

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 | | | | | | | | |
| Cadmium | | Does not contain | | | | Does not contain | | Does not contain |
| 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 |

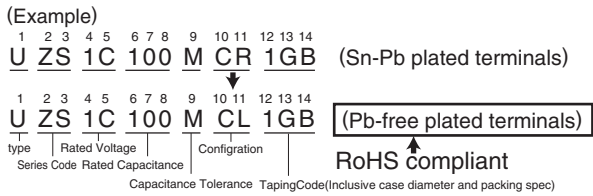
| | | Aluminum Electrolytic Capacitors | | | | |
|--|--|--|---|--|--|----------------|
| | | SMD type | Lead wire terminal type | Snap-in terminal type | Screw terminal type | |
| Corresponding to RoHS Directive | | Complied | | Complied (Lug terminal type : Available) | Complied | |
| Material | The portion of the components | | | | | |
| Lead (Pb) | Plating on terminals | (< or=Dia.10mm) Change plating from Sn-Pb toSn-Bi (> or=Dia.12.5mm) Change plating from Sn-Pb to Sn | | Change plating from Sn-Pb to Sn | | Al |
| | 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 |
| | | Plating thickness 12µm Plating type matte No heat treatment after plating | | Cu/Sn (UKZ, UFG, UES, UDB) | Cu-Zn/Au (LKG type-III) | — |
| | 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 | | | | | | |
| Cadmium | | Does not contain | | | | |
| 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.



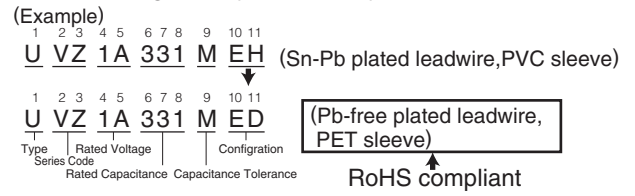
Ⓛ will be put at 11 digit of numbering system

- 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:

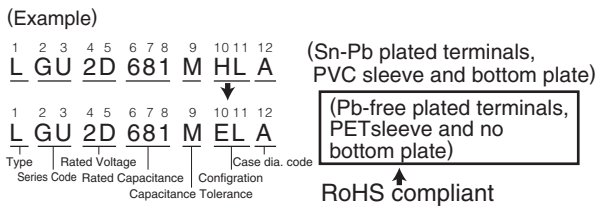
- (1) When certain part numbers are changed because of replacement with Pb-free plated leadwire and PVC less , sleeves the 11th digit of the part number represents the distinction.



Ⓧ will be put at 11 digit of numbering system

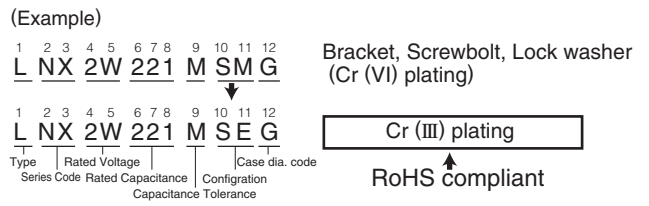
- Exception : 10th digit of the part number also need to be changed for the following type-series and case size.
- 8X7 case size of USA, USR and USP **CA** to **DD**
 - 8X7 case size of UST and USF **CH** to **DD**
- *Configuration code is subject to change by series of case diameter.

Snap-in terminal type



Ⓛ will be put at 10 digit of numbering system

Screw terminal type



Ⓛ will be put at 11 digit of numbering system

Corresponding to RoHS Directive

| | Plastic Film Capacitors | | | |
|--|---|---|--|---|
| | Metallized plastic film capacitor QXX(-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 | |
| | Internal connection, Internal soldering | Does not contain | Does not contain | |
| | Construction of terminals | Fe / Cu / Sn Plating thickness 12μm Plating type matte No heat treatment after plating | Fe / Cu / Sn Plating thickness 3 to 12μm Plating type matte No heat treatment after plating | Fe / Cu / Sn Plating thickness 12μm Plating type matte No heat treatment after plating |
| | Resistance to soldering heat | Correspondence to 260°C flow soldering condition | Correspondence to 260°C flow soldering condition | Correspondence to 260°C flow soldering condition |
| Solderability | 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. | |
| Tensile strength | | | | |
| Chromium (VI) | | | | |
| Mercury | | | | |
| Cadmium | Does not contain | Does not contain | Does not contain | |
| 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 | |

Information "China RoHS 2"

CONDUCTIVE POLYMER ALUMINUM SOLID ELECTROLYTIC CAPACITORS, CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS, ALUMINUM ELECTROLYTIC CAPACITORS, ELECTRIC DOUBLE LAYER CAPACITORS, PLASTIC FILM CAPACITORS



| Type | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (CrVI) | Polybrominated biphenyls (PBB) | Polybrominated diphenyl ethers (PBDE) |
|------------------------|-----------|--------------|--------------|----------------------------|--------------------------------|---------------------------------------|
| P, R, G, U, L, J, Q, E | ○ | ○ | ○ | ○ | ○ | ○ |

○ : the amount of the hazardous substance indicated inside the homogeneous materials used for this part is below the limit requirement of GB/T 26572-2011
 × : the amount of the hazardous substance indicated inside at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572-2011

POSITIVE THERMISTORS "Posi-R"



| Type | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (CrVI) | Polybrominated biphenyls (PBB) | Polybrominated diphenyl ethers (PBDE) |
|------|-----------|--------------|--------------|----------------------------|--------------------------------|---------------------------------------|
| ZP | × | ○ | ○ | ○ | ○ | ○ |

○ : the amount of the hazardous substance indicated inside the homogeneous materials used for this part is below the limit requirement of GB/T 26572-2011
 × : the amount of the hazardous substance indicated inside at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572-2011