ELEMENTAL ANALYSIS**

**MODEL 532 SERIES OSCILLATOR**

RoHS/Green  
Compliant  
  
(6/6)

WEIGHT  
(mg)  
  
64.7670

MSL  
RATING  
  
1

MAX  
REFLOW  
  
260°C



PRODUCT BREAKDOWN	MATERIAL	CAS NUMBER	WEIGHT OF BOM ITEM (g)	% BY WEIGHT (Comp. Item)	mg/UNIT	% BY WEIGHT OF UNIT	REMARKS/SOURCE OF INFORMATION
<b>Package</b>							
Ceramic	Al <sub>2</sub> O <sub>3</sub> (aluminium trioxide)	1344-28-1	0.038240	95.05%	36.3471	56.12%	
Conductors	W (tungsten) [Base]	7440-33-7		4.16%	1.5908	2.46%	
	Ni (nickel) plate [Barrier]	7440-02-0		0.44%	0.1683	0.26%	
	Au (gold) plate [Finish]	7440-57-5		0.35%	0.1338	0.21%	
				<b>100.00%</b>	<b>38.2400</b>		
Seal Ring	Fe (iron) kovar	7439-89-6	0.005690	53.00%	3.0157	4.66%	
	Ni (nickel) Kovar	7440-02-0		29.00%	1.6501	2.55%	
	Co (cobalt) Kovar	7440-48-4		17.00%	0.9673	1.49%	
	Au (gold) plate	7440-57-5		1.00%	0.0569	0.09%	
				<b>100.00%</b>	<b>5.6900</b>		
<b>Sub-Assembly</b>							
Silicon Die (IC)	Si (silicon)	7440-21-3	0.001080	98.50%	1.0638	1.64%	
	Al (aluminium)	7429-90-5		1.50%	0.0162	0.03%	
				<b>100.00%</b>	<b>1.0800</b>		
Die Adhesive	Epoxy Resin (proprietary)		0.000960	21.00%	0.2016	0.31%	
	Aromatic Amine (proprietary)			2.00%	0.0192	0.03%	
	Ag (silver)	7440-22-4		77.00%	0.7392	1.14%	
				<b>100.00%</b>	<b>0.9600</b>		
Die Bond Wire	Au (gold)	7440-57-5	0.000182	100.00%	0.1820	0.28%	
				<b>100.00%</b>	<b>0.1820</b>		
Component Adhesive	Bisphenol F Epoxy Resin (BPA)	54208-63-8	0.0018	21.00%	0.3780	0.58%	
	Butanediol Diglycidyl Ether (BDDGE)	2425-79-8		2.00%	0.0360	0.06%	
	Ag (silver)	7440-22-4		77.00%	1.3860	2.14%	
				<b>100.00%</b>	<b>1.8000</b>		
Chip Capacitor	BaTiO <sub>3</sub> (barium titanate)	12047-27-7	0.00085	75.00%	0.6375	0.98%	
	Sn (tin)	7440-31-5		2.60%	0.0221	0.03%	
	Ag (silver)	7440-22-4		9.90%	0.0842	0.13%	
	Ni (nickel)	7440-02-0		2.60%	0.0221	0.03%	
	Others (proprietary)			9.90%	0.0842	0.13%	
				<b>100.00%</b>	<b>0.8500</b>		
Component Underfill	C <sub>8</sub> -C <sub>12</sub> (Aromatic Hydrocarbons)	64742-94-5	0.0068	100.00%	6.8000	10.50%	
				<b>100.00%</b>	<b>6.8000</b>		
<b>Final Assembly</b>							
Crystal Blank	SiO <sub>2</sub> (silicon dioxide)	14808-60-7	0.001030	41.38%	0.4262	0.66%	
	Cr plate (chromium)	7440-47-3		21.98%	0.2264	0.35%	
	Ag plate (silver)	7440-22-4		36.64%	0.3774	0.58%	
				<b>100.00%</b>	<b>1.0300</b>		
Blank Adhesive	C <sub>8</sub> -C <sub>12</sub> (Aromatic Hydrocarbons)	64742-94-5	0.000380	20.00%	0.0760	0.12%	
	Ag (silver)	7440-22-4		70.00%	0.2660	0.41%	
	Others (proprietary)			10.00%	0.0380	0.06%	
				<b>100.00%</b>	<b>0.3800</b>		
Metal Cover	Fe (iron) kovar	7439-89-6	0.007755	53.00%	4.1102	6.35%	
	Ni (nickel) Kovar	7440-02-0		29.00%	2.2490	3.47%	
	Co (cobalt) Kovar	7440-48-4		17.00%	1.3184	2.04%	
	Ni (nickel) kovar, plate	7440-02-0		1.00%	0.0776	0.12%	
				<b>100.00%</b>	<b>7.7550</b>		
<b>Totals:</b>			<b>0.064767</b>		<b>64.7670</b>	<b>100.00%</b>	



MATERIALS COMBINED	CAS NUMBER	WEIGHT OF MATERIAL (mg)	% BY WEIGHT OF UNIT
Ag (silver)	7440-22-4	2.4754	3.82%
Al (aluminum)	7429-90-5	0.0162	0.03%
Al <sub>2</sub> O <sub>3</sub> (aluminium trioxide)	1344-28-1	36.3471	56.12%
Aromatic Amine (proprietary)		0.0192	0.03%
Au (gold)	7440-57-5	0.7501	1.16%
BaTiO <sub>3</sub> (barium titanate)	12047-27-7	0.6375	0.98%
Bisphenol F Epoxy Resin (BPA)	54208-63-8	0.3780	0.58%
Butanediol Diglycidyl Ether (BDDGE)	2425-79-8	0.0360	0.06%
C <sub>8</sub> -C <sub>12</sub> (Aromatic Hydrocarbons)	64742-94-5	6.8760	10.62%
Co (cobalt)	7440-48-4	2.2857	3.53%
Cr (chromium )	7440-47-3	0.2264	0.35%
Epoxy Resin (proprietary)		0.2016	0.31%
Fe (iron)	7439-89-6	7.1259	11.00%
Ni (nickel)	7440-02-0	4.1670	6.43%
Others (proprietary)		0.1222	0.19%
Si (silicon)	7440-21-3	1.0638	1.64%
SiO <sub>2</sub> (silicon dioxide)	14808-60-7	0.4262	0.66%
Sn (tin)	7440-31-5	0.0221	0.03%
W (tungsten)	7440-33-7	1.5908	2.46%
		64.7670	100.00%