

Eco-Products “GeoCap”

Nichicon promotes environmentally conscious practices.

Nichicon offers “GeoCap”, which has completely lead free terminals and contains no polyvinyl chloride in the sleeve.

Marking “PET” or “P” is indicated for the products on your demand which use polyethylene terephthalate for sleeve materials.

■ Aluminum Electrolytic Capacitors

Type · Classification		Series	Lead-Free Compliance	Anti Polyvinyl Chloride Compliance	Page	
Surface Mount type		ZD, ZR, ZE, ZG, ZS, ZP, ZT, WX, WJ, WP, WT, WZ, WF, WG, UP, UT, UA, UL, UU, CD, UD, WD, UB, WH, UR, WS, UX, UK, UG, UJ, UN, UH, UE	Complied	Complied	26 ~	
Radiallead type	Ultra-Miniature type	MA, ML, MP, MT, MF, MV, MJ, SA, SR, SL, SP, ST, SV, SF			72 ~	
	Standard type	VK, VR, VY, VZ, RS, RZ, RU, RY, VP, ET, EP			86 ~	
	High Reliability type	PM, PW, HV, HD, HC, HE, HM, HN, HZ, PJ, PS, PV, PT, PZ, PB, CA, CS, PX, BT, BX			105 ~	
	For special Circuits	KL, TM, SH, HA, JB, AQ, AS			159 ~	
	For Audio Equipment	KZ, FG, FW, SW, MW, ES, DB, GB			167 ~	
Snap-in Terminal type	Standard type	LS, LN, LG, DM			179 ~	
	High Reliability type	GU, GN, GG, GJ, GJ (15), DQ, GK-HH, GY			191 ~	
	For special Circuits	AD, AK, AQ, QS			213 ~	
Screw Terminal type		NR, NX, QR, NT			221 ~	
For Audio Equipment		KG			Available upon request	231 ~

Corresponding to RoHS Directive

		Aluminum electrolytic capacitors			
Corresponding to RoHS Directive		SMD type	Lead wire terminal type	Snap-in terminal type	Screw terminal type
		Complied	Complied	Complied (Lug terminal type : Available)	Available
Material	The portion of the components	(< or=Dia.10mm) Change plating from Sn-Pb to Sn-Bi (> or=Dia.12.5mm) Change plating from Sn-Pb to Sn	Change plating from Sn-Pb to Sn		No plating
Lead (Pb)	Plating on terminals	No used	Replaced with PET		—
	Insulating Sleeves	Fe/Cu/Sn-1.5Bi (<or=Dia 10mm) Fe/Cu/Sn (>or=Dia 12.5mm)	Fe/Cu/Sn	Fe/Cu/Sn	Al
		Cu/Sn-Bi (UK series)	Cu/Sn (HZ, KZ, FG, ES, DB, GB series)	Cu-Zn/Au (KG series type-III)	—
		Plating thickness 12µm Plating type matte No heat treatment after plating	Plating thickness 12µm Plating type matte No heat treatment after plating	Plating thickness 10µm Plating type matte No heat treatment after plating	—
	Resistance to soldering heat	Please contact us for detail	No change	No change	Not Applicable
	Solderability Tensile strength	No difference with Sn-Pb	No difference with Sn-Pb	No difference with Sn-Pb	—
Whisker	60deg C / 90% 2000h -55 / +85 2000cycle Room Temp. 2000h No difference with Sn-Pb plating	60deg C / 90% 2000h -55 / +85 2000cycle Room Temp. 2000h No difference with Sn-Pb plating	60deg C / 90% 2000h -55 / +85 2000cycle Room Temp. 2000h Whisker is not observed	—	
Chromium (VI)	Plating material	Does not contain	Does not contain	Does not contain	Available (Chromium (VI) contained in the plating of fixtures)
Mercury	Does not contain	Does not contain	Does not contain	Does not contain	Does not contain
Cadmium					
PBB					
PBDE					
Identification for RoHS compliance parts	Part numbers are changed Add "Pb-free" marking on inner and outer carton label	Part numbers are changed Add "Pb-free" and "PVCless" marking on inner and outer carton label.	Part numbers are changed Add "Pb-free" and "PVCless" marking on outer carton label.	Part numbers are changed	
MSL LEVEL (IPC/JEDEC J-STD-020C)	Not Applicable No need dry package	Not Applicable No need dry package	Not Applicable No need dry package	Not Applicable No need dry package	

Part Numbering for Pb-free Aluminum Electrolytic Capacitors

SMD type

Part Numbers for Pb-free SMD type capacitors represent as follows:

- (1) When certain part numbers are changed because of replacement with Pb-free plated terminals, their 11 digit shows the distinction.

(Example)

1 2 3 4 5 6 7 8 9 10 11 12 13 14
U ZS 1C 100 M CR 1GB (Sn-Pb plated terminals)

1 2 3 4 5 6 7 8 9 10 11 12 13 14
U ZS 1C 100 M CL 1GB (Pb-free plated terminals)

type Series Code Rated Voltage Rated Capacitance Configuration Case dia. code
 Capacity Tolerance Taping Code (Inclusive case diameter and packing spec)

RoHS compliant

CL will be put at 11 digit of numbering system

Exception : **10th digit** of the part number also need to be changed for the following series and case size.
 UK Series : **CU to CO**
 8X6.2 case size of WF, UX and UR : **BR to CL**
 UE series (Vibration Resistance) is only Pb-free and 11th digit the part number change to "S".

- (2) Pb-free capacitors in bulk.
 No change on part numbers
 (Our factory controls distinction in-house.)

Snap-in terminal type

(Example)

1 2 3 4 5 6 7 8 9 10 11 12
L GU 2D 681 M HL A (Sn-Pb plated terminals, PVC sleeve and bottom plate)

1 2 3 4 5 6 7 8 9 10 11 12
L GU 2D 681 M EL A (Pb-free plated terminals, PET sleeve and no bottom plate)

type Series Code Rated Voltage Rated Capacitance Configuration Case dia. code
 Capacity Tolerance

RoHS compliant

EL will be put at 10 digit of numbering system

Lead wire terminal type

Part Numbers for Pb-free type capacitors represent as follows:

- (1) When certain part numbers are changed because of replacement with Pb-free plated leadwire and PVC less, sleeves the **11th digit** of the part number represents the distinction.

(Example)

1 2 3 4 5 6 7 8 9 10 11
U VZ 1A 331 M EH (Sn-Pb plated leadwire, PVC sleeve)

1 2 3 4 5 6 7 8 9 10 11
U VZ 1A 331 M ED (Pb-free plated leadwire, PET sleeve)

type Series Code Rated Voltage Rated Capacitance Configuration Case dia. code
 Capacity Tolerance

RoHS compliant

ED will be put at 11 digit of numbering system

Exception : 10th digit of the part number also need to be changed for the following series and case size.
 8X7 case size of SA, SR, SL and SP **CA to DD**
 8X7 case size of ST and SF **CH to DD**
 8X7 case size of SK **CJ to DM**

- *Configuration code is subject to change by series of case diameter.
- (2) Pb-free capacitors in bulk.
 No change on part numbers
 (Our factory controls distinction in-house.)

Screw terminal type

(Example)

1 2 3 4 5 6 7 8 9 10 11 12
L NX 2W 221 M SM G Bracket, Screwbolt, Lock washer (Cr (VI) plating)

1 2 3 4 5 6 7 8 9 10 11 12
L NX 2W 221 M SE G Cr (III) plating

type Series Code Rated Voltage Rated Capacitance Configuration Case dia. code
 Capacity Tolerance

RoHS compliant

SE will be put at 11 digit of numbering system