

Revised 29 March 2019

## INTERNATIONAL RoHS DECLARATIONS

per 2011/65/EU as amended.

Listed on tabs below by product line is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. On each page, the products are listed by AVX part numbers.

No Deca-BDE, PFOS, PFOA, nor ODCs are used in any AVX products.

All AVX products are considered as "articles" under REACH and are in compliance with SVHC reporting requirements.

AVX standard letter on REACH is found at:  
[http://www.avx.com/docs/catalogs/AVX\\_REACH\\_Statement.pdf](http://www.avx.com/docs/catalogs/AVX_REACH_Statement.pdf)

An official declaration for China and Korea appears at the bottom of this page.

Some, but not all, Kyocera Electronic Devices are listed here. For a complete listing, please visit:

<http://global.kyocera.com/prdct/electro/rohs.html>

or for connectors:

<http://www.kyocera-elco.com/prdct/list.html>

Please forward any questions and material declaration requests to: [avxrohs@avx.com](mailto:avxrohs@avx.com)

Each tab uses the format below.

**ALL COLUMNS**

Y = Compliant  
 N = Not Compliant  
 None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY**

Y = Meets China RoHS  
 N = Fails China RoHS for Lead only

**HALOGENS**

Y if Cl,Br <900ppm  
 and Cl+Br <1500ppm  
 per homogenous

(Part number position)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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**COLUMN HEADINGS**

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	Sn/Pb	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	TERMINATION?	< 900/1500 ppm?

Tabs at the bottom of this sheet are in the following order:  
 Click on the item below and you will be taken to the same tab.

- [MLCCs <250V-RoHS](#)
- [MLCCs - NON-RoHS COMPLIANT](#)
- [RF POWER](#)
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- [CERAMIC AXIAL CAPACITORS](#)
- [CERAMIC RADIAL CAPACITORS](#)
- [FEEDTHRU](#)
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- [EMI CAPACITORS AND FILTERS](#)
- [ATC PRODUCTS - RoHS COMPLIANT](#)
- [ATC PRODUCTS - NON-RoHS COMPLIANT](#)
- [TANTALUM CAPACITORS](#)
- [NIOBIUM OXIDE / OxiCap®](#)
- [CONNECTORS](#)
- [SOLDERING PROFILES](#)

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**Declaration of Products to Meet  
"China RoHS"**

Although "China RoHS" is not the official title of the legislation to restrict certain hazardous materials from entering China in Electronic Information Products, the name has become the commonplace description of the more official title of the law, depending on translation:

- ACPEIP – Administration on the Control of Pollution caused by Electronic Information Products**
- MAPCEIP – Measures for Administration for the Pollution Control of Electronic Information Products**
- MMCPEIP – Management Methods for Controlling Pollution by Electronic Information Products**

By any name, China RoHS requires suppliers to declare whether their products sold in China meet the same limits for Lead, Cadmium, Mercury, Chromium (VI), PBBs, and PBDEs as the European Union law, only without any product exemptions. The list of application exemptions is different as well. These are major areas where the China law differs from the EU law.

For declaration purposes, AVX has divided the products we sell into two categories as required: Those products considered to be "green" and meeting the Chinese regulations today, and those products which contain a restricted material (Lead) in an amount greater than the prescribed limit in any homogenous material.

We have chosen to use the AVX part number as the key identifier so customers can readily determine the compliance status of our many products. Within a part number are critical characters in specific part number positions (1 through 20) which show whether a product is green or is not green. Using these lists will allow our valued Chinese customers to properly categorize their assembly as it travels along the supply chain to the end consumer.

**Declaration Format**

AVX product families which meet China RoHS using no EU exemptions can be identified by a small version of the "e" logo in the margin. Use of this logo means that homogenous materials in the product contain less than 0.1% Pb, Hg, Cr(VI), PBBs, PBDEs and less than 0.01% Cd.

**Disclosure Table**



有毒有害物质或元素					
铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr <sup>6+</sup> )	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
0	0	0	0	0	0

0: 本产品符合中国RoHS标准，不含铅、汞、镉、六价铬、多溴联苯、多溴二苯醚。  
X: 本产品符合中国RoHS标准，但含有铅、汞、镉、六价铬、多溴联苯、多溴二苯醚。  
(符合中国RoHS标准，但不符合欧盟RoHS标准。X: 不符合欧盟RoHS标准。)

Among AVX products, the only restricted material that may be found is lead (Pb). If Pb is contained in the product above allowed levels, even if permitted under EU exemptions, the Disclosure Table below will apply to any such product.

**Disclosure Table**



有毒有害物质或元素					
铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr <sup>6+</sup> )	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
X	0	0	0	0	0

0: 本产品符合中国RoHS标准，不含铅、汞、镉、六价铬、多溴联苯、多溴二苯醚。  
X: 本产品符合中国RoHS标准，但含有铅、汞、镉、六价铬、多溴联苯、多溴二苯醚。  
(符合中国RoHS标准，但不符合欧盟RoHS标准。X: 不符合欧盟RoHS标准。)

**KOREA RoHS**

Or The Act for Resource of Recycling of Electrical/Electronic Products and Automobiles (ARREA)

**Declaration of Compliance with Restriction on the Use of Hazardous Substances**

Declared by: AVX Corporation  
801 17th Avenue South  
Myrtle Beach, South Carolina, USA, 29577  
+843-448-9411

Contact information: [avxrohs@avx.com](mailto:avxrohs@avx.com)

Products: Passive electronic components including ceramic, tantalum, and niobium capacitors and connectors

AVX Corporation declares that electrical and electronic equipment listed above indicated with "Y" in the "Compliant to Korea RoHS?" column are in compliance with the hazardous materials inclusion standards set forth in Article 11, Paragraph 1 of Enforcement Ordinance of Act on the Resource Recycling of Electrical and Electronic Equipment and Vehicles and in Article 3 of the Enforcement Regulation for said Act.

This declaration is effective from 1 January 2008.

Inquiries on any products not listed here should be sent to: [avxrohs@avx.com](mailto:avxrohs@avx.com)



## MLCCs - NON-ROHS COMPLIANT

Applies to all catalog values. Contact AVX for values outside the catalog

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: avxrohs@avxus.com

**MSL = 1 for all MLCCs**

**ALL COLUMNS**

Y = Compliant  
 N = Not Compliant  
 None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY**

Y = Meets China RoHS  
 N = Fails China RoHS for Lead only

**HALOGENS**

Y if Cl,Br <900ppm  
 and Cl+Br <1500ppm  
 per homogenous material

**MLCCs - Non-RoHS Compliant**

PART NUMBER POSITION												
1	2	3	4	5	6	7	8	9	10	11	12	13
											B,J,X	
L	D										B	
A	P										B,X	
F	S										X	

				A*							1,7	
A	U			A*							7	

\* For all values above 47pF

C	D	R										
---	---	---	--	--	--	--	--	--	--	--	--	--

**COLUMN HEADINGS**

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?
N	None	N	N	Y
N	None	N	N	Y
N	None	N	N	Y
N	None	N	N	Y
N	None	N	N	Y
N	None	N	N	Y
N	None	N	N	Y

Has Sn/Pb
TERMINATION?
Y
Y
Y
Y
N
N

N	None	N	N	Y
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Y
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## RF POWER CAPS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: avxrohs@avxus.com

**MSL = 1 for all MLCCs**

JESD-97 labeling data includes: MSL=1, 260°C  
max reflow X 3 for 10 seconds, e3 termination

**ALL COLUMNS**

Y = Compliant  
N = Not Compliant  
None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY**

Y = Meets China RoHS  
N = Fails China RoHS for Lead only

**HALOGENS**

Y if Cl,Br <900ppm  
and Cl+Br <1500ppm  
per homogenous  
material

PART NUMBER POSITION																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
RF Power MLCCs - RoHS																				
H	Q	C	C	A																
H	Q	C	E	A																
H	Q	C	C	M																
H	Q	C	E	M																

RF Power MLCCs - Non-RoHS																				
H	Q	C	C																	
H	Q	C	E																	
H	Q	C	C																	
H	Q	C	E																	

**COLUMN HEADINGS**

COMPLIANT TO EU RoHS?	EU RoHS EXEMPTION? (#)	COMPLIANT TO CHINA RoHS?	COMPLIANT TO KOREA RoHS?	HALOGENS < 900/1500 ppm?
Y	None	Y	N	N
Y	None	Y	N	N
Y	None	Y	N	N
Y	None	Y	N	N

Sn/Pb TERMINATION?
N
N
N
N

N	None	N	Y	N
N	None	N	Y	N
N	None	N	Y	N
N	None	N	Y	N

Y
Y
Y
Y

## ACCU-P® THIN FILM CAPACITORS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: avxrohs@avxus.com

**MSL = 1 for all products**

THIN FILM CAPACITORS (ACCU-P®)

\*EU RoHS compliant as standard product since 31 December 2004

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0	2	0	1								B	S							
0	4	0	2								B	S							
0	6	0	3								B	S							
0	8	0	5								B	T							
1	2	1	0								B	T							

0	6	0	3								B	T							
---	---	---	---	--	--	--	--	--	--	--	---	---	--	--	--	--	--	--	--

**ALL COLUMNS**

Y = Compliant  
 N = Not Compliant  
 None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY HALOGENS**

Y = Meets China RoHS  
 N = Fails China RoHS for Lead on and Cl+Br <1500ppm  
 Y if Cl,Br <900ppm  
 N = Fails China RoHS for Lead on and Cl+Br <1500ppm per homogenous material

**COLUMN HEADINGS**

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?
Y*	None	Y	Y	Y
Y*	None	Y	Y	Y
Y*	None	Y	Y	Y
Y*	None	Y	Y	Y
Y*	None	Y	Y	Y
N	None	N	N	Y

Sn/Pb
N
N
N
N
N
Y

## CERAMIC AXIALS

The plan is for all SA parts to be Pb-free by December 2013.

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

JESD-97 labeling data includes: MSL=1, 260°C  
max reflow X 3 for 10 seconds, e3 termination

**MSL = 1 for all MLCCs**

Halogen-free from 01/01/2010

SpinGuard®

**ALL COLUMNS**

Y = Compliant  
N = Not Compliant  
None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY**

Y = Meets China RoHS  
N = Fails China RoHS for Lead only

**HALOGENS**

Y if Cl,Br <900ppm  
and Cl+Br <1500ppm  
per homogenous  
material

**COLUMN HEADINGS**

PART NUMBER POSITION	COMPLIANT TO EU RoHS?	EU RoHS EXEMPTION? (#)	COMPLIANT TO CHINA RoHS?	COMPLIANT TO KOREA RoHS?	HALOGENS < 900/1500 ppm?	Has Sn/Pb TERMINATION?
<b>STANDARD PRODUCT</b>						
S A	Y	None	Y	Y	Y	N
<b>AUTOMOTIVE PRODUCT</b>						
A A	Y	None	Y	Y	Y	N
<b>MOLDED AXIAL</b>						
M A	N	None	N	N	Y	Y
<b>CKR11/12/13/14/15/16</b>						
C K R 1 1	N	None	N	N	Y	Y
C K R 1 2	N	None	N	N	Y	Y
C K R 1 3	N	None	N	N	Y	Y
C K R 1 4	N	None	N	N	Y	Y
C K R 1 5	N	None	N	N	Y	Y
C K R 1 6	N	None	N	N	Y	Y

## CERAMIC RADIALS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

JESD-97 labeling data includes: MSL=1, 260°C max reflow X 3 for 10 seconds, e3 termination

**MSL = 1 for all MLCCs**

SkyCap® - (SR)AUTOMOTIVE RADIALS - (AR)  
(Part number position)

PART NUMBER POSITION													
1	2	3	4	5	6	7	8	9	#	#	#	#	#
S	R												
S	L									B			

AUTOMOTIVE													
A	R									R			

MOLDED RADIAL													
M	R												

TWO PIN DIP													
M	D	0											
C	K	R	2										

CKR04-CKR08													
C	K	R	0	4									
C	K	R	0	5									
C	K	R	0	6									
C	K	R	0	7									
C	K	R	0	8									

CK05/CK06													
C	K	0	5										
C	K	0	6										

HIGH VOLTAGE MLC (SV STYLE)													
S	V									R			
S	V									A			

**ALL COLUMNS**

Y = Compliant  
N = Not Compliant  
None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY**

Y = Meets China RoHS  
N = Fails China RoHS for Lead only

**HALOGENS**

Y if Cl,Br <900ppm and Cl+Br <1500ppm per homogenous material

**COLUMN HEADINGS**

COMPLIANT TO	COMPLIANT TO	COMPLIANT TO	COMPLIANT TO	HALOGENS	Has Sn/Pb
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?	TERMINATION?
Y	None	Y	Y	Y	N
N	None	N	N	Y	Y
Y	None	N	Y	Y	N
N	None	N	N	N	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
Y	7c2	N	Y	Y	N
N	None	N	N	Y	Y



## FEEDTHRU FILTERS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

JESD-97 labeling data includes: MSL=1, 260°C max reflow X 3 for 10 seconds, e3 termination

**MSL = 1 for all MLCCs**

**ALL COLUMNS**

Y = Compliant  
N = Not Compliant  
None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY**

Y = Meets China RoHS  
N = Fails China RoHS for Lead only

**HALOGENS**

Y if Cl,Br <900ppm and Cl+Br <1500ppm per homogenous material

**COLUMN HEADINGS**

Feedthrus

PART NUMBER POSITION														
1	2	3	4	5	6	7	8	9	#	#	#	#	#	#
W	F.H			C					T					
W	F.H			A					T					
W	F.H			A					4	T				
L	F.H								B					

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?
Y	None	Y	Y	Y
Y	7c-1	N	N	Y
Y	7c-1	N	N	Y
N	None	N	N	Y

Has Sn/Pb
TERMINATION?
N
N
N
Y

## SINGLE LAYER CERAMIC CAPACITORS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: [avxrohs@avxus.com](mailto:avxrohs@avxus.com)

JESD-97 labeling data includes: MSL=1, 260°C  
max reflow X 3 for 10 seconds, e3 termination

**MSL = 1 for all products**

SLCs

\*EU RoHS compliant as standard product since 31 December 1989

1	2	3	4	5	6	7	8	9	10	11	#	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	---	----	----	----	----	----	----	----	----

G	B																			
G	D																			
G	H																			
G	X																			
G	Z																			
M	S																			
G	X																			

**ALL COLUMNS**

Y = Compliant  
N = Not Compliant  
None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY**

Y = Meets China RoHS  
N = Fails China RoHS for Lead only and Cl+Br <1500ppm per homogenous material

**HALOGENS**

Y if Cl,Br <900ppm  
N if Cl+Br <1500ppm per homogenous material

**COLUMN HEADINGS**

COMPLIANT TO		EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?	
Y*	None	Y	Y	Y	Y
Y*	None	Y	Y	Y	Y
Y*	None	Y	Y	Y	Y
Y*	None	Y	Y	Y	Y
Y*	None	Y	Y	Y	Y
Y*	None	Y	Y	Y	Y
Y*	None	Y	Y	Y	Y

Sn/Pb
N
N
N
N
N
N
N
N

TERMINATION?

## SMPS (SWITCH MODE POWER SUPPLY)

SMPS products are undergoing conversion to leadfree status.  
 If you would like to know the status of a particular leaded part, please send a part number list for prefix CH, CV, RH, MH to Johnny Wright at:  
[wrightj@col.avx.com](mailto:wrightj@col.avx.com)

For all other prefixes, contact Christine Gagliardi at:  
[christine.gagliardi@avx.com](mailto:christine.gagliardi@avx.com)

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

**ALL COLUMNS**  
 Y = Compliant  
 N = Not Compliant  
 None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY**  
 Y = Meets China RoHS  
 N = Fails China RoHS for Lead only

**HALOGENS**  
 Y if Cl,Br <900ppm  
 N = Fails China RoHS for Lead only and Cl+Br <1500ppm per homogenous material

**COLUMN HEADINGS**

	COMPLIANT TO EU RoHS?	EU RoHS EXEMPTION? (#)	COMPLIANT TO CHINA RoHS?	COMPLIANT TO KOREA RoHS?	HALOGENS < 900/1500 ppm?	Sn/Pb TERMINATION?
<b>SMPS CAPACITORS</b>						
*EU RoHS compliant as standard product since 31 December 2009						
R M <7	Y*	None	Y	Y	Y	N
R M 7 or >	Y*	Y - (7c2)	N	Y	Y	N
S M	N	None	N	N	Y	Y
<b>SE STYLE EXTENDED COMMERCIAL RADIAL</b>						
*EU RoHS compliant as standard product since 31 December 2008						
S E	Y*	None	Y	Y	Y	N
S E	N	None	N	N	Y	Y
<b>SK STYLE COMMERCIAL RADIAL</b>						
*EU RoHS compliant as standard product since 31 December 2004						
S K <7	Y*	None	Y	Y	Y	N
S K 7 or >	Y*	Y - (7c2)	N	Y	Y	N
S K	N	None	N	N	Y	Y
<b>OTHER SMPS</b>						
**EU RoHS compliant as standard product since 30 November 2008						
***EU RoHS compliant as standard product since 1 November 2010						
B R	N	None	N	N	Y	Y
C H * *	Y**	Y - (7c2)	N	Y	Y	N
C H * *	N	None	N	N	Y	Y
*CH41-CH94						
C V * *	N	None	N	N	Y	Y
*CV41-CV79						
D C	N	None	N	N	Y	Y
H V	N	None	N	N	Y	Y
M H	Y**	None	Y	Y	Y	N
R H	N	None	N	N	Y	Y
R H	Y***	Y(7a)	N	Y	Y	N
S M X	N	None	N	N	Y	Y
S P	N	None	N	N	Y	Y
S T	N	None	N	N	Y	Y
X B	N	None	N	N	Y	Y
X D	N	None	N	N	Y	Y
X F	N	None	N	N	Y	Y

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

## LOW INDUCTANCE CERAMIC CAPACITORS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: avxrohs@avxus.com

**MSL = 1 for all products**

**ALL COLUMNS**

Y = Compliant  
 N = Not Compliant  
 None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY**

Y = Meets China RoHS  
 N = Fails China RoHS for Lead only

**HALOGENS**

Y if Cl,Br <900ppm  
 and Cl+Br <1500ppm  
 per homogenous material

LOW INDUCTANCE CERAMIC CAPACITORS

COLUMN HEADINGS

PART NUMBER POSITION											
1	2	3	4	5	6	7	8	9	#	#	#

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?

Has Sn/Pb
TERMINATION?

0	2	0	4								T										
0	3	0	6								T										
0	5	0	8								T										
0	6	1	2								T										
L	G										T										
W	L										T										

Y	None	Y	Y	Y
Y	None	Y	Y	Y
Y	None	Y	Y	Y
Y	None	Y	Y	Y
Y	None	Y	Y	Y
Y	None	Y	Y	Y

N
N
N
N
N
N

0	2	0	4								B,J										
0	3	0	6								B,J										
0	5	0	8								B,J										
0	6	1	2								B,J										
L	L										B										
L	D										B										
P	G										B										

N	None	N	N	Y
N	None	N	N	Y
N	None	N	N	Y
N	None	N	N	Y
N	None	N	N	Y
N	None	N	N	Y
N	None	N	N	Y

Y
Y
Y
Y
Y
Y

## THIN FILM PRODUCTS/RF/INDUCTORS/COUPLERS/FILTERS PMC PRODUCTS/AQ/SQ/MICROWAVE/U DIELECTRIC

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: [avxrohs@avxus.com](mailto:avxrohs@avxus.com)

**MSL = 1 for all products**

**ALL COLUMNS**

Y = Compliant  
N = Not Compliant  
None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY**

Y = Meets China RoHS  
N = Fails China RoHS for Lead only

**HALOGENS**

Y if Cl,Br <900ppm  
and Cl+Br <1500;  
per homogenous  
material

**THIN FILM INDUCTORS**

\*EU RoHS compliant as standard product since 31 December 2004

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L 0 4 0 2									H N										
L 0 6 0 3									G S										
L 0 8 0 5									E S										

L 0 6 0 3									G W										
L 0 8 0 5									E W										

**IRON CORE INDUCTORS**

\*\*EU RoHS compliant as standard product since 15 September 2011

G L						7													
-----	--	--	--	--	--	---	--	--	--	--	--	--	--	--	--	--	--	--	--

**THIN FILM COUPLERS**

C P 0 4 0 2																			N
C P 0 4 0 2 P																			N
C P 0 6 0 3																			S
C P 0 6 0 3																			N
C P 0 8 0 5																			S

C P 0 4 0 2																			L
C P 0 6 0 3																			W
C P 0 6 0 3																			L
C P 0 8 0 5																			W

D B 0 6 0 3																			N
D B 0 8 0 5																			S

D B 0 8 0 5																			W
-------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---

**THIN FILM FILTERS**

L P 0 4 0 2																			N
L P 0 6 0 3																			N
L P 0 8 0 5																			S

L P 0 8 0 5																			W
-------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---

**COLUMN HEADINGS**

COMPLIANT TO EU RoHS?	EU RoHS EXEMPTION? (#)	COMPLIANT TO CHINA RoHS?	COMPLIANT TO KOREA RoHS?	Sn/Pb TERMINATION?	HALOGENS < 900/1500 ppm?
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y

N	None	N	N	Y	Y
N	None	N	N	Y	Y

Y**	None	Y	Y	N	Y
-----	------	---	---	---	---

Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y

N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y

Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y

N	None	N	N	Y	Y
---	------	---	---	---	---

Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y

N	None	N	N	Y	Y
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**PMC PRODUCTS**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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M	S																			
M	I																			
N						*		#												
M	E					!											^			
M	X					!										^				

\*\*\* can be A or X  
 \*# can be A or F or G or U or H  
 ! can be S or N  
 ^^ can be A or F or G or U or H

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	Sn/Pb	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	TERMINATION?	< 900 ppm?
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y

N						C		E												
M	E			X													E			
M	X			X													E			

N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y

**MSL = 1 for all products**

AQ/SQ/UQ/U Dielectric  
 \*EU RoHS compliant as standard product since 30 June 2003  
 \*\*EU RoHS compliant as standard product since 30 November 2012

PART NUMBER POSITION																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
A	Q																			
S	Q										1,7,T									
U	Q										T									
						U					T									
C	U										T									

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	Sn/Pb	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	TERMINATION?	< 900/1500 ppm?
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y*	None	Y	Y	N	Y
Y**	None	Y	Y	N	Y

A	Q										J									
S	Q										J									
U	Q										J,C									

N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y

## ORGANIC PASSIVES

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: avxrohs@avxus.com

**MSL = 1 for all products**

**PASSIVE ORGANICS**

\*EU RoHS compliant as standard product since inception (7 July 2011)

\*\*EU RoHS compliant as standard product since inception (23 August 2011)

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
H	L	0	2					T											
H	L	C	0	2				T											
M	L	0	3							T									

**ALL COLUMNS**

Y = Compliant

N = Not Compliant

None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY HALOGENS**

Y = Meets China RoHS

N = Fails China RoHS for Lead or and Cl+Br <1500ppm

Y if Cl,Br <900ppm

per homogenous material

**COLUMN HEADINGS**

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?
Y*	None	Y	Y	Y
Y**	None	Y	Y	Y
Y*	None	Y	Y	Y

Sn/Pb
N
N
N





## CIRCUIT PROTECTION PRODUCTS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: avxrohs@avxus.com

**MSL = 1 for surface mount products**

\*EU RoHS compliant as standard product since 31 December 2004

\*\*EU RoHS compliant as standard product since 31 June 2012

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

**THERMISTORS - LEADED**

N	D																		
N	E																		
N	I																		
N	J																		
N	P																		

**THERMISTORS - SMD**

N	B																		
N	C																		

**THERMISTORS - NTC LEADLESS**

N	R																		
---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**THIN FILM FUSES**

F	0	4	0	2	E					F	S								
F	0	4	0	2	G					F	S								
F	0	6	0	3	C					F	S								
F	0	6	0	3	E					F	S								
F	0	8	0	5	B					F	S								
F	1	2	0	6	A					F	S								
F	1	2	0	6	B					F	S								
F	0	6	1	2	D					F	S								

F	0	4	0	2	E					F	W								
F	0	4	0	2	G					F	W								
F	0	6	0	3	C					F	W								
F	0	6	0	3	E					F	W								
F	0	8	0	5	B					F	W								
F	1	2	0	6	A					F	W								
F	1	2	0	6	B					F	W								
F	0	6	1	2	D					F	W								

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

**POWER INDUCTORS**

L	M	X	N																T
L	M	X	S																T

**ALL COLUMNS**

Y = Compliant  
N = Not Compliant  
None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY HALOGENS**

Y = Meets China RoHS  
N = Fails China RoHS for Lead onl and Cl+Br <1500ppm per homogenous  
Y if Cl,Br <900ppm

**COLUMN HEADINGS**

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS	material
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?	

Sn/Pb
TERMINATION?

Y*	None	Y	Y	Y	
Y*	None	Y	Y	Y	
Y*	None	Y	Y	Y	
Y*	None	Y	Y	Y	
Y*	None	Y	Y	Y	

N
N
N
N
N

Y*	None	Y	Y	Y	
Y*	None	Y	Y	Y	

N
N

Y*	None	Y	Y	Y	
----	------	---	---	---	--

N
---

Y*	Y - (7cl)	N	Y	Y	
Y*	Y - (7cl)	N	Y	Y	
Y*	Y - (7cl)	N	Y	Y	
Y*	Y - (7cl)	N	Y	Y	
Y*	Y - (7cl)	N	Y	Y	
Y*	Y - (7cl)	N	Y	Y	
Y*	Y - (7cl)	N	Y	Y	
Y*	Y - (7cl)	N	Y	Y	

N
N
N
N
N
N
N
N

N	None	N	N	Y	
N	None	N	N	Y	
N	None	N	N	Y	
N	None	N	N	Y	
N	None	N	N	Y	
N	None	N	N	Y	
N	None	N	N	Y	
N	None	N	N	Y	

Y
Y
Y
Y
Y
Y
Y
Y

Y**	None	Y	Y	Y	
Y**	None	Y	Y	Y	

N
N

## RESISTIVE PRODUCTS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: avxrohs@avxus.com

**MSL = 1 for surface mount products**

\*EU RoHS compliant as standard product since 1 May 2012

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

RESISTIVE PRODUCTS

R	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

**ALL COLUMNS**

Y = Compliant  
 N = Not Compliant  
 None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY HALOGENS**

Y = Meets China RoHS  
 N = Fails China RoHS for Lead onl and Cl+Br <1500ppm per homogenous material  
 Y if Cl,Br <900ppm

**COLUMN HEADINGS**

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?

Sn/Pb
TERMINATION?

Y*	None	Y	Y	Y
----	------	---	---	---

N
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## TRANSIENT SUPPRESSION PRODUCTS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: avxrohs@avxus.com

**MSL = 1 for all products**

**TransGuard®**

- \*EU RoHS compliant as standard product since 30 June 2003
- \*\*EU RoHS compliant as standard product since 31 December 2004
- \*\*\*EU RoHS compliant as standard product since 30 September 2009
- \*\*\*\*EU RoHS compliant as standard product since 31 October 2010
- \*\*\*\*\*EU RoHS compliant as standard product since 31 January 2011
- \*\*\*\*\*EU RoHS compliant as standard product since 31 July 2012

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
V	C	0	2	0	1								P						
V	C	0	4	0	2								P						
V	C	0	6	0	3								P						
V	C	0	8	0	5								P						
V	C	1	2	0	6								P						
V	C	1	2	1	0								P						

V	C	0	4	0	2								M						
V	C	0	6	0	3								M						
V	C	0	8	0	5								M						
V	C	1	2	0	6								M						
V	C	1	2	1	0								M						

**MultiGuard**

M	G	0											P						
M	G	0											M						

**StaticGuard**

V	C	0	4	L	C								P						
V	C	0	6	L	C								P						
V	C	0	8	L	C								P						
V	C	1	0	L	C								P						
V	C	1	2	L	C								P						

V	C	0	4	L	C								M						
V	C	0	6	L	C								M						
V	C	0	8	L	C								M						
V	C	1	0	L	C								M						
V	C	1	2	L	C								M						

**AntennaGuard**

V	C	0	4	A	G								T						
V	C	0	6	A	G								T						
V	C	H	4	A	G								T						

V	C	0	4	A	G								M						
V	C	0	6	A	G								M						

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

**TransGuard® Automotive Series**

V	C	A	S															T,1	
---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-----	--

**CAN BUS**

C	A	N											P						
F	L	X											P						

C	A	N											M						
---	---	---	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--

**USB**

U	S	B											P						
---	---	---	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--

U	S	B											M						
---	---	---	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--

**ALL COLUMNS**

Y = Compliant  
N = Not Compliant  
None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY HALOGENS**

Y = Meets China RoHS  
N = Fails China RoHS for Lead only and Cl+Br <1500ppm per homogenous

**COLUMN HEADINGS**

material

COMPLIANT TO EU RoHS?	EU RoHS EXEMPTION? (#)	COMPLIANT TO CHINA RoHS?	COMPLIANT TO KOREA RoHS?	HALOGENS < 900/1500 ppm?	Sn/Pb TERMINATION?
Y***	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N
Y**	None	Y	Y	Y	N
Y**	None	Y	Y	Y	N
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
Y*	None	Y	Y	Y	N
N	None	N	N	Y	Y
Y*	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
N	None	N	N	Y	Y
Y*	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N
Y***	None	Y	Y	Y	N
N	None	N	N	Y	Y
N	None	N	N	Y	Y
COMPLIANT TO EU RoHS?	EU RoHS EXEMPTION? (#)	COMPLIANT TO CHINA RoHS?	COMPLIANT TO KOREA RoHS?	HALOGENS < 900/1500 ppm?	Sn/Pb TERMINATION?
Y*****	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N
N	None	N	N	Y	Y
Y*	None	Y	Y	Y	N
N	None	N	N	Y	Y

# AVX CORPORATION

A KYOCERA GROUP COMPANY

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

**UltraGuard**

M	G	U	G													P				
V	C	U	G													P				

M	G	U	G													M				
V	C	U	G													M				

**TransFeed**

V		F														P				
---	--	---	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--

V		F														M				
---	--	---	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--

**Other Transient Suppression Products**

V	A																			
V	F																			
V	J																			
V	C	A	C															P		
M	A	V					P													

**Transient Suppression Diodes**

S	M	J																		
---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS	Sn/Pb
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?	TERMINATION?

Y*	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N

N	None	N	N	Y	Y
N	None	N	N	Y	Y

Y*	None	Y	Y	Y	N
----	------	---	---	---	---

N	None	N	N	Y	Y
---	------	---	---	---	---

Y**	None	Y	Y	Y	N
Y**	None	Y	Y	Y	N
Y**	None	Y	Y	Y	N
Y****	None	Y	Y	Y	N
Y****	None	Y	Y	Y	N

Y*****	None	Y	Y	Y	N
--------	------	---	---	---	---

## POLY FILM CAPACITORS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: [avxrohs@avxus.com](mailto:avxrohs@avxus.com)

**MSL = 3 for all products**

\*EU RoHS compliant as standard product since 31 December 2004

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	#	13	14	15	16	17	18	19	20

FILM CHIP

C	B																		
C	L																		

**ALL COLUMNS**

Y = Compliant  
 N = Not Compliant  
 None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY HALOGENS**

Y = Meets China RoHS  
 N = Fails China RoHS for Lead and Cl+Br <1500ppm per homogenous material  
 Y if Cl,Br <900ppm

**COLUMN HEADINGS**

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS	Sn/Pb
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?	TERMINATION?
Y*	None	Y	Y	Y	N
Y*	None	Y	Y	Y	N



## LOW INDUCTANCE CERAMIC CAPACITORS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: [avxrohs@avxus.com](mailto:avxrohs@avxus.com)

**MSL = 1 for all products**

**ALL COLUMNS**

Y = Compliant  
 N = Not Compliant  
 None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY HALOGENS**

Y = Meets China RoHS  
 N = Fails China RoHS for Lead or and Cl+Br <1500ppm  
 Y if Cl,Br <900ppm  
 per homogenous material

BestCap® PULSE SUPERCAPACITOR

\*EU RoHS compliant as standard product since 31 December 1989

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	#	13	14	15	16	17	18	19	20

B	Z																		
---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**COLUMN HEADINGS**

COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS
EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?

Y*	None	Y	Y	Y
----	------	---	---	---

Sn/Pb
TERMINATION?

N
---













## AMERICAN TECHNICAL CERAMICS PARTS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

The page is organized by product lines, then by part number. Key characters are indicated in their respective part number position.

Please forward any questions and material declaration requests to: [avxrohs@avxus.com](mailto:avxrohs@avxus.com)

**MSL = 1 for all products**

STANDARD CATALOG MLCCs - Non-RoHS Compliant

**ALL COLUMNS**

Y = Compliant

N = Not Compliant

None = No Exemption claim

**CHINA**

Y = Meets China RoHS

N = Fails China RoHS for Lead only

(See official marking indications at the bottom of this page)

**HALOGENS**

Y if Cl,Br <900ppm

and Cl+Br <1500ppm

per homogenous material

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0	0	A	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-
1	0	0	A	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
1	0	0	A	-	-	-	-	-	WN	-	-	-	-	-	-	-	-	-	-
1	0	0	A	-	-	-	-	-	PN	-	-	-	-	-	-	-	-	-	-

1	0	0	B	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-
1	0	0	B	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
1	0	0	B	-	-	-	-	-	WN	-	-	-	-	-	-	-	-	-	-
1	0	0	B	-	-	-	-	-	PN	-	-	-	-	-	-	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0	0	C	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-
1	0	0	C	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
1	0	0	C	-	-	-	-	-	PN	-	-	-	-	-	-	-	-	-	-

1	0	0	E	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-
1	0	0	E	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
1	0	0	E	-	-	-	-	-	WN	-	-	-	-	-	-	-	-	-	-
1	0	0	E	-	-	-	-	-	PN	-	-	-	-	-	-	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	0	0	A	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-
2	0	0	A	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
2	0	0	A	-	-	-	-	-	WN	-	-	-	-	-	-	-	-	-	-
2	0	0	A	-	-	-	-	-	PN	-	-	-	-	-	-	-	-	-	-

2	0	0	B	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-
2	0	0	B	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
2	0	0	B	-	-	-	-	-	WN	-	-	-	-	-	-	-	-	-	-
2	0	0	B	-	-	-	-	-	PN	-	-	-	-	-	-	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	0	0	L	-	-	-	-	-	T,W	-	-	-	-	-	-	-	-	-	-
6	0	0	S	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-
6	0	0	F	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-

7	0	0	A	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-
7	0	0	A	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
7	0	0	A	-	-	-	-	-	WN	-	-	-	-	-	-	-	-	-	-
7	0	0	A	-	-	-	-	-	PN	-	-	-	-	-	-	-	-	-	-

7	0	0	B	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-
7	0	0	B	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
7	0	0	B	-	-	-	-	-	WN	-	-	-	-	-	-	-	-	-	-
7	0	0	B	-	-	-	-	-	PN	-	-	-	-	-	-	-	-	-	-

COMPLIANT TO EU RoHS?	EU RoHS EXEMPTION? (#)	COMPLIANT TO CHINA RoHS?	HALOGENS < 900/1500 ppm?
N	None	N	Y
N	None	N	Y
N	None	N	Y
N	None	N	Y

N	None	N	Y
N	None	N	Y
N	None	N	Y
N	None	N	Y

COMPLIANT TO EU RoHS?	EU RoHS EXEMPTION? (#)	COMPLIANT TO CHINA RoHS?	HALOGENS < 900/1500 ppm?
N	None	N	Y
N	None	N	Y
N	None	N	Y

N	None	N	Y
N	None	N	Y
N	None	N	Y
N	None	N	Y

COMPLIANT TO EU RoHS?	EU RoHS EXEMPTION? (#)	COMPLIANT TO CHINA RoHS?	HALOGENS < 900/1500 ppm?
N	None	N	Y
N	None	N	Y
N	None	N	Y
N	None	N	Y

N	None	N	Y
N	None	N	Y
N	None	N	Y
N	None	N	Y

COMPLIANT TO EU RoHS?	EU RoHS EXEMPTION? (#)	COMPLIANT TO CHINA RoHS?	HALOGENS < 900/1500 ppm?
N	None	N	Y
N	None	N	Y
N	None	N	Y

N	None	N	Y
N	None	N	Y
N	None	N	Y
N	None	N	Y

N	None	N	Y
N	None	N	Y
N	None	N	Y
N	None	N	Y

Sn/Pb TERMINATION?
Y
Y
Y
Y

Y
Y
Y
Y

Sn/Pb TERMINATION?
Y
Y
Y

Y
Y
Y
Y

Sn/Pb TERMINATION?
Y
Y
Y
Y

Y
Y
Y
Y

Sn/Pb TERMINATION?
Y
Y
Y

Y
Y
Y
Y

Y
Y
Y
Y



## TANTALUMS

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Pb-Free soldering systems are compatible with SnPb soldering systems

Please forward any questions and material declaration requests to: avxrohs@avxus.com

### TANTALUM CHIPS - RoHS COMPLIANT

- <sup>1</sup>EU RoHS compliant as standard product since 31 December 2000
- <sup>2</sup>EU RoHS compliant as standard product since 31 December 2002
- <sup>3</sup>EU RoHS compliant as standard product since 31 December 2003
- <sup>4</sup>EU RoHS compliant as standard product since 31 December 2004
- <sup>5</sup>EU RoHS compliant as standard product since 31 December 2005
- <sup>6</sup>EU RoHS compliant as standard product since 30 September 2007
- <sup>7</sup>EU RoHS compliant as standard product since 31 July 2008
- <sup>8</sup>EU RoHS compliant as standard product since 30 November 2008

### ALL COLUMNS

- Y = Compliant
- N = Not Compliant
- None = No Exemption claimed

### CHINA RoHS COLUMNS ONLY

- Y = Meets China RoHS
- N = Fails China RoHS for Lead only

### HALOGENS

- Y if Cl,Br <900ppm and Cl+Br <1500ppm per homogenous material

### COLUMN HEADINGS

PART NUMBER POSITION																				MSL	COMPLIANT TO		EU RoHS		COMPLIANT TO		COMPLIANT TO		HALOGENS		Sn/Pb TERMINATION?
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?						
T	A	C																		1	Y <sup>1</sup>	None	Y	Y	Y	N					
T	A	J																		1	Y <sup>2</sup>	None	Y	Y	Y	N					
T	A	W																		1	Y <sup>6</sup>	None	Y	Y	Y	N					
T	A	Z																		1	Y <sup>4</sup>	None	Y	Y	Y	N					
T	B	C																		1	Y <sup>4</sup>	None	Y	Y	Y	N					
T	B	J																		1	Y <sup>4</sup>	None	Y	Y	Y	N					
T	B	M																		3	Y <sup>4</sup>	None	Y	Y	Y	N					
T	B	W																		1	Y <sup>5</sup>	None	Y	Y	Y	N					
T	C	J																		3	Y <sup>3</sup>	None	Y	Y	Y	N					
T	C	M																		3	Y <sup>8</sup>	None	Y	Y	Y	N					
T	C	N																		3	Y <sup>8</sup>	None	Y	Y	Y	N					
T	H	J																		1	Y <sup>3</sup>	None	Y	Y	N	N					
T	L	C																		3	Y <sup>4</sup>	None	Y	Y	Y	N					
T	L	J																		3	Y <sup>3</sup>	None	Y	Y	Y	N					
T	L	N																		3	Y <sup>7</sup>	None	Y	Y	Y	N					
T	M	C																		1	Y <sup>3</sup>	None	Y	Y	Y	N					
T	P	C																		1	Y <sup>2</sup>	None	Y	Y	Y	N					
T	P	M																		3	Y <sup>3</sup>	None	Y	Y	Y	N					
T	P	S																		1	Y <sup>2</sup>	None	Y	Y	Y	N					
T	R	J																		1	Y <sup>3</sup>	None	Y	Y	Y	N					

\* can be A, B, R, S, Y or P \*\* can be 7 or 9

CWR with gold termination (B) have been EU RoHS compliant as standard product since inception.

C	W	R																		1	Y	None	Y	Y	Y	N
---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	---	------	---	---	---	---

### TANTALUM CHIPS - NON-RoHS COMPLIANT

PART NUMBER POSITION																				MSL	COMPLIANT TO		EU RoHS		COMPLIANT TO		COMPLIANT TO		HALOGENS		Sn/Pb TERMINATION?
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?						
T	A	J																		1 <sup>0</sup>	N	None	N	N	Y	Y					
T	A	Z																		1	N	None	N	N	Y	Y					
T	B	C																		1	N	None	N	N	Y	Y					
T	B	J																		1	N	None	N	N	Y	Y					
T	B	M																		3	N	None	N	N	Y	Y					
T	H	J																		1 <sup>0</sup>	N	None	N	N	N	Y					
T	P	M																		3	N	None	N	N	Y	Y					
T	P	S																		1 <sup>0</sup>	N	None	N	N	Y	Y					
T	R	J																		1 <sup>0</sup>	N	None	N	N	Y	Y					

\* can be H or K \*\* can be 0 or 8

\*\*\* codes with dry pack special option are MSL3

C	W	R																		1	N	None	N	N	Y	Y
---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	---	------	---	---	---	---

\* can be C, H, or K

PART NUMBER POSITION																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

### LEADED TANTALUM

T	A	P																			Y <sup>4</sup>	None	Y	Y	N*	N
T	E	P																			N	None	N	N	N*	Y

### WET TANTALUM

T	W																				N	None	N	N	Y	Y
---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	------	---	---	---	---

\*To be halogen free by 12/31/2010

## OxiCap® and Niobium Oxide Capacitors

Listed below by manufacturer part number sequence is a compliance status report with regard to restricted materials as defined by the European Union, China, and Korea. Halogen content is also noted.

Please forward any questions and material declaration requests to: avxrohs@avxus.com

**ALL COLUMNS**

Y = Compliant

N = Not Compliant

None = No Exemption claimed

**CHINA RoHS COLUMNS ONLY HALOGENS**

Y = Meets China RoHS

N = Fails China RoHS for Lead only and Cl+Br <1500ppm

Y if Cl,Br <900ppm  
per homogenous material

**OxiCap® (NIOBIUM OXIDE)**

\*EU RoHS compliant as standard product since 31 December 2000

PART NUMBER POSITION																					MSL	COMPLIANT TO	EU RoHS	COMPLIANT TO	COMPLIANT TO	HALOGENS	Sn/Pb
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	MSL	EU RoHS?	EXEMPTION? (#)	CHINA RoHS?	KOREA RoHS?	< 900/1500 ppm?	TERMINATION?	
N	B	S														7				1	Y*	None	Y	Y	Y	N	
N	B	M														7				1	Y*	None	Y	Y	Y	N	
N	O	J																		1*	Y*	None	Y	Y	Y	N	
N	O	S																		1*	Y*	None	Y	Y	Y	N	
N	O	M																		1*	Y*	None	Y	Y	Y	N	
N	L	J																		1*	Y*	None	Y	Y	Y	N	
N	P	V																		1*	Y*	None	Y	Y	Y	N	

\*1\* except for case sizes D, E, X, Y, V or codes with dry pack special option which are MSL 3

**NIOBIUM OXIDE NON-ROHS COMPLIANT**

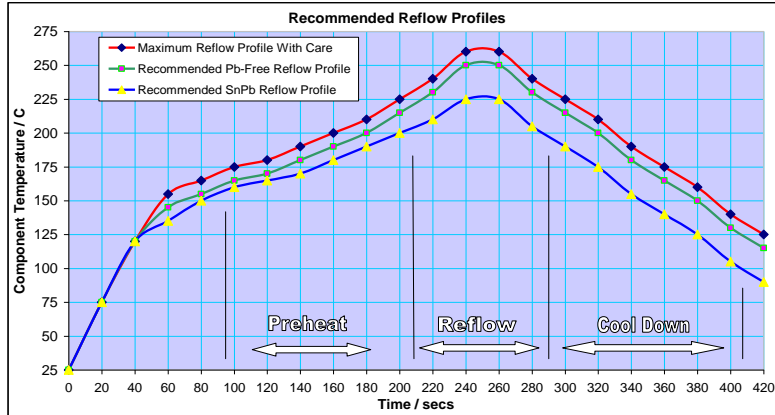
N	B	S														8				1	N	None	N	N	Y	Y
---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	---	---	------	---	---	---	---





# Recommended Soldering Profiles

## Reflow Solder Profiles:



AVX RoHS compliant products utilize termination finishes (e.g. Sn or SnAg) that are compatible with all Pb-Free soldering systems and are fully reverse compatible with SnPb soldering systems. A recommended SnPb profile is shown for comparison; for Pb-Free soldering, IPC / JEDECJ-STD-020C may be referenced. The upper line in the chart shows the maximum envelope to which products are qualified (typically 3x reflow cycles at 260°C max). The center line gives the recommended profile for optimum wettability and soldering in Pb-Free Systems.

### Preheat:

The pre-heat stabilizes the part and reduces the temperature differential prior to reflow. The initial ramp to 125°C may be rapid, but from that point (2-3)°C / sec is recommended to allow ceramic parts to heat uniformly and plastic encapsulated parts to stabilize through the glass transition temperature of the body (~ 180°C).

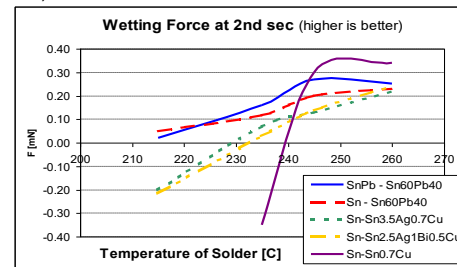
### Reflow:

In the reflow phase, the maximum reflow recommended time > 230°C is 40secs. Time at peak reflow is 10secs max.; optimum reflow is achieved at 250°C, (see wetting balance chart opposite) but products are qualified to 260°C max. Please reference individual product datasheets for maximum limits.

### Cool Down:

Cool down should not be forced and 6°C / sec is recommended. A slow cool down will result in a finer grain structure of the reflow solder in the solder fillet.

**IMPORTANT NOTE:** Typical Pb-Free reflow solders have a more dull and grainy appearance compared to traditional SnPb. Elevating the reflow temperature will not change this, but extending the cool down can help improve the visual appearance of the joint.



## Wave Solder Profiles:

For wave solder, there is no change in the recommended wave profile; all standard Pb-Free (SnCu / SnCuAg) systems operate at the same 260°C max recommended for SnPb systems.

### Preheat:

This is more important for wave solder ; a higher temperature preheat will reduce the thermal shock to SMD parts that are immersed (please consult individual product data sheets for SMD parts that are suited to wave solder). SMD parts should ideally be heated from the bottom-Side prior to wave. PTH (Pin through hole) parts on the topside should not be separately heated.

### Wave:

250°C – 260°C recommended for optimum solderability.

### Cool Down:

As with reflow solder, cool down should not be forced and 6°C / sec is recommended. Any air knives at the end of the 2<sup>nd</sup> wave should be heated.

