

RoHS, Restriction of Hazardous Substances, originated with Directive 2002/95/EC of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment. Directive 2002/95/EC requires European Union Member States to ensure that new electrical and electronic equipment (EEE) put on the market does not contain lead [Pb], mercury [Hg], cadmium [Cd], hexavalent chromium [Cr<sup>6+</sup>], polybrominated biphenyls [PBB], or polybrominated diphenyl ethers [PBDE] unless the specific applications of Pb, Hg, Cd & Cr<sup>6+</sup> are exempted. Additionally, the 2002/95/EC Directive necessitates the need for the European Commission to periodically review the impact on the environment and on human health of these six substances and other hazardous substances & materials used in EEE along with the list of exemptions before deciding on the prohibition and the substitution thereof by more environment-friendly alternatives.

Directive 2011/65/EU of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment, known as RoHS Recast or RoHS 2, consolidates the original RoHS directive with its later amendments. This includes, but is not limited to changes to the exemption list, adding restricted substance maximum concentration values tolerated by weight in homogeneous materials, defining procedures, documentation and labeling, etc. EU Directive 2011/65/EU replaces Directive 2002/95/EC as the primary RoHS legislation and extends the rules to products & applications that were not subject to the original directive along with greater consideration of environmentally sound recovery and disposal of waste EEE.

Commission Delegated Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances adds bis(2-ethylhexyl) phthalate [DEHP], butyl benzyl phthalate [BBP], dibutyl phthalate [DBP], and diisobutyl phthalate [DIBP] to the list of restricted substances and maximum concentration values tolerated by weight in homogeneous materials bringing the total number of restricted substances to ten (10).

<b>Restricted Substance</b>	<b>Abbreviation</b>	<b>Maximum concentration in homogeneous materials</b>
<b>Lead</b>	Pb	0.1% by weight (1,000 ppm)
<b>Mercury</b>	Hg	0.1% by weight (1,000 ppm)
<b>Cadmium</b>	Cd	0.01% by weight (100 ppm)
<b>Hexavalent chromium</b>	Cr <sup>6+</sup>	0.1% by weight (1,000 ppm)
<b>Polybrominated biphenyls</b>	PBB	0.1% by weight (1,000 ppm)
<b>Polybrominated diphenyl ethers</b>	PBDE	0.1% by weight (1,000 ppm)
<b>Bis(2-ethylhexyl) phthalate</b>	DEHP	0.1% by weight (1,000 ppm)
<b>Butyl benzyl phthalate</b>	BBP	0.1% by weight (1,000 ppm)
<b>Dibutyl phthalate</b>	DBP	0.1% by weight (1,000 ppm)
<b>Diisobutyl phthalate</b>	DIBP	0.1% by weight (1,000 ppm)

No KOA catalog products use mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers, bis(2-ethylhexyl) phthalate, butyl benzyl phthalate, dibutyl phthalate, or diisobutyl phthalate.

KOA Part #s include a designator for the termination material. Components with lead-free terminations (any designator other than 'L') are RoHS-compliant in all industries, but may include lead [Pb] in exempt applications. Please refer to the following tables for specific compliance details; Annex I for Exemption-Free RoHS-compliance and Annex II for RoHS-compliance with exemption 7(c)-I.

### Annex I

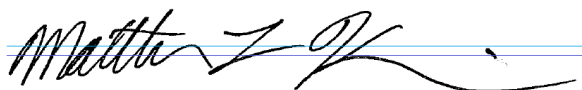
The following series are EU RoHS Directive 2015/863 **compliant without exemption** for all industries when specified with any termination designator other than 'L':

AC(X)	DN(X)	LT73	PSL2	RTX	SLZ1
BGR	J	LT73V	RB(X)	RTY	SPR
BLR	JL	MF	RCS	RW	TF
BPR	KT11835	MHL	RCT	SDT101	TLR
BSR	LF	MO	RCU	SDT73	TLRH
BWR	LFF	MOS	RCW	SF	TLRZ
CC	LKS	MRP	RD(X)	SHDR	TPR
CCF1F	LP	MRS	RD41	SL07	TSL1
CCF1N	LP73	NPO	RIA	SL1 (3mΩ to 100mΩ)	UR73
CCP	LPC10065	NV73	RM41	SL2 (3mΩ to 360mΩ)	UR73V
CF	LPC12065	PSB	RN41	SL3	WF
CNN	LPC4045	PSE	RN73	SLN2	WU73
CSR	LPC4235	PSF4	RN73H	SLN3	X5R
CW	LPC4545	PSG4	RN73R	SLN5	X7R
CZB	LR	PSI	RNS	SLW07	Y5V
CZP	LR72	PSJ2	RNX	SLW1	Z

### Annex II

The following series are EU RoHS Directive 2015/863 **compliant with 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*, for all industries when specified with any termination designator other than 'L':

BR	GS	NVF	RK73B	RS73F	SL2 (390mΩ to 22MΩ)
CN	HPC	PCF	RK73F	RS73G	SR73
CN_A	HRK73	RCR	RK73G	SA	WG73
CNB	HV73	RF	RK73H	SDT310	WK73R
CND	KQ	RF25CC	RK73Z	SG73	WK73S
CN_K	LA73	RF26	RK92	SG73G	XR73B
CNZ	LPC9040	RF73	RKC	SG73P	XR73H
CPCN	NT73	RK	RKH	SG73S	XR73Z
CR	NVD	RK26	RKL	SL1 (110mΩ to 22MΩ)	



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