

## 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.

## ■ Aluminum Electrolytic Capacitors

Type・Classification		Type・Series	Lead-Free Compliance	Anti Polyvinyl Chloride Compliance	Page
Surface Mount type		UZR, UZG, UZS, UZT, UWX, UWR, UWJ, UWP, UWT, UWZ, UWF, UWG, UUP, UUT, UUA, UUL, UCB, UCW, UCD, UCL, UCM, UCV, UUD, UWD, UUB, UWH, ULT, ULH, UCJ, UCZ, UCH, UCX, UUR, UUX, ULR, ULV, UUQ, UCQ, UUG, UUJ, UUN, UUE, UBC	Complied	Complied	106 ~
Radial Lead type	Ultra-Miniature type	UMA, UMP, UMT, UMF, UMV, USA, USR, USP, UST, USV, USF			168 ~
	Standard type	UVK, UVR, UVC, UVY, UVZ, URS, URZ, URY, UVP, UEP			178 ~
	High Reliability type	UPM, UPW, UTT, UPA, UHV, UHD, UHE, UHW, UPJ, UPS, UPV, UPT, UPZ, UPH, UCP, ULD, UCA, UCS, UCY, UBT, UBW, UBY, UXY, UBX			198 ~
	For special Circuits	UKL, UAQ, UAS			265 ~
	For Audio Equipment	UKA, UKZ, UFG, UKT, UKW, UFW, USW, UMW, UES, UDB			269 ~
Axial Lead type		TVX			182 ~
Snap-in Terminal type	Standard type	LLS, LLG			285 ~
	High Reliability type	LGU, LGN, LGG, LGL, LGM, LGJ, LGJ <sup>(15)</sup> , LGY, LGR, LGX, LGW			293 ~
	For special circuits	LAK, LAQ, LAS, LAR, LQS			322 ~
Screw Terminal type		LNR, LNX, LNK, LNC, LQR, LNY, LNT, LNU		Available upon request	335 ~
For Audio Equipment		LKG, LKS, LKX		Complied	357 ~

## Corresponding to RoHS Directive

		Conductive Polymer Aluminum Solid Electrolytic Capacitors				Conductive Polymer Aluminum Solid Electrolytic Capacitors(FPCAP)		Conductive Polymer Hybrid Aluminum Electrolytic Capacitors
		SMD type (PCV, PCX, PCR)	Lead wire terminal type (PLV, PLX)	SMD type (except PCV,PCX,PCR)	Lead wire terminal type (except PLV, PLX)	SMD type	Lead wire terminal type	SMD type
Corresponding to RoHS Directive		Complied				Complied		Complied
Material	The portion of the components							
Lead (Pb)	Plating on terminals	Sn plating		Ag plating		Sn plating	Sn plating	Sn plating
	Insulating Sleeves	Does not contain				Does not contain		Does not contain
	Construction of terminals	Fe/Cu/Sn		Fe/Cu/Ag or Cu/Ag		Cu/Sn	Cu/Sn or Fe/Cu/Sn	Fe/Cu/Sn
	Resistance to soldering heat	Please refer to page 19 for the recommendation reflow condition.	Correspondence to 265°C flow soldering condition	Please refer to page 19 for the recommendation reflow condition.	Correspondence to 265°C flow soldering condition	Please refer to page 25 for the recommendation reflow condition(FPCAP).	Correspondence to 260°C flow soldering condition	Please refer to page 19 for the recommendation reflow condition.
	Solderability Tensile strength	No significant solderability difference between Sn-Ag-Cu and Sn-Pb solder.				No significant solderability difference between Sn-Ag-Cu and Sn-Pb solder.		No significant solderability difference between Sn-Ag-Cu and Sn-Pb solder.
Chromium (VI)	Plating material	Does not contain				Does not contain		Does not contain
Mercury		Does not contain				Does not contain		Does not contain
Cadmium								
PBB								
PBDE								
Identification for RoHS compliance parts		Add "Pb free" marking on outer carton label				Add "Pb free" marking on outer carton label		Add "Pb free" marking on inner and outer carton label
MSL (IPC/JEDEC J-STD-020D)		Not Applicable				Not Applicable		Not Applicable

		Aluminum Electrolytic Capacitors			
		SMD type	Lead wire terminal type	Snap-in terminal type	Screw terminal type
Corresponding to RoHS Directive		Complied		Complied (Lug terminal type : Available)	Complied
Material	The portion of the components				
Lead (Pb)	Plating on terminals	(< or=Dia.10mm) Change plating from Sn-Pb toSn-Bi	Change plating from Sn-Pb to Sn		Al
		(> or=Dia.12.5mm) Change plating from Sn-Pb to Sn			
	Insulating Sleeves	No used	Replaced with PET		—
	Construction of terminals	Fe/Cu/Sn-1.5Bi (<or=Dia 10mm) Fe/Cu/Sn (>or=Dia 12.5mm)	Fe/Cu/Sn		Al
			Cu/Sn (UKZ, UFG, UES, UDB)	Cu-Zn/Au (LKG type-III)	
			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 refer to page 19 for the recommendation reflow condition.	Correspondence to 260°C flow soldering condition		Not Applicable
	Solderability Tensile strength		No significant solderability difference between Sn-Ag-Cu and Sn-Pb solder.		
Chromium (VI)	Plating material	Does not contain			Available (Chromium(VI) contained in the plating of fixtures)
Mercury		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 "RoHS" marking on outer carton label.
MSL (IPC/JEDEC J-STD-020D)		Not Applicable			

## 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)

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RoHS compliant

Capacitance Tolerance TapingCode(Inclusive case diameter and packing spec)

Ⓛ will be put at 11 digit of numbering system

Exception : ※10th digit of the part number also need to be changed for the following type-series and case size.  
8X6.2 case size of UWF, UUX and UUR : **BR** to **CL**  
※UUE, UBC (Vibration Resistance) is only Pb-free and 11th digit the part number change to "S".  
※UCD is only Pb-free. In case of φ12.5 or more: 11th digit the part number change to "Q".

## ■ 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)

↓

RoHS compliant

Type Series Code Rated Voltage Rated Capacitance Capacitance Tolerance Configuration

ⓓ will be put at 11 digit of numbering system

Exception : 10th digit of the part number also need to be changed for the following type-series and case size.  
8X7 case size of USA, USR and USP **CA** to **DD**  
8X7 case size of UST and USF **CH** to **DD**  
\*Configuration code is subject to change by series of case diameter.

## ■ 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, PETsleeve and no bottom plate)

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RoHS compliant

Type Series Code Rated Voltage Rated Capacitance Configuration Case dia. code Capacitance Tolerance

ⓔ will be put at 10 digit of numbering system

## ■ 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

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RoHS compliant

Type Series Code Rated Voltage Rated Capacitance Configuration Case dia. code Capacitance Tolerance

ⓔ will be put at 11 digit of numbering system

## Corresponding to RoHS Directive

		Plastic Film Capacitors		
		Metallized plastic film capacitor QXK-(ZH), QXK, QXP, QXT, QXL, QAK, QAP	Plastic film capacitor for AC Power Based on Applications EEC, EEN, EXH	Foil type plastic film capacitor QYX
Corresponding to RoHS Directive		Complied	Complied	Complied
Material	The portion of the components			
Lead (Pb)	Plating on terminals	Sn plating	Sn plating	Sn plating
	Internal connection, Internal soldering	Does not contain	Does not contain	Does not contain
	Construction of terminals	Fe / Cu / Sn	Fe / Cu / Sn	Fe / Cu / Sn
		Plating thickness 12μm Plating type matte No heat treatment after plating	Plating thickness 3 to 12μm Plating type matte No heat treatment after plating	Plating thickness 12μm Plating type matte No heat treatment after plating
		Resistance to soldering heat	Correspondence to 260℃ flow soldering condition	Correspondence to 260℃ flow soldering condition
Solderability Tensile strength		No significant solderability difference between Sn-Ag-Cu and Sn-Pb solder.	No significant solderability difference between Sn-Ag-Cu and Sn-Pb solder.	No significant solderability difference between Sn-Ag-Cu and Sn-Pb solder.
Chromium (VI)		Does not contain	Does not contain	Does not contain
Mercury				
Cadmium				
PBB				
PBDE				
Identification for RoHS compliance parts		Add "Pb free" marking on inner and outer carton label	Add "Pb free" marking on inner and outer carton label	Add "Pb free" marking on inner and outer carton label
MSL (IPC/JEDEC J-STD-020D)		Not Applicable	Not Applicable	Not Applicable