State of the Art, Inc.
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Restriction on Hazardous Substances (RoHS)

Directive (EU) 2015/863 amends Annex II to EU RoHS 2 (Directive 2011/65/EU) of the European Union's RoHS legislation[1] to add four phthalates to the restricted list. RoHS prohibits the sale of products that contain more than 0.01% cadmium and more than 0.1% by weight lead, mercury, chromium (VI), polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE), bis(2-ethylhexyl) phthalate (DEHP), butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and/or di-isobutyl phthalate (DIBP) unless an end use exemption is granted.

Our products may contain prohibited materials, cadmium, as cadmium oxide, and lead may be found in some of our products. Lead is found in the tin-lead solder termination finish found on some surface mount products. Lead is also found in the glasses used in our thick film products. Cadmium, as cadmium oxide, is found in older high power chip resistors and all of our chip resistors with platinum/gold termination finish.

The RoHS status of our products can be determined by several codes in our product's part identification number. Our part identification numbers have various formats, examples of these formats used for various products are shown below:

Semi-precision thick film chip resistors: S1206CPX1000F10, S1206CPY102G30

Precision thin film chip resistors: S1206CA1000FEB, S0303AS1000FKW

Zero ohm chip resistors (jumpers): S0402CPX000

Chip attenuators: S0303AC10B0B, S0706CW6B0B, S1512CT3B0BN7

MIL-PRF-55342 chip resistors: M55342K06B100BR, D55342K07W100DT

MIL-PRF-32159 zero ohm chip resistors: M32159C12M, M32159B06T.

MIL-PRF-914 surface mount resistor networks: M914D04K1002FMM

Surface mount resistor networks: SJCB20L1001FA, SD1516K1001FB.

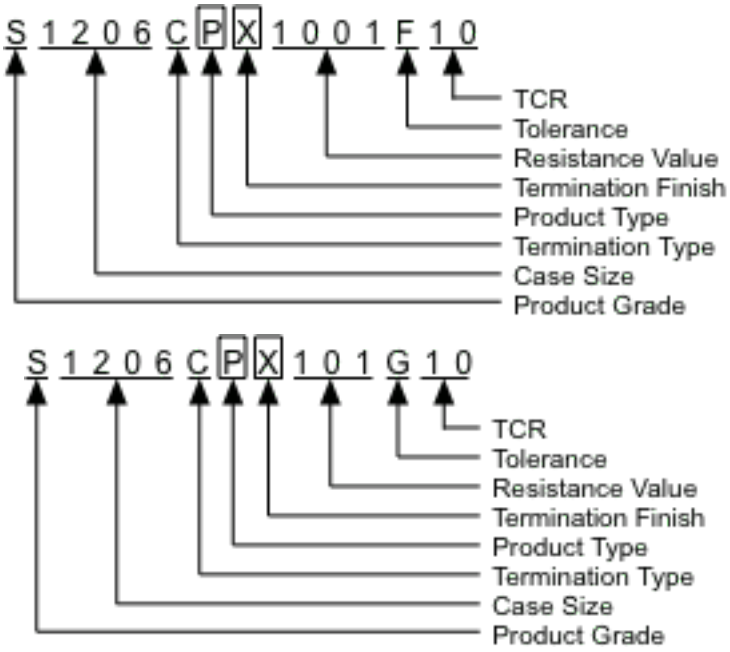
[1] Directive (EU) 2015/863 of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances.

Semi-Precision Thick Film Chip Resistors

SOTA's semi-precision thick film resistors contain lead in the glass of these electrical components which is an exempt application.[2] These resistors may also contain lead or cadmium in other portions of the device and may not comply with RoHS.

Resistors with resistance values greater than 0.05Ω and less than 1Ω may not comply with RoHS due to cadmium oxide. Contact sales@resistor.com for more info if you are using devices with resistance values <1 Ω.

RoHS status is also determined by the product and termination finish codes in the part number. Resistance value is another indicator of RoHS compliance.



Product codes ***B*** and ***R*** (high power resistors) may comply with RoHS depending upon the termination finish:

- Termination Finish codes **P**, ***V***, ***X***, ***Y***, and ***Z*** do not comply with RoHS due to cadmium oxide.
- Termination Finish code ***G*** complies with RoHS.

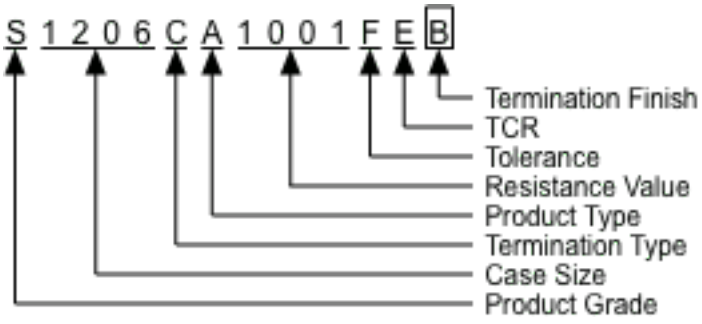
Product codes ***P, F, V, H, K,*** and ***U*** may comply with RoHS depending upon the termination finish:

- Termination Finish codes ***X***, ***N,*** and ***K*** do not comply with RoHS due to the tin lead (SnPb) solder finish.
- Termination Finish code ***P*** does not comply with RoHS due to cadmium oxide.
- Termination Finish codes ***Z***, ***Y***, ***V***, ***M***, ***C***, and ***G*** comply with RoHS.

[2] Exemption 7(c)-I. Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

Precision Thin Film Chip Resistors

SOTA's precision thin film resistors may contain lead and may not comply with RoHS. RoHS status is determined by the termination finish code in the part number.

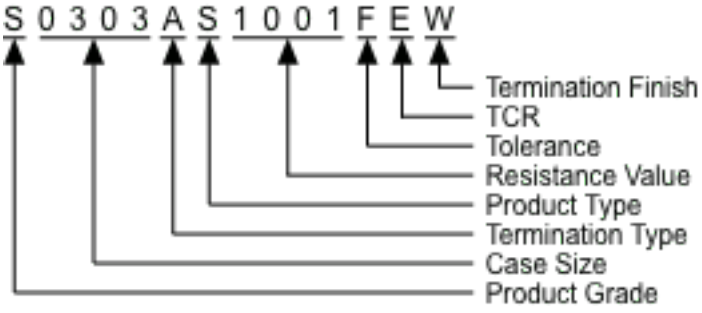


Termination Finish codes ***B*** and ***K*** do not comply with RoHS due to the tin lead (SnPb) solder finish.

Termination Finish codes ***Y***, ***V***, ***M***, ***W,*** and ***A*** comply with RoHS.

Precision Thin Film Silicon Resistors

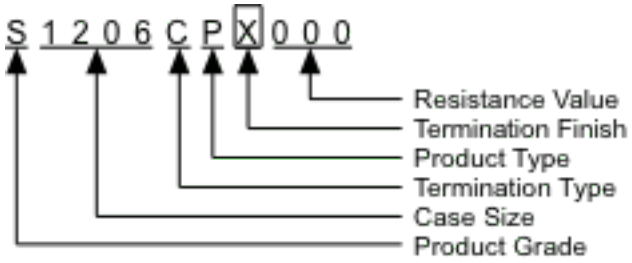
State of the Art, Inc. (SOTA) precision thin film silicon resistors comply with RoHS. Silicon resistors are identified by the product code S in the part number.



All precision thin film resistors on silicon are ROHS complaint.

Zero Ohm Chip Resistors (Jumpers)

Zero ohm chip resistors are made using thick film materials containing lead in a glass of these electrical components.[2] These resistors may also contain lead or cadmium in other portions of the device and may not be RoHS compliant. RoHS status is determined by the termination finish code in the part number.



Termination Finish codes ***X***, ***N,*** and ***K*** do not comply with RoHS due to the tin lead (SnPb) solder finish.

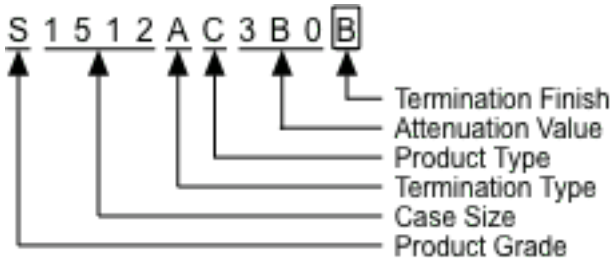
Termination Finish code ***P*** does not comply with RoHS due to cadmium oxide.

Termination Finish codes ***Z***, ***Y***, ***V***, ***M***, ***C***, and ***G*** comply with RoHS.

[2] Exemption 7(c)-I. Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

Fixed Chip Attenuators

State of the Art, Inc. (SOTA) fixed chip attenuator products with product codes W and D contain lead in a glass of these electrical components.[2] Fixed attenuator products with product codes C, M, & G do not use this exemption. Fixed chip attenuators may also contain lead in other portions of the device and may not comply with RoHS. RoHS status is determined by the termination finish code in the part number.

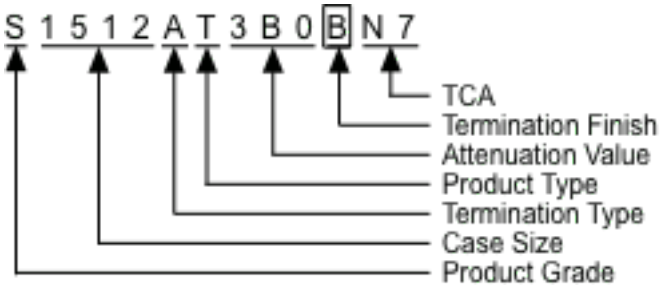


Termination Finish codes ***B*** and ***K*** do not comply with RoHS due to the tin lead (SnPb) solder finish.

Termination Finish codes ***Y***, ***V***, ***M,*** and ***W*** comply with RoHS.

Temperature Variable Chip Attenuators

Temperature variable attenuators (product code T) contain lead in a glass of these electrical components[2] and may also contain lead in other portions of the device. RoHS status is determined by the termination finish code in the part number.



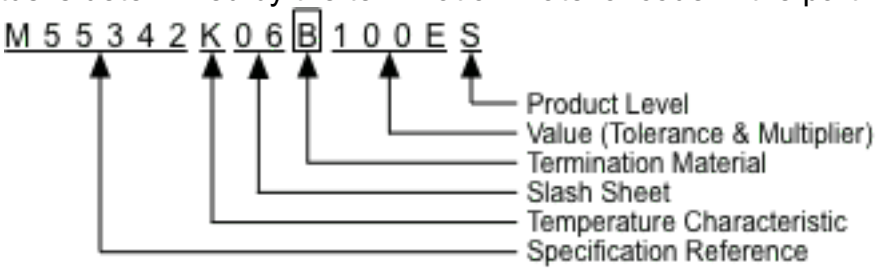
Termination Finish codes ***B*** and ***K*** do not comply with RoHS due to the tin lead (SnPb) solder finish.

Termination Finish codes ***Y***, ***V***, ***M***, and ***W*** comply with RoHS.

[2] Exemption 7(c)-I. Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

MIL-PRF-55342 Chip Resistors

MIL-PRF-55342 chip resistors may contain lead and may not be RoHS compliant. State of the Art, Inc. (SOTA) semi-precision thick film resistors contain lead in a glass of these electrical components.[2] SOTA precision thin film devices (E & H temperature characteristics and/or <1% tolerance) do not contain lead in the glass. RoHS status is determined by the termination material code in the part number:



Termination Material code ***B*** do not comply with RoHS due to the tin lead (SnPb) solder finish.

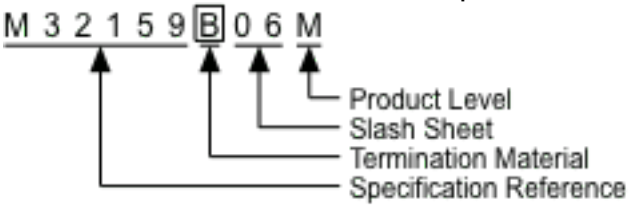
Termination Material code ***U*** contains cadmium oxide and does not comply with RoHS.

Termination Material codes ***C***, ***G***, and ***W*** comply with RoHS.

Some resistors with resistance values greater than 0.05Ω and less than 1Ω may not comply with RoHS due to cadmium oxide. Contact sales@resistor.com for more info.

MIL-PRF-32159 Zero Ohm Chip Resistors

MIL-PRF-32159 zero ohm chip resistors contain lead in a glass of these electrical components[2] and may contain lead in the termination finish. RoHS status is determined by the termination material code in the part number:



Termination Material code ***B*** do not comply with RoHS due to the 60/40 tin lead (SnPb) solder finish.

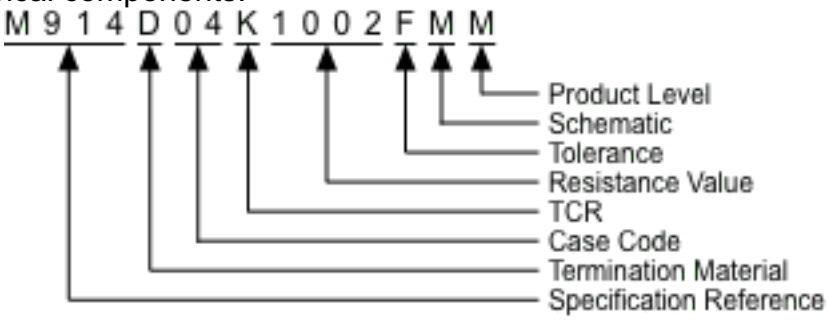
Termination Material code ***U*** contains cadmium oxide and does not comply with RoHS.

Termination Material codes ***C***, ***G***, and ***W*** comply with RoHS.

[2] Exemption 7(c)-I. Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

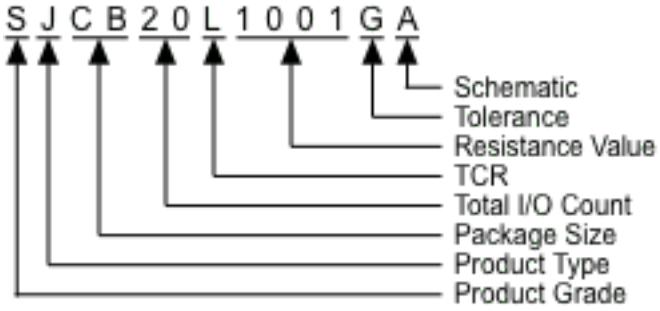
MIL-PRF-914 Surface Mount Resistor Networks

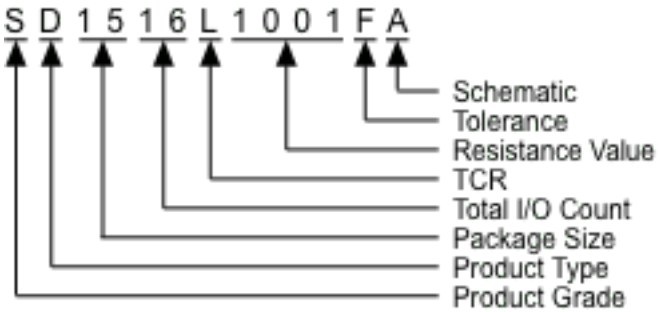
State of the Art, Inc. (SOTA) surface mount resistor networks do not comply with RoHS due to the lead in the 60/40 tin lead (SnPb) solder termination finish. These resistor networks are made using thick film materials that contain lead in a glass of the electrical components.[2]



Surface Mount Resistor Networks

State of the Art, Inc. (SOTA) surface mount resistor networks do not comply with RoHS due to the tin lead solder termination finish. These resistor networks are made using thick film materials that contain lead in a glass of the electrical components.[2]





[2] Exemption 7(c)-I. Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.