



## ATS SERIES CRYSTAL

### 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							
<b>ATS SERIES CRYSTAL</b>		RoHS/Green Compliant (6/6)	WEIGHT (mg) 562.8100	MSL RATING 1	MAX REFLOW 260°C	<span style="border: 1px solid green; border-radius: 50%; padding: 5px;">e1</span>	
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>							
Metal Base	S (sulphur) C1010 cold rolled steel	7704-34-9	0.185300	0.05%	0.0927	0.02%	Machinery's Handbook
	C (carbon) C1010 cold rolled steel	7440-44-0		0.13%	0.2409	0.04%	
	Mn (manganese) C1010 cold rolled steel	7439-96-5		0.60%	1.1118	0.20%	
	P (phosphorus) C1010 cold rolled steel	7723-14-0		0.04%	0.0741	0.01%	
	Fe (iron) C1010 cold rolled steel	7439-89-6		99.00%	183.4470	32.59%	
	Ni plate (nickel) C1010 cold rolled steel	7440-02-0		0.18%	0.3335	0.06%	
				<b>100.00%</b>	<b>185.3000</b>		
Lead Pin	Fe (iron) kovar pin, base material	7439-89-6	0.200000	53.00%	106.0000	18.83%	Kester EM 907 (Sn96.5Ag3.0Cu0.5)
	Ni (nickel) kovar pin, base material	7440-02-0		29.00%	58.0000	10.31%	
	Co (cobalt) kovar pin, base material	7440-48-4		17.00%	34.0000	6.04%	
	Ni plate (nickel) kovar pin, base plating	7440-02-0		0.33%	0.6600	0.12%	
	Sn (tin) kovar pin, finish plating	7440-31-5		0.40%	0.8000	0.14%	
	Ag (silver) kovar pin, finish plating	7440-22-4		0.20%	0.4000	0.07%	
	Cu (copper) kovar pin, finish plating	7440-50-8		0.07%	0.1400	0.02%	
				<b>100.00%</b>	<b>200.0000</b>		
Glass Seal	Al <sub>2</sub> O <sub>3</sub> (aluminium trioxide)	1344-28-1	0.025000	9.00%	2.2500	0.40%	
	B <sub>2</sub> O <sub>3</sub> (boron trioxide)	1303-86-2		70.00%	17.5000	3.11%	
	SiO <sub>2</sub> (silicon dioxide)	14808-60-7		21.00%	5.2500	0.93%	
				<b>100.00%</b>	<b>25.0000</b>		
<b>Final Assembly</b>							
Crystal Blank	SiO <sub>2</sub> (silicon dioxide)	14808-60-7	0.003560	41.38%	1.4731	0.26%	
	Cr plate (chromium)	7440-47-3		21.98%	0.7825	0.14%	
	Ag plate (silver)	7440-22-4		36.64%	1.3044	0.23%	
				<b>100.00%</b>	<b>3.5600</b>		
Blank Adhesive	C <sub>8</sub> -C <sub>12</sub> (Aromatic Hydrocarbons)	64742-94-5	0.000380	20.00%	0.0760	0.01%	
	Ag (silver)	7440-22-4		70.00%	0.2660	0.05%	
	Others (proprietary)			10.00%	0.0380	0.01%	
				<b>100.00%</b>	<b>0.3800</b>		
Metal Cover	C (carbon) Type 304 Stainless Steel	7440-44-0	0.148570	0.08%	0.1189	0.02%	
	Cr (chromium) Type 304 Stainless Steel	7440-47-3		20.00%	29.7140	5.28%	
	Mn (manganese) Type 304 Stainless Steel	7439-96-5		2.00%	2.9714	0.53%	
	Ni (nickel) Type 304 Stainless Steel	7440-02-0		10.50%	15.5999	2.77%	
	P (phosphorous) Type 304 Stainless Steel	7723-14-0		0.05%	0.0669	0.01%	
	Si (silicon) Type 304 Stainless Steel	7440-21-3		1.00%	1.4857	0.26%	
	S (sulfur) Type 304 Stainless Steel	7704-34-9		0.03%	0.0446	0.01%	
	Fe (iron) Type 304 Stainless Steel	7439-89-6		66.35%	98.5688	17.51%	
				<b>100.00%</b>	<b>148.5700</b>		
<b>Totals:</b>			<b>0.562810</b>		<b>562.8100</b>	<b>100.00%</b>	

MATERIALS COMBINED	CAS NUMBER	WEIGHT OF MATERIAL (mg)	% BY WEIGHT OF UNIT
Ag (silver)	7440-22-4	1.9704	0.35%
Al <sub>2</sub> O <sub>3</sub> (aluminium trioxide)	1344-28-1	2.2500	0.40%
B <sub>2</sub> O <sub>3</sub> (boron trioxide)	1303-86-2	17.5000	3.11%
C (carbon)	7440-44-0	0.3597	0.06%
C <sub>8</sub> -C <sub>12</sub> (Aromatic Hydrocarbons)	64742-94-5	0.0760	0.01%
Co (cobalt)	7440-48-4	34.0000	6.04%
Cr (chromium)	7440-47-3	30.4965	5.42%
Cu (copper)	7440-50-8	0.1400	0.02%
Fe (iron)	7439-89-6	388.0158	68.94%
Mn (manganese)	7439-96-5	4.0832	0.73%
Ni (nickel)	7440-02-0	74.5934	13.25%
Others (proprietary)		0.0380	0.01%
P (phosphorous)	7723-14-0	0.1410	0.03%
S (sulfur)	7704-34-9	0.1372	0.02%
Si (silicon)	7440-21-3	1.4857	0.26%
SiO <sub>2</sub> (silicon dioxide)	14808-60-7	6.7231	1.19%
Sn (tin)	7440-31-5	0.8000	0.14%

562.8100      100.00%