NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

CAT. No. E1001L

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NIPPON CHEMI-CON

CAPACITOR SERIES TABLE, CONTENTS

Series			Features	Endurance (+R=With ripple)	Standard Type	Low impedance	Solvent resistant	Terminal type	Rated voltage range (Vdc)	Capacitance range (μF)
Conductive Polymer Electrolyte Type	Surface Mount Type	PXK (NEW!)	Super low ESR, high ripple current, downsized	105℃ 1,000 to 2,000 hours		●	●	SMD	2.5 to 16	100 to 560
		PXS	Long life, super low ESR, high ripple current	105℃ 5,000 hours		●	●	SMD	4 to 16	22 to 560
		PXF (Upgrade!)	Super low ESR, high ripple current	105℃ 2,000 hours		●	●	SMD	2 to 6.3	150 to 1,000
		PXE	Super low ESR, high ripple current	105℃ 2,000 hours		●	●	SMD	2.5 to 16	33 to 2,700
		PXA	Super low ESR, high ripple current	105℃ 1,000 to 2,000 hours	●	●	●	SMD	2.5 to 25	3.3 to 1,500
		PXH	125℃, super low ESR, high ripple current	125℃ 1,000 hours		●	●	SMD	2.5 to 20	22 to 1,000
	Radial Lead Type	PSG (NEW!)	Long life, super low ESR, high ripple current	105℃ 2,000 to 5,000 hours		●	●	Radial	16 to 25	56 to 1,000
		PSK (NEW!)	Long life, super low ESR, high ripple current	105℃ 5,000 hours		●	●	Radial	2.5	220 to 560
		PSF (Upgrade!)	Long life, super low ESR, high ripple current	105℃ 5,000 hours		●	●	Radial	2.5 to 16	100 to 1,600
		PSE	Long life, super low ESR, high ripple current	105℃ 5,000 hours		●	●	Radial	2.5 to 6.3	470 to 820
		PSC	Super low ESR, high ripple current	105℃ 2,000 hours		●	●	Radial	2.5 to 16	270 to 2,700
		PSA	Super low ESR, high ripple current	105℃ 2,000 hours	●	●	●	Radial	2.5 to 16	47 to 1,500
		PS	Super low ESR, high ripple current	105℃ 2,000 hours	●	●	●	Radial	2.5 to 35	18 to 1,500
Surface Mount Type	General Purpose	MVA	85℃,standard	85℃ 2,000 hours	●		▲	SMD	4 to 450	1.0 to 10,000
		MVE	105℃, standard	105℃ 1,000 to 2,000 hours	●		▲	SMD	6.3 to 450	1.0 to 6,800
	Low Impedance	MZJ (NEW!)	Super low ESR	105℃ 2,000 hours		●	●	SMD	6.3 to 35	10 to 1,800
		MZA	Super low impedance	105℃ 2,000 hours		●	●	SMD	6.3 to 80	3.3 to 1,500
		MVY	Low impedance, standard, Case size φ4 to 18mm	105℃ 1,000 to 5,000 hours	●	●	▲	SMD	6.3 to 100	1.0 to 8,200
		MZF (NEW!)	10,000 hours, Long life, low impedance	105℃ 10,000 hours		●	●	SMD	6.3 to 50	10 to 470
		MZE	7,000/8,000 hours, Long life, low impedance	105℃ 7,000 to 8,000 hours		●	●	SMD	6.3 to 50	10 to 470
		MZK (NEW!)	5,000 hours, Long life, low impedance	105℃ 5,000 hours		●	●	SMD	6.3 to 35	10 to 150
		MLA	3,000 hours, Long life, low impedance	105℃ 3,000 hours		●	●	SMD	6.3 to 50	10 to 1,000
	Long Life	MLF (NEW!)	10,000 hours, Long life	105℃ 10,000 hours			●	SMD	6.3 to 50	1.0 to 1,000
		MLE	7,000/8,000 hours, Long life	105℃ 7,000 to 8,000 hours			●	SMD	6.3 to 50	1.0 to 1,000
		MLK (NEW!)	5,000 hours, Long life	105℃ 5,000 hours			●	SMD	6.3 to 35	4.7 to 100
		MVL	3,000/5,000 hours, Long life	105℃ 3,000 to 5,000 hours			●	SMD	6.3 to 50	1.0 to 1,000
		MVJ	2,000 hours, Long life	105℃ 2,000 hours			●	SMD	6.3 to 50	1.0 to 100
	Special Application	MVH	125℃, Case size φ6.3 to 18mm	125℃ 1,000 to 5,000 hours	●		▲	SMD	10 to 450	3.3 to 4,700
		MHB (Upgrade!)	125℃, Specified ESR after endurance	125℃ 2,000 hours			●	SMD	10 to 35	47 to 470
		MHJ (NEW!)	125℃, Specified ESR after endurance	125℃ 2,000 hours			●	SMD	10 to 35	47 to 470
		MKB	Specified ESR at low temperature	105℃ 3,000 hours				SMD	400	2.2 to 4.7
		MV-BP	Bi-polar	85℃ 2,000 hours			●	SMD	6.3 to 50	1.0 to 47
		MVK-BP	Bi-polar	105℃ 1,000 hours			●	SMD	6.3 to 50	1.0 to 47
Radial Lead Type	Low Profile	SRM	5mm height, downsized	85℃ 1,000 hours			●	Radial	4 to 50	1.0 to 330
		SRE	85℃, 5mm height, standard	85℃ 1,000 hours	●			Radial	4 to 50	1.0 to 100
		KRE	105℃, 5mm height, standard	105℃ 1,000 hours	●		●	Radial	6.3 to 50	1.0 to 100
		SRA	85℃, 7mm height, standard	85℃ 1,000 hours	●			Radial	4 to 63	1.0 to 470
		KMA	105℃, 7mm height, standard	105℃ 1,000 hours	●		●	Radial	4 to 63	1.0 to 220
		SRG	φ4×7 to φ18×25mm, low profile	85℃ 1,000 to 2,000 hours			●	Radial	4 to 50	1.0 to 10,000
		KRG	φ4×7 to φ18×25mm, low profile	105℃ 1,000 hours			●	Radial	6.3 to 50	1.0 to 10,000
	General Purpose	SMQ	85℃, Downsized	85℃ 2,000 hours				Radial	6.3 to 450	1.0 to 47,000
		KMQ	105℃, Downsized	105℃ 1,000 to 2,000 hours +R			▲	Radial	6.3 to 450	1.0 to 47,000
		SMG	85℃, standard	85℃ 2,000 hours	●		▲	Radial	6.3 to 450	1.0 to 39,000
		KMG	105℃, standard	105℃ 1,000 to 2,000 hours +R	●		▲	Radial	6.3 to 450	1.0 to 22,000
		SME-BP	Bi-polar, downsized	85℃ 2,000 hours			●	Radial	6.3 to 100	1.0 to 6,800
		KME-BP	Bi-polar, downsized	105℃ 1,000 hours			●	Radial	6.3 to 100	1.0 to 6,800
	High Frequency Use	KZM	Long life, super low impedance	105℃ 6,000 to 10,000 hours +R		●		Radial	6.3 to 50	27 to 10,000
		KZH	Super low impedance, downsized	105℃ 5,000 to 6,000 hours +R		●		Radial	6.3 to 35	47 to 8,200
		KZE	Low impedance, downsized	105℃ 1,000 to 5,000 hours +R		●		Radial	6.3 to 100	6.8 to 6,800
		KYA (NEW!)	Low impedance, downsized	105℃ 4,000 to 10,000 hours +R		●		Radial	6.3 to 100	1 to 15,000
		KY	Low impedance, standard	105℃ 4,000 to 10,000 hours +R	●	●		Radial	6.3 to 100	1.0 to 18,000
		LZA (NEW!)	Low impedance, downsized (Ask Engineering Bulletin No804 in detail)	105℃ 4,000 to 5,000 hours +R		●	●	Radial	6.3 to 35	330 to 6,800
		LXZ	Low impedance, downsized	105℃ 2,000 to 8,000 hours +R	●	●	●	Radial	6.3 to 63	12 to 18,000
		LXY	Low impedance	105℃ 2,000 to 8,000 hours +R		●	●	Radial	10 to 63	10 to 8,200
		LXV	Low impedance	105℃ 2,000 to 5,000 hours +R		●	●	Radial	6.3 to 100	5.6 to 15,000

: Recommendation products

▲ : Some of range are solvent resistant.

NIPPON CHEMI-CON

CAPACITOR SERIES TABLE, CONTENTS

Series			Features	Endurance (+R=With ripple)	Standard Type	Low impedance	Solvent resistant	Terminal type	Rated voltage range (Vdc)	Capacitance range (μF)
Radial Lead Type	High Reliability	KXJ	Long life, downsized, for input filtering	105℃ 10,000 to 12,000 hours +R				Radial	160 to 450	6.8 to 680
		KXG	Long life, downsized, for input filtering	105℃ 8,000 to 10,000 hours +R	●			Radial	160 to 450	6.8 to 330
		SMH	For input filtering, φ20×20 to φ22×50mm (Ask Engineering Bulletin No808 in detail)	85℃ 2,000 hours +R				Radial	160 to 450	33 to 470
		KMH	For input filtering, φ20×20 to φ22×50mm (Ask Engineering Bulletin No810 in detail)	105℃ 2,000 hours +R				Radial	160 to 450	33 to 470
		PAG	Low profile, for input filtering	105℃ 2,000 hours +R				Radial	200 to 450	18 to 560
		KLJ	No sparks with DC overvoltage, downsized	105℃ 2,000 hours +R				Radial	200 & 400	4.7 to 330
		KLG	No sparks with DC overvoltage	105℃ 2,000 hours +R				Radial	200 & 400	22 to 330
		FL	Long life, downsized	105℃ 3,000 hours +R			●	Radial	6.3 to 50	1.0 to 270
		GPA	125℃, low impedance, downsized	125℃ 3,000 to 5,000 hours +R		●	●	Radial	25 to 50	470 to 6,800
		GXE	125℃, low impedance, downsized	125℃ 2,000 to 5,000 hours +R		●	▲	Radial	10 to 450	4.7 to 4,700
		GXL	125℃	125℃ 5,000 hours +R			●	Radial	10 to 50	100 to 1,000
		GXH (NEW!)	135℃	135℃ 1,500 / 2,000 hours +R			●	Radial	10 to 50	100 to 4,700
	Special Application	LBG	For airbag	105℃ 5,000 hours +R		●	●	Radial	25 & 35	1,000 to 11,000
		KZA	For PC motherboard (Ask Engineering Bulletin No809 in detail)	105℃ 2,000 hours +R		●		Radial	6.3 to 16	470 to 3,300
		LLA	Low DC leakage, general (Ask Engineering Bulletin No575 in detail)	85℃ 1,000 hours			●	Radial	6.3 to 50	1.0 to 15,000
		PH	For photo flash	55℃ 5,000 times charging				Radial	300 & 330	—
Snap-in Type	General Purpose	SMQ	85℃, standard	85℃ 2,000 hours +R	●			Pin	160 to 450	82 to 3,900
		KMW (NEW!)	Super downsized (Ask Engineering Bulletin No806 in detail)	105℃ 2,000 hours +R				Pin	400 to 450	120 to 1,000
		KMR	Super downsized	105℃ 2,000 hours +R				Pin	160 to 450	100 to 3,300
		KMQ	105℃, standard	105℃ 2,000 hours +R	●			Pin	35, 50, 160 to 450	68 to 33,000
		KMT (NEW!)	High ripple (Ask Engineering Bulletin No807 in detail)	105℃ 2,000 hours +R				Pin	420 & 450	56 to 470
		SMM	85℃,3,000 hours	85℃ 3,000 hours +R	●			Pin	160 to 450	47 to 3,300
		KMS (Upgrade!)	105℃, Downsized	105℃ 3,000 hours +R	●			Pin	160 to 500	47 to 3,300
		KMM	105℃, 2,000/3,000 hours	105℃ 2,000 to 3,000 hours +R	●			Pin	160 to 450	39 to 3,300
		SMH	85℃, standard (Ask Engineering Bulletin No585 for 160 to 450V)	85℃ 2,000 hours +R				Pin	6.3 to 100	820 to 100,000
		KMH	105℃, standard (Ask Engineering Bulletin No584 for 160 to 450V)	105℃ 2,000 hours +R				Pin	6.3 to 100	560 to 82,000
	Low Profile	SLM	15mm height, low profile	85℃ 2,000 hours +R				Pin	160 to 400	47 to 560
		KLM	15mm height, low profile	105℃ 2,000 hours +R				Pin	160 to 400	39 to 390
	High Reliability	LXM	Long life, downsized	105℃ 7,000 hours +R				Pin	160 to 450	47 to 2,200
		LXS (Upgrade!)	Long life, downsized	105℃ 5,000 hours +R	●			Pin	160 to 500	82 to 3,300
		LXQ	Long life, downsized	105℃ 5,000 hours +R				Pin	160 to 450	82 to 2,700
		LXG	Long life	105℃ 5,000 hours +R				Pin	10 to 100	390 to 47,000
		CHA (Upgrade!)	No sparks with DC overvoltage, downsized	105℃ 2,000 hours +R				Pin	200 to 450	56 to 1,200
		LXH	No sparks with DC overvoltage	105℃ 3,000/5,000 hours +R				Pin	200 & 400	68 to 1,500
		KMV (NEW!)	For charge and discharge application	105℃ 3,000 hours +R				Pin	350 to 450	82 to 1,200
Screw-Mount Type	General Purpose	SME	85℃, standard (Ask Engineering Bulletin No548 for 160 to 250V)	85℃ 2,000 hours +R	●			Screw	10 to 100	2,200 to 680,000
		KMH	105℃, standard	105℃ 2,000 hours +R	●			Screw	10 to 400	180 to 680,000
	For Inverter	RWG	Long life, high ripple, downsized	85℃ 5,000 hours +R				Screw	350 to 450	1,500 to 18,000
		RWF	Long life, high ripple	85℃ 5,000 hours +R				Screw	350 to 450	820 to 22,000
		RWQ	High ripple, downsized	85℃ 2,000 hours +R	●			Screw	350 to 550	390 to 15,000
		RWE	High ripple	85℃ 2,000 hours +R	●			Screw	350 to 550	100 to 12,000
		RWY	Long life, high ripple, low cost	85℃ 5,000 hours +R				Screw	350 to 450	500 to 14,000
		RWL	Long life, high ripple	85℃ 20,000 hours +R				Screw	350 to 450	2,200 to 12,000
		FTP	Ellips can shape, high ripple	85℃ 5,000 hours +R				Screw	63 to 450	270 to 21,000
		LXA	105℃, long life	105℃ 2,000/5,000 hours +R				Screw	10 to 525	330 to 390,000
		LXR	105℃, long life, high ripple	105℃ 5,000 hours +R				Screw	350 to 450	2,200 to 15,000
		RWV (NEW!)	For charge and discharge application	85℃ 5,000 hours +R				Screw	350 to 450	820 to 18,000

: Recommendation products

▲ : Some of range are solvent resistant.

NIPPON CHEMI-CON

GROUP CHART

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

◆SURFACE MOUNT

Surface Mount

PXA → (Lower ESR) PXE → (Lower ESR) PXF (Upgrade!)
PXA → (Longer Life) PXS 5,000H
PXK (NEW!)

High Temp.

125℃
PXH

◆RADIAL LEAD

Radial Lead

PS → (Lower ESR) PSA → (Lower ESR) PSC → PSE 5,000H → PSF 5,000H (Upgrade!)
PSK 5,000H (NEW!)
PSG (NEW!)

Digitalization Super Low ESR

ALUMINUM ELECTROLYTIC CAPACITORS

◆SURFACE MOUNT

Surface Mount Standard

MVA 85℃
MVE 105℃

105℃ Low Impedance — Digitalization

MVY 1,000H → (Lower Z) MZA 2,000H → (Lower Z) MZJ 2,000H (NEW!)
MZK 5,000H Low Profile (NEW!)
MLA 3,000H → (Longer Life) MZE 7,000/8,000H → (Longer Life) MZF 10,000H (NEW!)

Automotive Application

High Temp.

125℃
MVH Standard
MHB Low ESR (Upgrade!)
MHJ Downsized (NEW!)

105℃ Long Life

MVJ 2,000H → (Longer Life) MVL 3,000/5,000H → (Longer Life) MLE 7,000/8,000H → (Longer Life) MLF 10,000H (NEW!)
MKB 3,000H
MLK 5,000H Low Profile (NEW!)

◆RADIAL LEAD

Low Profile (5mm)

SRM 85℃ → (Downsized) SRE 85℃
KRE 105℃

Low Profile (from 7mm)

SRG 85℃ → (Downsized) SRA 85℃
KRG 105℃ → (Downsized) KMA 105℃

105℃ Low Impedance — Low Profile Power Supply Output Filter

LXY High Reliability → (Lower Z) LXZ High Reliability → (Lower Z) LZA High Reliability (NEW!)
LXV Low Z
KYA Low Z (NEW!) → (Downsized)
KY Long Life, Low Z → KZE Low Z → KZH Low Z → KZM Long Life, Low Z

Radial Lead Standard

SMQ 85℃ → (Downsized) SMG 85℃
KMQ 105℃ → (Downsized) KMG 105℃

Adapter/ Ballast

105℃ High Ripple Current / Long Life — Flat Power Supply Input Filter

PAG 2,000H → (Downsized) KXG 8,000/10,000H → KXJ 10,000/12,000H

High Temp.

125℃
GXE 2,000 to 5,000H
GXL 5,000H
GPA 3,000/5,000H

135℃
GXH 1,500/2,000H (NEW!)

Automotive Application

For Airbag

LBG 105℃5,000H

Long Life

FL 105℃3,000H

No Sparks against Over-Voltage

KLG 105℃ → (Downsized) KLJ 105℃

For Photo Flash

PH

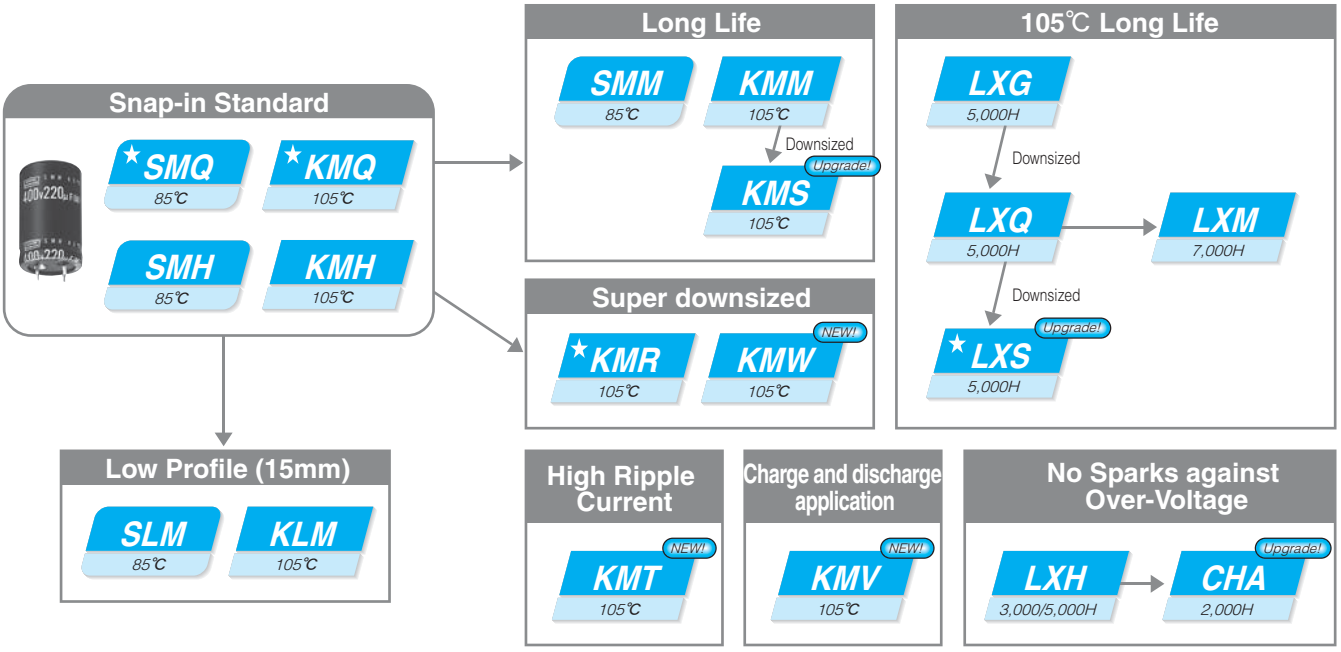
☆: Recommendation products

CAT. No. E1001L

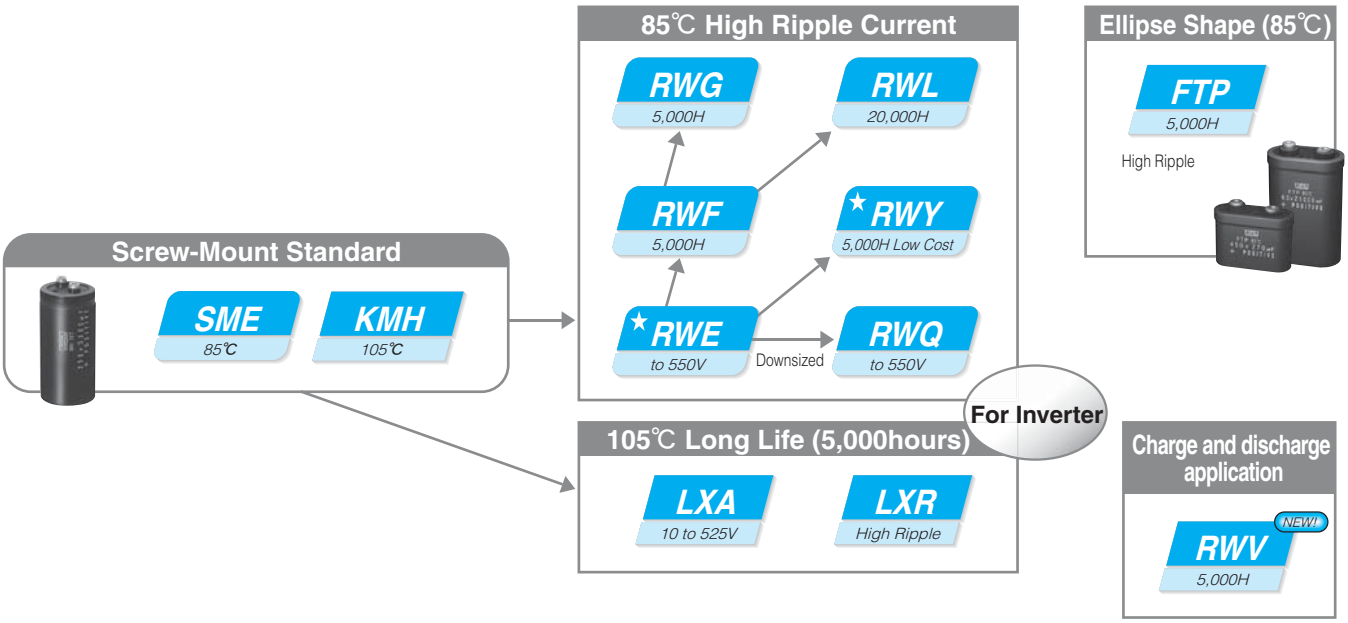
GROUP CHART

ALUMINUM ELECTROLYTIC CAPACITORS

◆SNAP-IN



◆SCREW–MOUNT TERMINAL



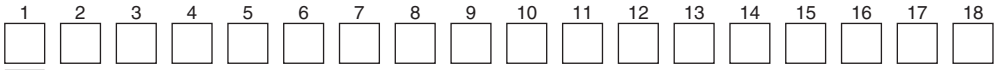
☆: Recommendation products

PART NUMBERING SYSTEM

Part numbering system

Our part numbering system is common to all of Nippon Chemi-Con's subsidiaries worldwide, and has been switching the conventional part numbering system. The part number uses 18-digit codes to express information of principal product specifications such as product category, series name, rated voltage, capacitance, case size and RoHS compliance.

●Categories



Code	Details
A	Conductive Polymer Aluminum Solid Capacitors (Polar)
E	Aluminum Electrolytic Capacitors (Polar)
B	Aluminum Electrolytic Capacitors (Bi-polar)
K	Multilayer Ceramic Capacitors
F,W	Film Capacitors
D	Electric Double Layer Capacitors
T	Metal Oxide Varistors
L	Amorphous Choke Coils

* For digits 2 to 18, please see "Product code guide".

●Example

Product type	Part number (Example)	Conventional part number (Ref.)
Surface mount type	EMVE160ADA100MD55G	MVE16VC10MD55E0
Radial lead type	EKMQ6R3ETC102MHB5D	TC04RKMQ6. 3VB1000MF50E0
Snap-in type	EKMQ201VSN471MP30S	KMQ200VSSN470M22BE0
Screw mount terminal type	ERWE551LGC821MCD0M	RWE550LGSN820MCC13EA

ENVIRONMENTAL CONSIDERATION

Environment friendly capacitors

Nippon Chemi-Con always considers the environment in product materials, designs and manufacturing. In fact, our factories already have received ISO 14000 certificate. Cadmium, Mercury, Hexavalent Chromium, PBB and PBDE have never been used in our products. Furthermore, lead-containing materials have been eliminated from all our aluminum electrolytic capacitors including Conductive Polymer Aluminum Solid Capacitors to comply with RoHS. If you need "Halogen-Free" products, please consult with us.

◆Lead free and Non-PVC Products

1. Lead wire (Plating)

Category		Plating material on lead wires
Chip	**case code : D46 to JA0**	Sn-Bi
	case code : KE0 to MN0	Sn
Radial	**case dia : ～φ8**	Sn-Bi
	case dia : φ10～	Sn
Snap-in		Sn
Screw-Mount		Originally lead-free

*Please consult with us when you need "Lead-free parts" other than the above mentioned terminal plating materials.
(Note) **Sn** : Tin, **Bi** : Bismuth

2. Sleeve

Category		Sleeve material
Chip		Sleeveless(Coating case)
Radial	**φ8×5L**	Sleeveless(Coating case)
	except φ8×5L	PET
Snap-in		PET
Screw-Mount		PVC(Lead-free)

* Please consult with us when you need "Non-PVC parts" other than the above mentioned outer sleeve materials.

The colors of a PET sleeve are "Black", "Brown", and "Dark blue".
Standard designs of "lead-free" Snap-in type are not equipped with a plastic disc.
Please consult with us when you need nonflammable grade for outer sleeve material.

Identification of friendly parts is given by a supplement code (18th digit) of the part number.
For details, please refer to "Product code guide" for each type.

◆Regarding compliance for EU REACH Regulation

1) According to the content of REACH handbook (Guidance on requirements for substances in articles which is published on May 2008), our electronic components are "articles without any intended release". Therefore they are not applicable for "Registration" for EU REACH Regulation Article 7 (1).
   Reference: Electrolytic Condenser Investigation Society
   "Study of REACH Regulation in EU about Electrolytic Capacitor" (publicized on 13 March 2008)
2) Nippon Chemi-Con develops the products without substance of very high concern(SVHC).DEHP(CASNo.117-81-7) was contained as some covering material, Nippon Chemi-Con abolished use of DEHP totally at June, 2011.

PACKAGING

TAPING SPECIFICATIONS

SURFACE MOUNT TYPE (TAPING)

◆CARRIER TAPE [mm]

Fig.1

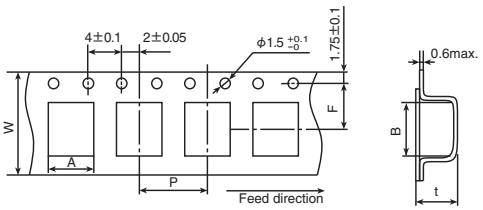


Fig.2

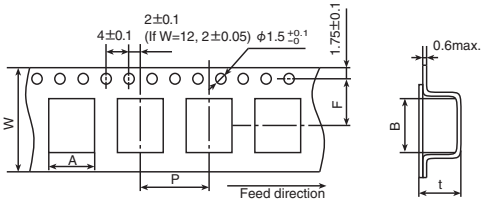


Fig.3

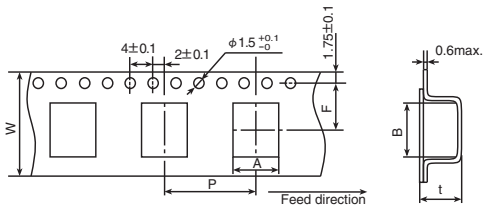
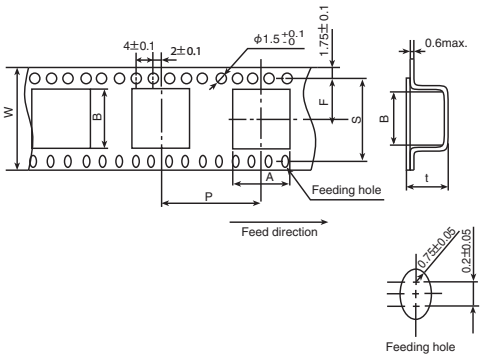


Fig.4

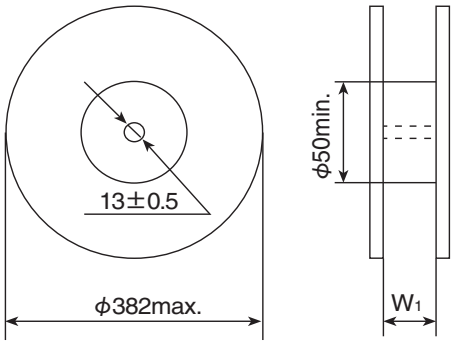


[mm]

Series \ Items		W	A	B	F	P	t	S	Fig.
		±0.3	±0.2	±0.2	±0.1	±0.1	±0.2	±0.1	
AlChip™ MVA/MVE MZJ/MZA MVY/MZF MZE/MZK MLA/MLF MLE/MLK MVL/MVJ MVH/MHB MHJ/MKB MV-BP MVK-BP NPCAP™ PXK/PXS PXF/PXE PXA/PXH	D55	12.0	4.7	4.7	5.5	8.0	5.7	—	1
	D60,D61	12.0	4.7	4.7	5.5	8.0	6.3	—	1
	D73	12.0	4.6	4.6	5.5	8.0	7.5	—	1
	E55	12.0	5.7	5.7	5.5	12.0	5.7	—	2
	E60,E61	12.0	5.7	5.7	5.5	12.0	6.3	—	2
	E73	16.0	5.7	5.7	7.5	12.0	7.5	—	2
	F46	16.0	7.0	7.0	7.5	12.0	4.9	—	2
	F55	16.0	7.0	7.0	7.5	12.0	5.7	—	2
	F60,F61	16.0	7.0	7.0	7.5	12.0	6.3	—	2
	F73	16.0	7.0	7.0	7.5	12.0	7.5	—	2
	F80	16.0	7.0	7.0	7.5	12.0	8.2	—	2
	F90	16.0	7.0	7.0	7.5	12.0	9.2	—	2
	H63	16.0	8.7	8.7	7.5	12.0	6.8	—	2
	H70	24.0	8.7	8.7	11.5	12.0	7.3	—	2
	H80	24.0	8.7	8.7	11.5	12.0	8.3	—	2
	HA0	24.0	8.7	8.7	11.5	16.0	11.0	—	3
	HC0	24.0	8.7	8.7	11.5	16.0	12.7	—	3
	J80	24.0	10.7	10.7	11.5	16.0	8.3	—	3
	JA0	24.0	10.7	10.7	11.5	16.0	11.0	—	3
	JC0	24.0	10.7	10.7	11.5	16.0	12.8	—	3
	KE0	32.0	13.4	13.4	14.2	24.0	14.0	28.4	4
	KG5	32.0	13.4	13.4	14.2	24.0	16.5	28.4	4
	LH0	44.0	17.5	17.5	20.2	28.0	16.8	40.4	4
	LN0	44.0	17.5	17.5	20.2	28.0	22.1	40.4	4
	MH0	44.0	19.5	19.5	20.2	32.0	17.1	40.4	4
	MN0	44.0	19.5	19.5	20.2	32.0	22.1	40.4	4

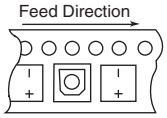
PACKAGING

◆REEL DIMENSIONS [mm]



◆POLARITY

Alchip™ -MVA/MVE/MZJ
MZA/MVY/MZF
MZE/MZK/MLA
MLF/MLE/MLK
MVL/MVJ/MVH
MHB/MHJ/MKB
MV-BP/MVK-BP
NP CAP™ PXK/PXS/PXF
PXE/PXA/PXH

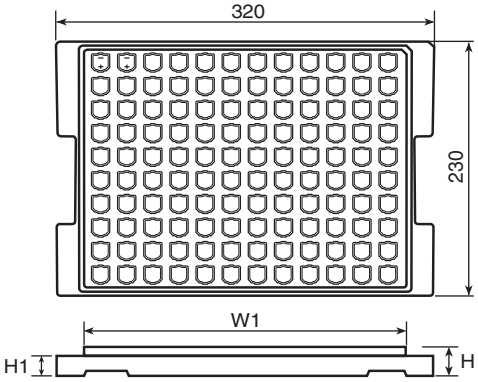


◆QUANTITY PER REEL/BOX

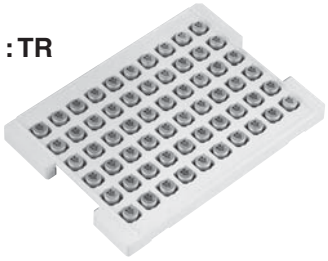
Series	Size code	Quantity (pcs/reel)	Quantity (pcs/box)	W1 (mm)
Alchip™ MVA/MVE MZJ/MZA MVY/MZF MZE/MZK MLA/MLF MLE/MLK MVL/MVJ MVH/MHB MHJ/MKB MV-BP MVK-BP	D55,D60,D61	2,000	10,000	14
	D73	1,500	7,500	14
	E55,E60,E61	1,000	5,000	14
	E73	1,000	5,000	18
	F55,F60,F61,F73	1,000	5,000	18
	F80	900	4,500	18
	F90	800	4,000	18
	H63	1,000	5,000	18
	HA0	500	1,500	26
	JA0	500	1,500	26
	KE0	200	600	34
	KG5	150	450	34
	LH0	125	250	46
	LN0	75	150	46
	MH0	125	250	46
	MN0	75	150	46
NPCAP™ PXK/PXS PXF/PXE PXA/PXH	D55	2,000	20,000	14
	E60,E61	1,000	10,000	14
	F46,F55,F60,F61	1,000	7,000	18
	F80	900	6,300	18
	H70	1,000	6,000	26
	H80	900	5,400	26
	HA0	500	3,000	26
	HC0	400	1,200	26
	J80	500	3,000	26
	JA0	500	3,000	26
	JC0	400	1,200	26

SURFACE MOUNT TYPE (TRAY)

◆DIMENSIONS [mm]



●TRAY CODE : TR

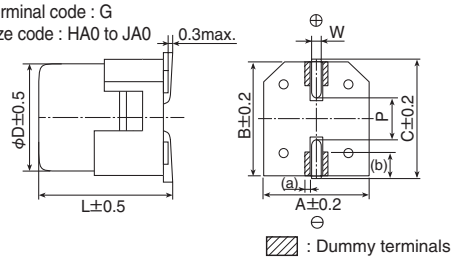


Size code	H [mm]	W1 [mm]	H1 [mm]	Quantity [pcs/tray]	Quantity [pcs/box]
KE0 & KG5	21.0	284	18.5	120	600
LH0 & LN0	28.0	284	24.0	80	400
MH0 & MN0	28.0	284	24.0	60	300

VIBRATION RESISTANT STRUCTURE (Terminal code : G)

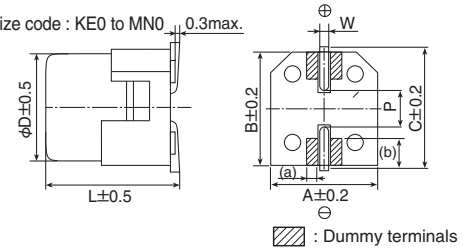
◆DIMENSIONS [mm]

●Terminal code : G
●Size code : HA0 to JA0



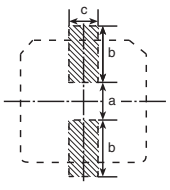
: Dummy terminals

●Size code : KE0 to MN0



: Dummy terminals

◆RECOMMENDED SOLDER LAND



Solder land on PC board

Size code	Dimensions of products (mm)									Solder land (mm)		
	D	L	A	B	C	W	P	(a)	(b)	a	b	c
HA0	8.0	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1	(0.5)	(1.8)	3.1	4.2	3.5
JA0	10.0	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5	(0.5)	(2.1)	4.5	4.4	3.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2	(1.3)	(3.0)	3.4	6.3	9.3
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2	(1.3)	(3.0)	3.4	6.3	9.3
LH0	16.0	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5	(2.0)	(3.0)	4.7	7.8	9.6
LN0	16.0	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5	(2.0)	(3.0)	4.7	7.8	9.6
MH0	18.0	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5	(2.0)	(4.0)	4.7	8.8	9.6
MN0	18.0	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5	(2.0)	(4.0)	4.7	8.8	9.6

( ); Ref.

NIPPON CHEMI-CON

PACKAGING

TAPING SPECIFICATIONS

RADIAL LEAD TYPE (TAPING)

◆DIMENSION [mm]

Fig.1
Taping Code : TA, TC
ϕD=ϕ4 to 8

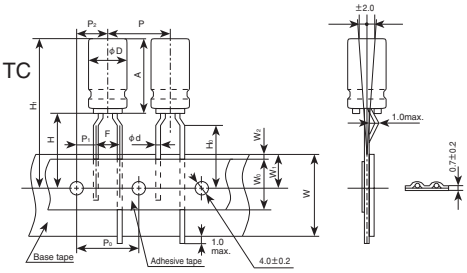


Fig.2
Taping Code : TD
ϕD=ϕ5
ϕD×L=ϕ4×7

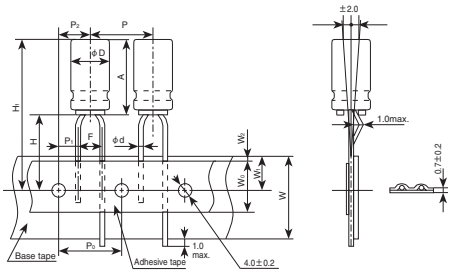


Fig.3
Taping Code : TD
ϕD=ϕ6.3 to 12.5

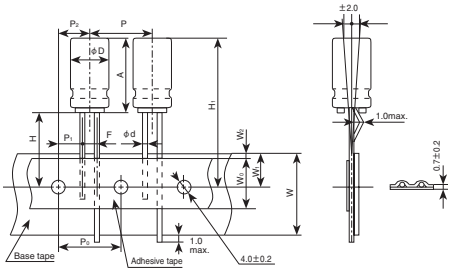
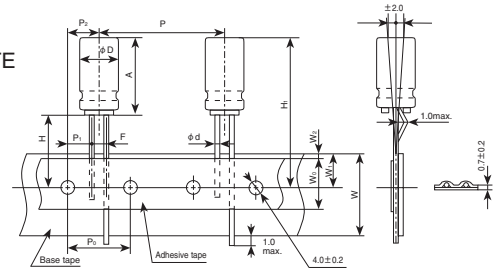


Fig.4
Taping Code : TE
ϕD=ϕ12.5



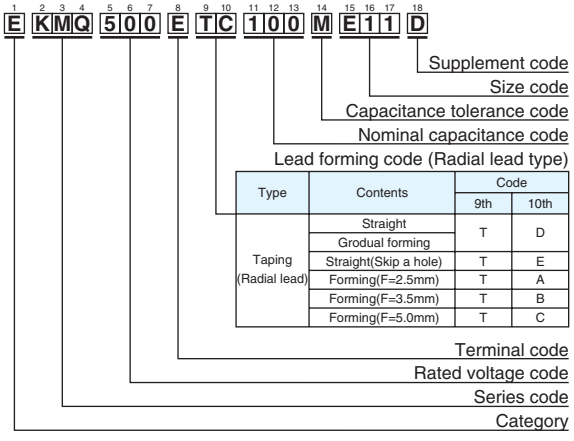
Code	Taping Code	Case size ϕD	Case size A	ϕd	P	P₀	P₁	P₂	F	W	W₀	W₁	W₂	H	H₀	H₁	Fig.
tol.		—	—	±0.05	±1.0	±0.2	±0.7	±1.0	+0.8 −0.2	±0.5	min.	±0.5	max.	±0.75	±0.5		
Nominal	TA	4	5	0.45	12.7	12.7	5.1 / 3.85	6.35	2.5 / 5	18.0	6.0	9.0	1.5	17.5	16.0	H1=H+A Check insertion machine specs.	1
	TC																
	TD	4	7	0.45	12.7	12.7	5.1 / 3.85	6.35	2.5 / 5	18.0	6.0	9.0	1.5	18.5 *1 / 17.5	16.0		2
	TC																1
	TD		11.5	0.45	12.7	12.7	5.1 / 3.85	6.35	2.5 / 5	18.0	10.0	9.0	1.5	17.5	16.0		1
	TC																
	TD	5	5 to 7	0.45	12.7	12.7	5.1 / 3.85	6.35	2.5 / 5	18.0	6.0	9.0	1.5	18.5 / 17.5	— / 16.0		2 / 1
	TC																
	TD		9 to 15	0.5	12.7	12.7	5.1 / 3.85	6.35	2.5 / 5	18.0	10.0	9.0	1.5	18.5	— / 16.0		2 / 1
	TC																
	TD	6.3	5 to 7	0.45	12.7	12.7	5.1 / 3.85	6.35	2.5 / 5	18.0	6.0	9.0	1.5	18.5 / 17.5	— / 16.0		3 / 1
	TC																
	TD		9 to 15	0.5	12.7	12.7	5.1 / 3.85	6.35	2.5 / 5	18.0	10.0	9.0	1.5	18.5	— / 16.0		3 / 1
	TC																
	TD	8	5	0.45	12.7	12.7	5.1 / 3.85	6.35	2.5 / 5	18.0	6.0	9.0	1.5	18.5 / 17.5	— / 16.0		3 / 1
	TC																
	TC		7	0.45	12.7	12.7	3.85	6.35	5	18.0	6.0	9.0	1.5	17.5	16.0		1
	TD		9 to 20	0.6	12.7	12.7	3.85	6.35	3.5 / 5	18.0	10.0	9.0	1.5	20.0	— / 16.0		1
	TC																
tol.		±0.5	max.	±0.05	±1.0	±0.3	±0.7	±1.3	+0.8 −0.2	±0.5	min.	±0.5	max.	+2.0 −0	—		
Nominal	TD	10	21	0.6	12.7	12.7	3.85	6.35	5	18.0	12.5	9.0	1.5	18.0	—		3
	TD	12.5	26	0.6	*2 15	15	5.0	7.5	5	18.0	12.5	9.0	1.5	18.0	—		3
	TE			0.6	25.4	12.7	3.85	6.35	5	18.0	12.5	9.0	1.5	18.0	—		4

* 1 : For ϕ4×7 (A=7, F=25), shall be $18.5^{-0.5/+0.75}$ (Taping code : TD) at Fig.2.

* 2 : P=15 taping is not standard. Use P=25.4 taping.

TAPING CODE

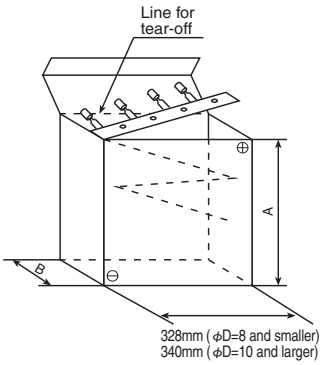
Example



Type	Contents	Code 9th	Code 10th
Taping (Radial lead)	Straight	T	D
	Gradual forming		
	Straight(Skip a hole)	T	E
	Forming(F=2.5mm)	T	A
	Forming(F=3.5mm)	T	B
	Forming(F=5.0mm)	T	C

QUANTITY PER AMMO PACK

Ammo pack box



Typical example

Case size ϕD×L(mm)		A (mm)	B (mm)	Quantity (pcs.)
ϕ4	L=5 & 7mm	183	42	2,000
	L=11.5mm	183	51	
ϕ5	L=5 & 7mm	232	42	2,000
	L=9 to 15mm	232	51	
	L=17mm	235	60	
ϕ6.3	L=5 & 7mm	282	42	2,000
	L=9 to 15mm	284	51	
	L=17mm	284	55	
ϕ8	L=5 & 7mm	232	42	1,000
	L=9 to 15mm	232	51	
	L=17 & 20mm	235	60	
ϕ10	L=≦16mm	308	56	800(500)*
	L=17 to 20mm	308	62	800
	L=21 to 25mm	308	67	800
	L=26 to 30mm	308	71	500
ϕ12.5	L=≦16mm	308	62	500
	L=17 to 25mm	308	67	500

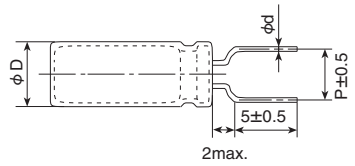
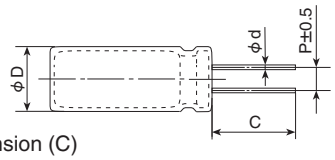
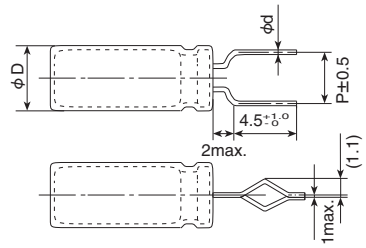
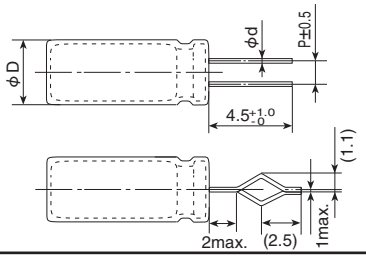
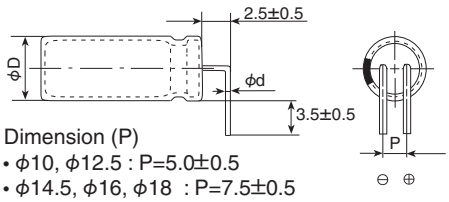
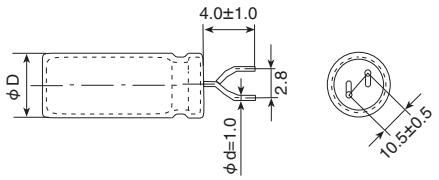
*Minimum order quantity for PSG/ PSK/PSF/PSE/PSC/PSA/PS series

NIPPON CHEMI-CON

PACKAGING

RADIAL LEAD TYPE (CUT/FORMED LEAD)

The following lead configurations are available. When ordering, please indicate the type of lead configurations by using the appropriate supplement code, such as C5, FC, MC or RC in the product part number.

Terminal type	Size	Terminal type	Size
●Lead code : FC (Forming Cut type) 	φD=5 to 8	●Lead code : C5 (Cutting type)  Dimension (C) • φD= 4 to 8: C=5.0±0.5(Second standard C=3.5±0.5) • φD=10 to 18: C=5.0$^{+1.0}_{-0}$ (Second standard C=3.5±0.5)	φD=4 to 18
●Lead code : FM (Snap-in type) 	φD=5 to 8	●Lead code : MC (Snap-in type) 	φD=10 to 18
●Lead code : BC (Horizontal type)  Dimension (P) • φ10, φ12.5 : P=5.0±0.5 • φ14.5, φ16, φ18 : P=7.5±0.5	φD=10 to 18	●Lead code : RC (Snap-in type) 	φD=20 to 22

* Please consult with us the other terminal forming.

◆DIMENSION (P)

[mm]

Lead forming / Size		Cutting type		Snap-in type	
		FC	C5	FM	MC
φ4		—	1.5	—	—
φ5		5.0	2.0	5.0	—
φ6.3		5.0	2.5	5.0	—
φ8	5L	5.0	2.5	5.0	—
	7L min.	5.0	3.5	5.0	—
φ10		—	5.0	—	5.0
φ12.5		—	5.0	—	5.0
φ14.5		—	7.5	—	7.5
φ16		—	7.5	—	7.5
φ18		—	7.5	—	7.5

* Please refer to dimensions of each series for lead-wire diameter (φd).

PACKAGING

MINIMUM ORDER QUANTITY

Please order by minimum order quantity.

◆SURFACE MOUNT

●Vertical

Series	Size code	Quantity (pcs)	
		Taping	Tray (pcs/box)
Alchip™ MVA/MVE/MZJ MZA/MVY/MZF MZE/MZK/MLA MLF/MLE/MLK MVL/MVJ/MVH MHB/MHJ/MKB MV-BP/MVK-BP	D55, D60, D61	2,000	—
	D73	1,500	—
	E55, E60, E61, E73	1,000	—
	F46, F55, F60, F61, F73	1,000	—
	F80, H80	900	—
	F90	800	—
	H63, H70	1,000	—
	HA0	500	—
	HC0	400	—
	J80, JA0	500	—
	JC0	400	—
NPCAP™ PXK/PXS/PXF PXE/PXA/PXH	KE0	200	600
	KG5	150	600
	LH0	125	400
	LN0	75	400
	MH0	125	300
	MN0	75	300

◆RADIAL

Size		Quantity (pcs)	
		Bagged*1	Taping
φ4		200	2,000
φ5		200	2,000
φ6.3		200 (200)*2	2,000 (2,000)*2
φ8		200 (100)*2	1,000 (1,000)*2
φ10	Height≦25mm	200 (100)*2	800 (500)*2
	Height≧30mm	200	500
φ12.5		100	500
φ14.5		50	250
φ16		50	250
φ18		50	250

*1 Standard bagged quantity.
*2 Minimum order quantity for PSG/PSK/PSF/PSE/PSC/PSA/ PS series.

◆SNAP-IN

200 pieces

NIPPON CHEMI-CON

PACKAGING

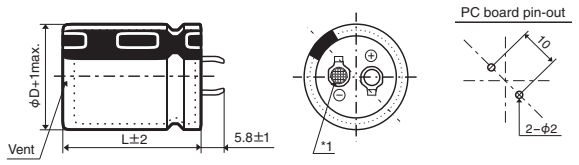
AVAILABLE TERMINALS FOR SNAP-IN AND SCREW-MOUNT TYPE

- We can make the following terminal type on custom design.
- There is a restriction for specification of product, please consult with us when the product is required.
- Please consult with us about terminal type other than those following listed.

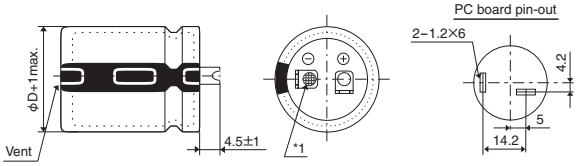
Snap-in type

[mm]

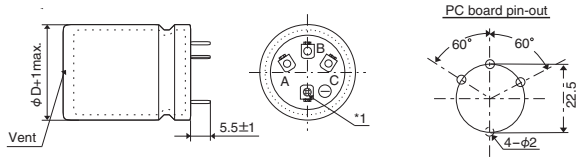
Terminal, Dummy code : VNN — D=φ22 toφ35



Terminal, Dummy code : LIN — D=φ30 toφ40

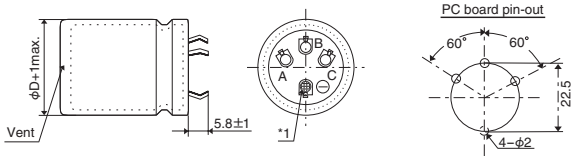


Terminal, Dummy code : VRD — D=φ35, φ40



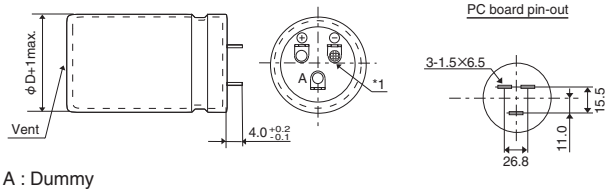
B : Positive, A, C : Dummy

Terminal, Dummy code : VND — D=φ35, φ40



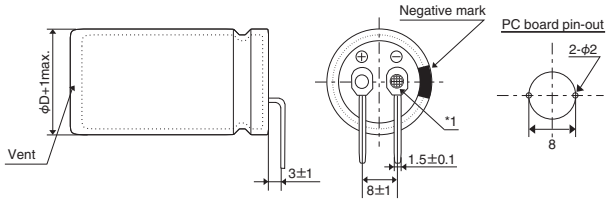
B : Positive, A, C : Dummy

Terminal, Dummy code : LIS — D=φ50



A : Dummy

Horizontal mounting
Terminal, Dummy code : LCN — D=φ20×30 to 50L, φ22×30 to 50L



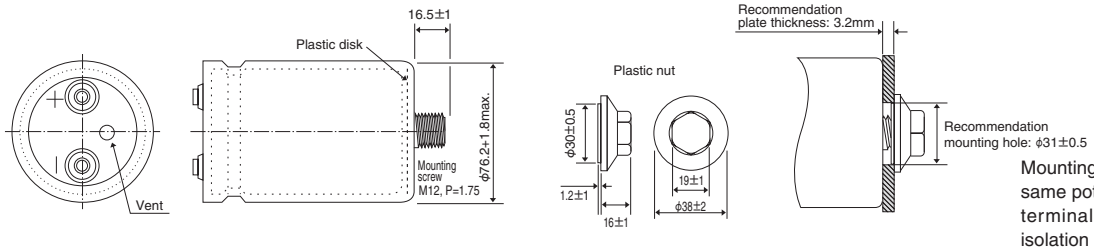
*1 Negative terminal : Mesh marking

*2 Use the dummy terminals for mechanical support only.
The dummy terminals must not be connected to any circuit trace on PC board, be sure to electrically isolate from the negative and the positive terminals.

Screw-mount type

[mm]

Stud mounting type — D=φ76.2



Mounting screw and case are same potential as the cathode terminal. Please careful of isolation between chassis.

Please consult with us about other size.

STANDARDIZATION

The following series are discontinued. Please use the replacements in the table.

◆CHIP TYPE REPLACEMENTS

Discontinued series	Characteristics	Replacements
MVS	85℃ low profile	*
MV	85℃ standard	MVA
MVK	105℃ standard	MVE
MKA		
MVZ	Low impedance	MZA
MLD	Long life	MLE
MZD	Low impedance,Long life	MZE

◆LEAD TYPE REPLACEMENTS

Discontinued series	Characteristics	Replacements
SM	85℃ standard	SMG
SME		
KM	105℃ standard	KMG
KMC		
KME		
USM		LXY
BSM		
SHA	95℃ L=7mm	LXY/LXZ
SM-BP	85℃ bi-polar	SME-BP
KM-BP	105℃ bi-polar	KME-BP
SRC	85℃ low profile	SRG
SXC	Low impedance	KY/LXV
LXE		
LXJ		
SXE		
KMF(6.3 to 100V_{dc})		
LXF	Low impedance	LXY
KMY	Long life	KY
LXA	Long life	KY/LXY
GXD	High heat resistance	GXE
GHA	150℃ high heat resistance	*
KMF(160 to 450V_{dc})	High ripple current	KXG
KMX	Long life	
KRF	105℃ large radial	KMG
KRL	105℃ low leakage current	*

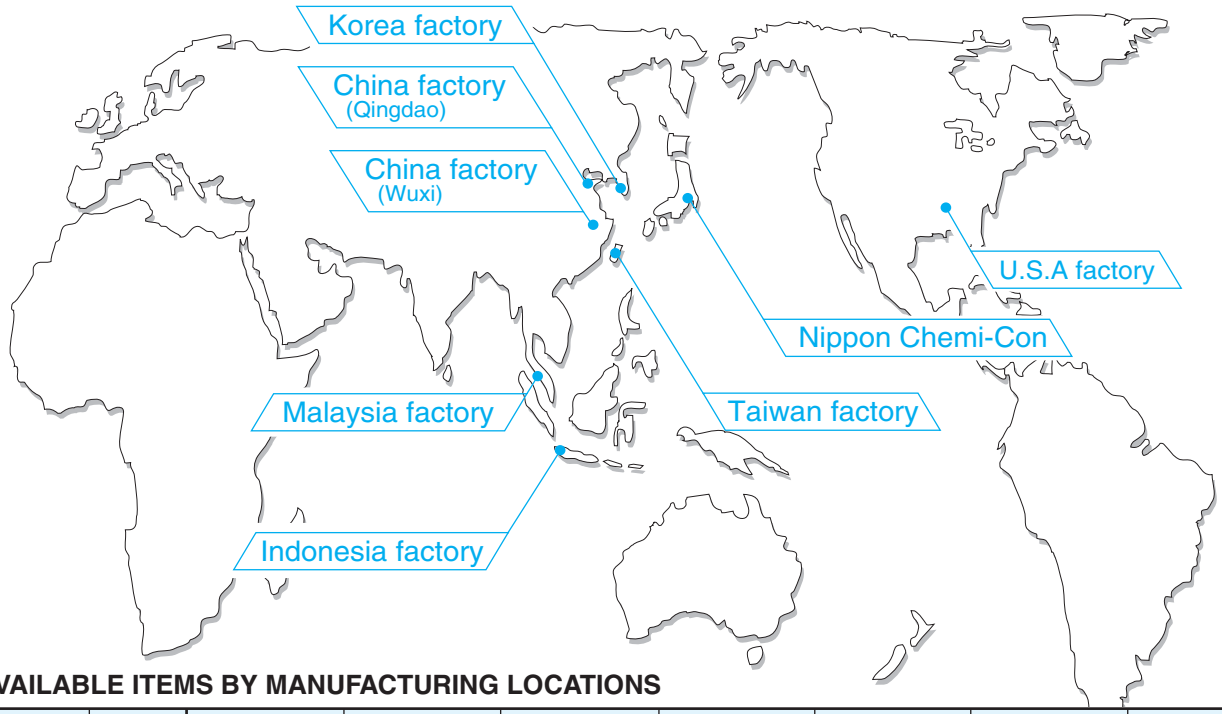
◆SCREW-MOUNT TERMINAL REPLACEMENTS

Discontinued series	Characteristics	Replacements
KME	High reliability	KMH
LWY	105℃ long life	LXA/LXR

* Please contact us.

Already been discontinued products are not listed in this catalog,

WORLD-WIDE MANUFACTURING LOCATIONS



◆AVAILABLE ITEMS BY MANUFACTURING LOCATIONS

Classification	Series	Korea factory	China factory (Qingdao)	China factory (Wuxi)	Indonesia factory	Taiwan factory	Malaysia factory	U.S.A. factory
Conductive Polymer Electrolyte Type	PSA					●		
	PSC					●		
	PSE					●		
	PSF					●		
SMD	MVA	●		●	●			
	MVE	●		●	●			
	MVY			●	●			
Low Profile	SRM				●			
	SRE				●			
	SRA				●			
	KMA				●			
	SRG				●			
General purpose	SMG	●	●	●	●	●		
	KMG	●	●	●	●	●		
	SMQ			●	●			
	KMQ			●	●	●		
Bi-polar	SME-BP	●	●		●			
	KME-BP	●	●		●			
Low impedance, High ripple	LXZ			●	●			
	LXV			●	●	●		
	KY	●	●	●	●	●		
	KZE	●	●	●	●	●		
	KZH			●	●	●		
	KZM			●	●	●		
	KXG			●		●		
Snap-in	SMQ						●	●
	KMQ						●	●
	SMM						●	●
	KMM						●	●
Screw-mount Terminal	KMH							●
	RWE			●				●
	RWF							●
	RWL							●
	LXA							●

Please be sure to contact us before ordering as our product range is continuously improved and the product you require may have been superseded.

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

RECOMMENDED SOLDERING CONDITIONS FOR NPCAP™

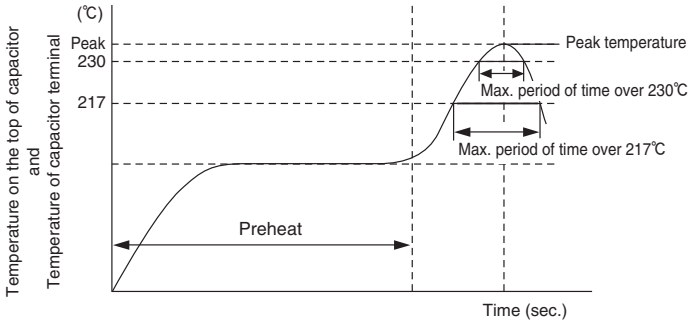
◆SURFACE MOUNT TYPE

The following conditions are recommended for air or infrared reflow soldering PXK/PXS/PXF/PXE/PXA/PXH series onto a glass epoxy circuit board of 90×50×0.8mm (with resist) by cream solder. The temperatures shown are the surface temperature values on the top of the can and temperature of capacitor terminal.

Reflow should be performed twice or less.

Please ensure that the capacitor became cold enough to the room temperature (5 to 35℃) before the second reflow.

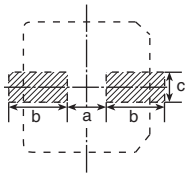
● Recommended soldering heat conditions



Voltage range (V_{DC})	Preheat	Time maintained above 217℃	Time maintained above 230℃	Peak temp.	Reflow number
2.5 to 16V	150 to 180℃ 120 sec.max.	50 sec.max.	40 sec.max.	260℃max.	1-cycle only
				250℃max.	2-cycle allowed
20 to 25V		50 sec.max. (40 sec.max.)	40 sec.max. (30 sec.max.)	250℃max. (240℃max.)	1-cycle only
		40 sec.max.	30 sec.max.		2-cycle allowed

( ) : Applies for 20V 82μF(J80) and 25V 39μF(J80)

● Recommended Solder Land on PC Board



Solder land on PC board

Size code	a	b	c
D55	1.0	2.6	1.6
E60,E61	1.4	3.0	1.6
F46, F55 F60, F61, F80	1.9	3.5	1.6
H70, H80, HA0, HC0	3.1	4.2	2.2
J80, JA0, JC0	4.5	4.4	2.2

◆RADIAL LEAD TYPE

● Recommended soldering heat conditions

Preheat ：150℃ 120 seconds max.

Flow soldering ：260+5℃ max. 10+1 seconds max.

◆PRECAUTIONS FOR USERS

Soldering method

SMD type have no capability to withstand such dip or wave soldering as totally immersing components into a solder bath.

Reflow soldering

Reflow the capacitors within Recommended Reflow Soldering Conditions. Verify there is no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult with us if other reflow conditions are employed.

1.Location of components : Temperature increases at the edge of PC board more than the center.
2.Population of PC board : The lower the component population is, the more temperature rises.
3.Material of PC board : A ceramic-made board needs more heat than a glass epoxy-made board. The heat increase may cause damage to the capacitors.
4.Thickness of PC board : A thicker board needs more heat than a thinner board. The heat may damage the capacitors.
5.Size of PC board : A larger board needs more heat than a smaller board. The heat may damage the capacitors.
6.Solder thickness
If very thin cream solder paste is to be used for SMD types, please consult with us.
7.Location of infrared ray lamps : IR reflow as well as hot plate reflow heats only on the reverse side of the PC board to lessen heat stress to the capacitors.
8.Case leakage current will increase (～mA) after the reflow process, the leakage current which rose gradually decreases when voltage is applied.
9.Vapor phase soldering (VPS) is not used.

Rework of soldering

Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10℃ and an exposure time of 3±0.5 seconds.

Mechanical stress

Do not grab the capacitors to lift the PC board and give stress to the capacitor. Avoid bending the PC board. This may damage the capacitors.

Cleaning assembly board

Immediately after solvent cleaning, remove residual solvent with an air knife for at least 10 minutes. If the solvent is insufficiently dry, the capacitors may corrode.

Coating on assembly board

1.Before curing coating material, remove the cleaning solvents from the assembly board.
2.Before conformal coating, a chloride free pre-coat material is recommended to decrease the stress on the capacitors.

Molding with resin

Internal chemical reaction gradually produces gas in the capacitor; increasing internal pressure. If the end seal of the capacitor is completely coverd by resin the gas will be unable to escape causing a potentially dangerous situation. The chlorine in resin will penetrate the end seal, reach the element, and damage of the capacitor.

Glue

The followings are requirements for glue.

1.A low curing temperature over a short period of time
2.Strong adhension and heat resistance after curing
3.Long shelf life
4.No corrosion

Others

Refer to PRECAUTIONS AND GUIDELINES(Conductive Polymer).

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

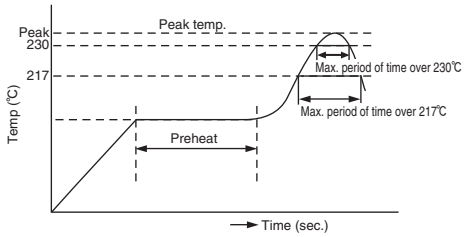
Surface Mount

RECOMMENDED REFLOW SOLDERING CONDITIONS

Alchip™ MVA/MVE/MZJ/MZA/MVY/MZF/MZE/MZK/MLA/MLF/MLE/MLK/ MVL/MVJ/MVH/MHB/MHJ/MKB/MV-BP/MVK-BP

The following conditions are recommended for air convection and infrared reflow soldering on the SMD products on to a glass epoxy circuit boards by cream solder. The dimensions of the glass epoxy boards with resist are 90×50×0.8mm for D55 to KG5 case code SMD capacitors and 180×90×0.8mm for LH0 to MN0 case codes SMD capacitors.
The temperatures shown are the surface temperature values on the top of the can and on the capacitor terminals.
Reflow should be performed twice or less.
Please ensure that the capacitor became cold enough to the room temperature (5 to 35℃) before the second reflow.
Consult with us when performing reflow profile in IPC / JEDEC (J-STD-020)

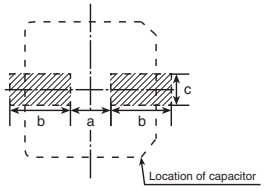
●Recommended soldering heat conditions (Except for Conductive Polymer Aluminum Solid Capacitors)



SMD type	Size code	Voltage range (V_{DC})	Preheat	Time maintained above 217℃	Time maintained above 230℃	Peak temp.	Reflow number
Vertical	D55 to F90	4 to 63V (Except 63V for MVH)	150 to 180℃ 120sec. max.	90sec. max	60sec. max.	260℃max.	2 times or less
		63V(MVH), 80V		60sec. max.	40sec. max.	250℃max.	2 times or less
	H63 to JA0	4 to 50V		60sec. max.	30sec. max.	245℃max.	2 times or less
		63 to 100, 400V		30sec. max.	20sec. max.	240℃max.	2 times or less
	KE0 to MN0	6.3 to 50V		30sec. max.	20sec. max.	240℃max.	2 times or less
		63 to 450V		20sec. max.	—	230℃max.	2 times or less

●Recommended Solder Land on PC Board

Series : MVA/MVE/MZJ/MZA/MVY/MZF/MZE/MZK/MLA/MLF/ MLE/MLK/MVL/MVJ/MVH/MHB/MHJ/MKB/MV-BP MVK-BP



: Solder land on PC board

Size code	Terminal code : A			Terminal code : G		
	a	b	c	a	b	c
D55, D60, D61, D73	1.0	2.6	1.6			
E55, E60, E61, E73	1.4	3.0	1.6			
F55, F60, F61, F73, F80, F90	1.9	3.5	1.6			
H63	2.3	4.5	1.6			
HA0	3.1	4.2	2.2	3.1	4.2	3.5
JA0	4.5	4.4	2.2	4.5	4.4	3.5
KE0, KG5	4.0	5.7	2.5	3.4	6.3	9.3
LH0, LN0	6.0	6.9	2.5	4.7	7.8	9.6
MH0, MN0	6.0	7.9	2.5	4.7	8.8	9.6

◆PRECAUTIONS FOR USERS

Soldering method
The capacitors of Alchip-series have no capability to withstand such dip or wave soldering as totally immerses components into a solder bath.

Reflow soldering
Reflow the capacitors within recommended reflow soldering conditions. Verify there is no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult us if other reflow conditions are employed.

1.Location of components : Temperature increases at the edge of PC board more than the center.
2.Population of PC board : The lower the component population is, the more temperature rises.
3.Material of PC board : A ceramic made board needs more heat than a glass epoxy made board. The heat increase may cause damage to the capacitors.
4.Thickness of PC board : A thicker board needs more heat than a thinner board. The heat increase may damage the capacitors.
5.Size of PC board : A larger board needs more heat than a smaller board. The heat increase may damage the capacitors.
6.Solder thickness
If very thin cream solder paste is to be used for SMD types, please consult with us.
7.Location of infrared ray lamps : IR reflow as well as hot plate reflow heats only on the reverse side of the PC board to lessen heat stress to the capacitors.
8.Vapor phase soldering (VPS) is not used.

Rework of soldering
Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10℃ and an exposure time of 3±0.5 seconds.

Mechanical stress
Do not use the capacitors for lifting the PC board and give stress to the capacitor. Avoid bending the PC board. This may damage the capacitors.

Cleaning assembly board
Immediately after solvent cleaning, remove residual solvent with an air knife for at least 10 minutes. If the solvent is insufficiently dry, the capacitors may corrode.

Coating on assembly board
1.Before curing coating material, remove the cleaning solvents from the assembly board.
2.Before conformal coating, a chloride free pre-coat material is recommended to decrease the stress on the capacitors.

Molding with resin
Internal chemical reaction gradually produces gas in the capacitor; then, increasing internal pressure. If the end seal of the capacitor is completely coverd by resin the gas will be unable to escape causing a potentially dangerous situation. The chlorine contained resin will penetrate into the end seal, reach the inside element, and cause damage of the capacitor.

Others
Refer to PRECAUTIONS AND GUIDELINES.

CAT. No. E1001L

PRECAUTIONS AND GUIDELINES (Conductive Polymer)

The NPCAP™ is a Conductive Polymer Solid Aluminum Capacitor that uses highly conductive polymer electrolytic material.
Please read the following in order to get the most out of your NPCAP™ capacitor.
For aluminum electrolytic capacitors, please refer to PRECAUTIONS AND GUIDELINES.

1 Designing Device Circuits

1) Types of Circuits Where NPCAP™ Capacitors are Not to be Used

The leakage current in conductive polymer solid aluminum capacitors (hereafter called capacitors) may vary depending on thermal stresses during soldering. Avoid the use of capacitors in the following types of circuits:

① High-impedance circuits that are to sustain voltages.
② Coupling circuits
③ Time constant circuits
Because the capacitance varies depending on the environment the capacitors are used in, there is a possibility that the capacitor can affect a time constant circuit where sensitivity to variation in capacitance is required.
④ Other circuits that are significantly affected by leakage current

2) Circuit Design

Verify the following before designing the circuit:

① The electrical characteristics of the capacitor will vary depending on differences in temperature and frequency. You had better design after verifying the scope of these factors.
② When connecting two or more capacitors in parallel, ensure that the design takes current balancing into account.
③ When two or more capacitors are connected in series, variability in applied voltage may cause over-voltage conditions. Contact Nippon Chemi-Con before using capacitors connected in series.
④ Avoid putting heat generating parts either around the capacitor or on the reverse of the circuit board.

3) Use in High Reliable and Critical Applications

Consult with Nippon Chemi-Con before using these capacitors in applications involving human life: Aviation/space equipment, Nuclear power equipment, Medical equipment and Automotive equipment, or in applications where capacitor failure could have a major impact.

4) Polarity

The NPCAP™ is a polarized solid aluminum electrolytic capacitor. Do not apply either reverse voltages or AC voltages to the polarized capacitors, using reversed polarity may cause a short circuit. Refer to the catalog, product specifications or capacitor body to confirm the polarity prior to use.

5) Operating Voltage

Do not apply a greater than rated voltage, if a voltage greater than the rated voltage is suddenly applied the leakage current increases causing shorting. The peak voltage of superimposed AC voltages (ripple voltages) on DC voltages must not exceed the full rated voltage. While there are specifications for surge voltages exceeding the rated voltage, usage conditions apply, and continued operation for extended periods of time under such conditions cannot be guaranteed.

6) Ripple Current

Do not apply currents in excess of the rated ripple current. The superimposition of a large ripple current increases the rate of heating within the capacitor. When excessive ripple current is imposed the internal temperature increases which can shorten life and shorting may occur.

7) Operating Temperature

Use within the stated category temperature range, if used outside this range, characteristics can deteriorate potentially leading to problems.

8) Charging and Discharging the Capacitor

Do not use the NPCAP™ capacitor in circuits where the capacitor is repetitively charged and discharged rapidly. Repetitively charging and discharging the capacitor rapidly may reduce the capacitance or may cause damage due to internal heating. Use of a protective circuit to ensure reliability is recommended when rush currents exceed 20A.

9) Leakage current

The leakage current may increase when the capacitors are subjected to the conditions below. After that, however, the leakage current will gradually decrease by self-healing action of the dielectric oxide layer when the capacitors are applied with a voltage less than the rated voltage within the Category Temperature range. As the voltage is closer to the rated voltage and the temperature is closer to the upper limit of Category Temperature range, the leakage current decreases faster.
The leakage current will increase by the following factors,

① Soldering
② Testing of high temperature exposure with no voltage applied, high temperature/humidity storage, temperature cycles, etc.

10) Failures and Service Life

Based on the JIS C 5003 Standard, the failure rate for NPCAP™ capacitors (with a 60% reliability standard) is as follows:

0.5%/1,000 hours (applied the rate voltage at the upper limit of Category Temperature range)

(1) Failure Modes

① The principal failure mode is wear-out failure, that is, capacitance decreases and ESR increases, and eventually the capacitors become open circuit failure. In addition, short circuit failure may happen with over-voltage and excessive current applied to the capacitors.
② The failure rate would be reduced by reducing ambient temperatures, ripple current and applying voltage.
③ If the short-circuited capacitor, which may be caused by over-voltages higher than the rated voltage or other conditions, has a large amount of current passed through, the aluminum can of the capacitor bulges and might be expelled with odor gas emitted.
④ The product contains flammable materials. If the short causes a spark it may ignite.
Please be careful when installing the product, its position and the layout design.

- Increase safety by using in conjunction with a protective circuit or protective equipment.
- Install measures such as redundant circuits so that the failure of a part of the equipment will not cause unstable operation.

(2) Service Life

NPCAP™ uses rubber as the sealing material, so the service life depends on the thermal integrity of this rubber. Consequently, it is recommended to use the capacitor at a lower temperature than the maximum temperature for the capacitor category.

11) Capacitor Insulation

Insulation of the capacitor's case is not guaranteed. Ensure electrical insulation between the capacitor case, negative electrode, positive electrode and circuit pattern.

PRECAUTIONS AND GUIDELINES (Conductive Polymer)

12) Capacitor Usage Environment

Do not use/expose capacitors to the following conditions.

① Oil, water, salty water, take care to avoid storage in damp locations.
② Direct sunlight
③ Toxic gases such as hydrogen, sulfide, sulfurous acids, nitrous acids, chlorine and chlorine compounds, bromine and bromine compounds, ammonia, etc.
④ Ozone, ultraviolet rays and radiation.
⑤ Severe vibration or mechanical shock conditions beyond the limits advised in the product specification section of the catalog.

13) Capacitor mounting

① For the surface mount capacitor, design the solder land on the PC board in accordance with the catalog or the product specification.
② For radial capacitors, design the terminal holes on the PC board to fit the terminal dimension of the capacitor.
③ Do not pass any circuit traces beneath the seal side of a capacitor. The trace must pass 1 to 2mm to the side of the capacitor.
④ Do not pass any via holes underneath a capacitor on double sided PC board
⑤ In designing double-sided PC boards,do not locate any copper trace under the seal side of a capacitor

2 Installing Capacitors

1) Installing

① Do not reuse capacitors already assembled in equipment that have been exposed to power.
② The capacitor may have self charge. If this happens, discharge the capacitor through a resistor of approximately 1kΩ before use.
③ If capacitors are stored at a temperature of 35℃ or more and more than 75%RH, the leakage current may increase. This may also occur if the capacitors are stored for a longer period than the period which is specified in the catalog or the product specification. In this case, they can be reformed by the voltage treatment through a resistor of approximately 1kΩ.
④ Verify the rated capacitance and voltage of the capacitors when installing.
⑤ Verify the polarity of the capacitors.
⑥ Do not use the capacitors if they have been dropped on the floor.
⑦ Do not deform the case of the capacitors.
⑧ Verify that the lead spacing of the capacitor fits the hole spacing in the PC board before installing the capacitors.
⑨ Do not apply any mechanical force in excess of the limits prescribed in the catalog or the product specification of the capacitors. Avoid subjecting the capacitor to strong forces, as this may break the electrode terminals, bend or deform the capacitor, or damage the packaging, and may also cause short/open circuits, increased leakage current, or damage the appearance. Also, note the capacitors may be damaged by mechanical shocks caused by cut the lead wire, the vacuum/insertion head, component checker or centering operation of an automatic mounting or insertion machine.

2) Heat Resistance during Soldering

Ensure that the soldering conditions meet the specifications recommended by Nippon Chemi-Con. Note that the leakage current may increase or capacitance may decrease due to thermal stresses that occur during soldering, etc. Furthermore, the leakage current which rose gradually decreases, when voltage is applied at below the category upper limit temperature. Additionally the self repairing action is faster when voltage near the rated voltage rather than at a higher voltage is applied at below the category's upper temperature limit.

① Verify the following before using a soldering iron:
- That the soldering conditions (temperature and time) are within the ranges specified in the catalog or product specifications.
- That the tip of the soldering iron does not come into contact with the capacitor itself.

② Verify the following when flow soldering:
- Do not dip the body of a capacitor into the solder bath only dip the terminals in. The soldering must be done on the reverse side of PC board.
- Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the catalog or the product specifications.
- Do not apply flux to any part of capacitors other than their terminals.
- Make sure the capacitors do not come into contact with any other components while soldering.

③ Verify the following when reflow soldering:
- Soldering conditions (preheat, solder temperature and soldering time) should be within the limits prescribed in the catalogs or the product specification.
- The heat level should be appropriate. (Note that the thermal stress on the capacitor varies depending on the type and position of the heater in the reflow oven, and the color and material of the capacitor.)
- Vapor phase soldering (VPS) is not used.
- Except for the surface mount type, reflow soldering must not be used for the capacitors.

④ Do not reuse a capacitor that has already been soldered to PC board and then removed. When using a new capacitor in the same location, remove the flux, etc. first, and then use a soldering iron to solder on the new capacitor in accordance with the specifications.
⑤ Confirm before running into soldering that the capacitors are SMD for reflow soldering.

3) Handling After Soldering

Do not apply any mechanical stress to the capacitor after soldering onto the PC board.

① Do not lean or twist the body of the capacitor after soldering the capacitors onto the PC board.
② Do not use the capacitors for lifting or carrying the assembly board.
③ Do not hit or poke the capacitor after soldering to PC board. When stacking the assembly board, be careful that other components do not touch the aluminum electrolytic capacitors.
④ Do not drop the assembled board.

4) Cleaning PC boards

① Do not wash capacitors by using the following cleaning agents. Solvent resistant capacitors are only suitable for washing using the cleaning conditions prescribed in the catalog or the product specification. In particular, ultrasonic cleaning will accelerate damage to capacitors.
- Halogenated solvents; cause capacitors to fail due to corrosion.
- Alkali system solvents; corrode (dissolve) an aluminum case.
- Petroleum system solvents; cause the rubber seal material to deteriorate.
- Xylene; causes the rubber seal material to deteriorate.
- Acetone; erases the markings.

CFC alternatives or the other cleaners above; please consult with us

② Verify the following points when washing capacitors.
- Monitor conductivity, pH, specific gravity and the water content of cleaning agents. Contamination adversely affects these characteristics.
- Be sure not to expose the capacitors under solvent rich conditions or keep capacitors inside a closed container. In addition, please dry the solvent sufficiently on the PC board and the capacitor with an air knife (temperature

PRECAUTIONS AND GUIDELINES (Conductive Polymer)

should be less than the maximum rated category temperature of the capacitor) for 10 minutes. Aluminum electrolytic capacitors can be characteristically and catastrophically damaged by halogen ions, particularly by chlorine ions, though the degree of the damage mainly depends upon the characteristics of the electrolyte and rubber seal material. When halogen ions come into contact with the capacitors, the foil corrodes when a voltage is applied. This corrosion causes an extremely high leakage current which results venting and an open circuit.

If the new types of cleaning agents mentioned below are used, the following are recommended as cleaning conditions for some of new cleaning agents.

-Higher alcohol cleaning agents

Pine Alpha ST-100S (Arakawa Chemical)
Clean Through 750 H, 750K, 750L, and 710M (Kao)
Technocare FRW-14 through 17 (Momentive performance material)
Cleaning Conditions:
Using these cleaning agents, capacitors are capable of withstanding immersion or ultrasonic cleaning for 10 minutes at a maximum liquid temperature of 60℃. Find optimum condition for washing, rinsing, and drying. Be sure not to rub the marking off the capacitor which can be caused by contact with other components or the PC board. Note that shower cleaning adversely affects the markings on the sleeve.

-Non-Halogenated Solvent Cleaning

AK225AES (Asahi Glass)
Cleaning Conditions:
Immersion, ultrasonic or vapor cleaning for 5 minutes. However, from an environmental point of view, these types of solvent will be banned in near future. We would recommend not using them if at all possible.

-Isopropyl Alcohol (IPA)

IPA (Isopropyl Alcohol) is one of the most acceptable cleaning agents; it is necessary to maintain a flux content in the cleaning liquid at a maximum limit of 2 Wt.%.

5) Precautions for using adhesives and coating materials

① Do not use any adhesive and coating materials containing halogenated solvent.
② Verify the following before using adhesive and coating material.
- Remove flux and dust left over between the rubber seal and the PC board before applying adhesive or coating materials to the capacitor.
- Dry and remove any residual cleaning agents before applying adhesive and coating materials to the capacitors. Do not cover over the whole surface of the rubber seal with the adhesive or coating materials.
- For permissible heat conditions for curing adhesives or coating materials, please consult with us.
- Covering over the whole surface of the capacitor rubber seal with resin may result in a hazardous condition because the inside pressure cannot be completely released. Also, a large amount of halogen ions in resins will cause the capacitors to fail because the halogen ions penetrate into the rubber seal and the inside of the capacitor.
- Some coating materials, it cannot be implemented to the capacitor.
  Please note change on the surface might be caused according to the kind of solvents used for mounting adhesives and coating agents.

6) Fumigation

In many cases when exporting or importing electronic devices, such as capacitors, wooden packaging is used. In order to control insects it may become necessary to fumigate the shipment. Precautions during “Fumigation” using halogenated chemical such as Methyl Bromide must be taken. Halogen gas can penetrate packaging materials such as cardboard boxes and vinyl bags. Penetration of the halogenated gas can cause corrosion of Electrolytic capacitors. Nippon Chemi-Con gives consideration to the packaging materials not to require the Fumigation. Verify whether the assembled PC board, products and capacitors themselves are subjected to Fumigation during their transportation or not.

3 The Operation of Devices

1) Do not touch the capacitor terminals directly.
2) Do not short-circuit the terminal of a capacitor by letting it come into contact with any conductive object. Also, do not spill electric-conductive liquid such as acid or alkaline solution over the capacitor.
3) Do not use capacitors in circumstances where they would be subject to exposure to the following materials
- Oil, water, salty water or damp location.
- Direct sunlight.
- Ozone, ultraviolet rays or radiation.
- Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or its compounds, and ammonium.
- Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalog or product specification.

4 Maintenance Inspection

1) Make periodic inspections of capacitors that have been used in industrial applications. Before inspection, turn off the power supply and carefully discharge the electricity in the capacitors. Verify the polarity when measuring the capacitors with a volt-ohm meter. Do not apply any mechanical stress to the terminals of the capacitors.
2) The following items should be checked during the periodic inspections.
① Significant damage in appearance
② Electrical characteristics: leakage current, capacitance, tan δ and other characteristics prescribed in the catalog or product specification.
We recommend replacing the capacitors if the parts are out of specification.

5 Contingencies

1) If gas has vented from the capacitor during use, there is a short circuit and burning, or the capacitor discharges an odor or smoke, turn off the main power supply to the equipment or unplug the power cord.
2) If there is a problem with the capacitor or a fire breaks out, the capacitor may produce a burning gas or reactive gas from the outer resin, etc. If this happens, keep your hands and face away from the gas. If vented gas is inhaled or comes into contact with your eyes, flush your eyes immediately with water and/or gargle. If vented gas comes into contact with the skin, wash the affected area thoroughly with soap and water.

6 Storage

We recommend the following conditions for storage.
1) Store capacitors in a cool, dry place. Store at a temperature between 5 and 35℃, with a humidity of 75% or less.
(table-1)

	Before the bag is opened	After the bag is opened
SMD	Within 3 years after manufacturing	Within 6 months after the bag is opened
Radial	Within 3 years after manufacturing	—

PRECAUTIONS AND GUIDELINES (Conductive Polymer)

SMD products are sealed in a special laminated aluminum bag. Use all capacitors once the bag is opened. Return unused capacitors to the bag, and seal it with a zipper. Please refer to (Table -1) for storage conditions. Be sure to follow our recommendations for reflow soldering.

2) Store the capacitors in a location free from direct contact with water, salt water, and oil.
3) Store in a location where the capacitor is not exposed to toxic gas, such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or chlorine compounds, bromine or other halogen gases, methyl bromide or other halogen compounds, ammonia, or similar.
4) Store in a location where the capacitor is not exposed to ozone, ultraviolet radiation, or other radiation.
5) It is recommended to store capacitors in their original packaging wherever possible.
6) The JEDEC J-STD-020 (Rev. C) standard does not apply.

7 Disposal

Please consult with a local industrial waste disposal specialist when disposing of aluminum electrolytic capacitors.

8 Catalogs

Specifications in the catalogs may be subject to change without notice. For more details of precautions and guidelines for aluminum electrolytic capacitors, please refer to Engineering Bulletin No. 634A.
Catalog data are typical. This value does not guarantee the performance.

9 Regarding compliance for EU REACH Regulation

1) According to the content of REACH handbook (Guidance on requirements for substances in articles which is published on May 2008), our electronic components are "articles without any intended release". Therefore they are not applicable for "Registration" for EU REACH Regulation Article 7 (1).
   Reference: Electrolytic Condenser Investigation Society
   "Study of REACH Regulation in EU about Electrolytic Capacitor" (publicized on 13 March 2008)
2) Nippon Chemi-Con develops the products without substance of very high concern(SVHC).DEHP(CASNo.117-81-7) was contained as some covering material, Nippon Chemi-Con abolished use of DEHP totally at June, 2011.

NIPPON CHEMI-CON

PART NUMBERING SYSTEM

Product code guide (Conductive polymer Surface mount type)

(Example : PXA series, 4V-150μF, φ6.3×5.7L)

Please refer to the following table

Contents	Code
Conductive Polymer	A

Series	Code
PXA	PXA

Type	Code
SMD	A

Tol.(%)	Code
±20	M

Terminal plating material	Code
Sn-Bi	G

1	2 3 4	5 6 7	8	9 10	11 12 13	14	15 16 17	18
A	P X A	4 R 0	A	R A	1 5 1	M	F 6 0	G
Category	Series code	Voltage code	Terminal code	Taping・Tray code	Capacitance code	Capacitance tolerance	Size code	Supplement code

Voltage(V)	Code
2.5	2R5
4	4R0
6.3	6R3
10	100
16	160
20	200
25	250
35	350

Type	Reel dia. φ (mm)	Application size φD(mm)	Code
Reel for reuse	380	φD=4～10	RA
	330	φD=8～10	RB

Refer to product guide for taping specifications.

Cap.(μF)	Code
3.3	3R3
4.7	4R7
10	100
47	470
100	101
470	471
1,000	102
⋮	⋮

φD(mm)	Code
4	D
5	E
6.3	F
8	H
10	J

L(mm)	Code
4.5	46
5.2	55
5.7	60
5.8	61
6.7	70
7.7	80
10	A0
12	C0
12.2	C0

*Refer to the appendix (Part number) for codes not listed here.

Product code guide (Conductive polymer Radial lead type)

(Example : PSC series, 6.3V-470μF, φ8×8L,Long Lead with bulk)

Please refer to the following table

Contents	Code
Conductive Polymer	A

Series	Code
PSC	PSC
PS	PS-

Type	Code
Radial lead	E

Tol.(%)	Code
± 20	M

Terminal plating material	Code
Sn	S

1	2 3 4	5 6 7	8	9 10	11 12 13	14	15 16 17	18
A	P S C	6 R 3	E	L L	4 7 1	M	H 0 8	S
Category	Series code	Voltage code	Terminal code	Taping・Tray code	Capacitance code	Capacitance tolerance	Size code	Supplement code

Voltage(V)	Code
2.5	2R5
4	4R0
6.3	6R3
10	100
16	160
20	200
25	250
35	350

Type	Contents	Code
Lead forming (Bulk)	Long Lead	LL
	Cut(3.5mm)	C3
	Cut(5.0mm)	C5
Taping	Straight	TD

Refer to product guide for taping specifications.

Cap.(μF)	Code
3.3	3R3
4.7	4R7
10	100
47	470
100	101
470	471
1,000	102
⋮	⋮

φD(mm)	Code
5	E
6.3	F
8	H
10	J

L(mm)	Code
5	05
6	06
8	08
10.5	A5
11.5	B5
12.5	C5

*Refer to the appendix (Part number) for codes not listed here.

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS
Product List
◆SURFACE MOUNT TYPE (2.5 to 10V_{dc})

*1 ESR(mΩ max.)20℃,100k to 300kHz
*2 Rated ripple current(mArms)105℃,100kHz

Cap (μF)	Rated voltage(V_{dc})															
	2.5				4				6.3				10			
	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2
4.7													PXA	4×5.2	240	670
6.8													PXA	4×5.2	240	670
10													PXA	4×5.2	220	700
15													PXA	4×5.2	200	740
22									PXA	4×5.2	200	740				
33					PXA	4×5.2	200	740					PXS	5×5.8	70	1100
													PXA	5×5.7	40	1270
47									PXS	5×5.8	30	1970	PXE	5×5.8	28	2310
									PXA	5×5.7	35	1380	PXA	5×5.7	40	1270
													PXA	6.3×4.5	41	1560
													PXA	6.3×5.7	31	2250
56													PXE	5×5.8	28	2310
													PXA	6.3×5.2	31	2250
													PXA	6.3×5.7	31	2250
													PXH	6.3×5.7	45	2250
68									PXA	6.3×5.7	27	2400	PXS	5×5.8	30	1970
													PXE	5×5.8	28	2310
82									PXA	6.3×4.5	40	1670				
									PXA	6.3×5.2	27	2400				
									PXA	6.3×5.7	27	2400				
									PXH	6.3×5.7	40	2400				
100					PXE	5×5.8	22	2610	PXS	5×5.8	25	2150				
					PXA	6.3×5.2	26	2450	PXE	5×5.8	24	2500				
					PXA	6.3×5.7	26	2450	PXA	5×5.7	35	1380				
									PXA	6.3×4.5	40	1670				
									PXA	6.3×5.2	27	2400				
									PXA	6.3×5.7	27	2400				
									PXH	6.3×5.7	40	2400				
120					PXA	6.3×4.5	38	1710	PXS	6.3×5.8	22	2570	PXS	6.3×5.8	27	2320
									PXE	5×5.8	24	2500	PXE	6.3×5.8	25	2530
									PXA	6.3×5.7	27	2400	PXA	8×6.7	27	2800
													PXH	8×6.7	35	2800
150					PXS	5×5.8	25	2150	PXK	6.3×4.5	19	2780	PXS	8×6.7	30	2760
					PXE	5×5.8	22	2610	PXA	8×6.7	25	3020	PXE	6.3×7.7	21	2880
					PXA	5×5.7	30	1490	PXH	8×6.7	30	3020	PXA	8×6.7	27	2800
					PXA	6.3×5.2	26	2450					PXH	8×6.7	35	2800
					PXA	6.3×5.7	26	2450								
					PXH	6.3×5.7	35	2450								
180	PXE	5×5.8	21	2670	PXK	6.3×4.5	19	2780	PXK	5×5.8	17	3390				
220	PXK	6.3×4.5	19	2780	PXK	5×5.8	17	3390	PXK	6.3×4.5	18	3200	PXE	8×6.7	21	3220
	PXA	6.3×5.2	25	2500	PXA	8×6.7	25	3020	PXS	6.3×5.8	22	2570				
	PXA	6.3×5.7	25	2500	PXH	8×6.7	30	3020	PXF	6.3×5.8	10	3900				
	PXH	6.3×5.7	35	2500					PXE	6.3×5.8	15	3160				
									PXA	8×6.7	25	3020				
									PXH	8×6.7	30	3020				
270					PXE	6.3×5.8	15	3160	PXF	6.3×7.7	9	4200	PXE	8×6.7	21	3220
									PXE	6.3×7.7	14	3470	PXA	10×7.7	24	3770
													PXA	8×12	14	4420
330	PXK	5×5.8	16	3500	PXF	6.3×5.8	10	3900	PXK	6.3×5.8	17	3390	PXE	8×7.7	19	3390
	PXK	6.3×4.5	16	3500	PXE	6.3×5.8	15	3160	PXF	6.3×5.8	10	3900	PXA	8×12	14	4420
					PXA	8×6.7	25	3020	PXF	6.3×7.7	9	4200	PXA	10×7.7	24	3770
									PXF	8×6.7	10	4500	PXH	10×7.7	30	3700
									PXE	6.3×7.7	14	3470				
									PXE	8×6.7	14	3950				
									PXA	10×7.7	20	4130				
390	PXF	6.3×5.8	10	3900	PXK	6.3×5.8	17	3390	PXS	8×6.7	22	3220	PXE	8×10	17	4000
	PXE	6.3×5.8	15	3160	PXF	6.3×7.7	9	4200	PXF	8×6.7	10	4500				
					PXE	6.3×7.7	14	3470	PXE	8×6.7	14	3950				
									PXA	8×12	12	4770				
470	PXF	6.3×7.7	9	4200	PXF	8×6.7	10	4500	PXF	8×7.7	9	4500	PXE	10×7.7	19	3800
	PXE	6.3×7.7	13	3600	PXE	8×6.7	14	3950	PXE	8×7.7	13	3950	PXA	10×12.2	12	5300
					PXA	10×7.7	20	4130	PXA	8×12	12	4770				
									PXA	10×7.7	20	4130				
									PXH	10×7.7	25	3700				
560	PXK	6.3×5.8	16	3500	PXS	8×6.7	22	3220	PXF	8×7.7	9	4500	PXA	10×12.2	12	5300
	PXF	6.3×5.8	10	3900	PXF	8×6.7	10	4500								
	PXF	6.3×7.7	9	4200	PXE	8×6.7	14	3950								
	PXF	8×6.7	10	4500	PXA	8×12	12	4770								
	PXE	6.3×7.7	13	3600												
	PXE	8×6.7	13	4100												
	PXA	8×6.7	23	3100												
	PXH	8×6.7	30	3100												
680	PXF	8×6.7	10	4500	PXF	8×7.7	9	4500	PXA	10×12.2	10	5500	PXE	10×10	13	4820
	PXE	8×6.7	13	4100	PXE	8×7.7	13	3950								
	PXA	8×12	12	4770	PXA	10×7.7	20	4130								
					PXH	10×7.7	25	3700								
820	PXE	8×12	9	5400	PXA	10×12.2	10	5500	PXE	8×10	12	4770				
	PXE	8×7.7	12	4260					PXE	8×12	10	5150				
									PXE	10×7.7	14	4300				
									PXA	10×12.2	10	5500				

CAT. No. E1001L

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS
Product List

*1 ESR(mΩ max.)20℃,100k to 300kHz
*2 Rated ripple current(mArms)105℃,100kHz

◆SURFACE MOUNT TYPE (2.5 to 6.3Vdc)

Cap (μF)	Rated voltage(Vdc)											
	2.5				4				6.3			
	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2
1000	PXF	8×7.7	9	4500	PXE	10×7.7	14	4300				
	PXE	8×7.7	12	4260	PXE	8×10	10	5220				
	PXA	10×7.7	19	4240								
	PXH	10×7.7	25	3700								
1200	PXE	10×7.7	13	4450	PXE	10×10	10	5500	PXE	10×10	12	5025
					PXE	8×12	9	5400				
					PXA	10×12.2	10	5500				
1500	PXE	8×10	10	5220	PXE	10×10	10	5500	PXE	10×10	12	5025
	PXE	8×12	9	5400					PXE	10×12.2	10	5500
	PXA	10×12.2	10	5500								
1800					PXE	10×10	10	5500				
					PXE	10×12.2	9	5600				
2200	PXE	10×10	10	5500								
2700	PXE	10×12.2	9	5600								

◆SURFACE MOUNT TYPE (16 to 25Vdc)

Cap (μF)	Rated voltage(Vdc)															
	16				20				23				25			
	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2
3.3	PXA	4×5.2	260	660												
10													PXA	6.3×5.7	65	1500
15					PXA	6.3×4.5	57	1300	PXA	6.3×4.5	57	1300				
22	PXS	5×5.8	90	1060	PXA	6.3×5.2	50	1650					PXA	8×6.7	50	1800
	PXA	5×5.7	45	1210	PXA	6.3×5.7	50	1650								
	PXA	6.3×4.5	45	1490	PXH	6.3×5.7	60	1650								
33	PXE	5×5.8	35	2070												
	PXA	6.3×5.7	37	2050												
39	PXS	5×5.8	35	1820	PXA	8×6.7	45	2000					PXA	10×7.7	45	2100
	PXS	6.3×5.8	37	2050												
	PXE	5×5.8	35	2070												
	PXA	6.3×5.2	37	2050												
	PXA	6.3×5.7	37	2050												
	PXH	6.3×5.7	50	2050												
47					PXA	8×6.7	45	2000								
					PXH	8×6.7	45	2000								
68	PXS	6.3×5.8	30	2200												
	PXE	6.3×5.8	28	2390												
82	PXS	8×6.7	30	2760	PXA	10×7.7	40	2500								
	PXE	6.3×7.7	24	2700	PXH	10×7.7	45	2400								
	PXA	8×6.7	30	2700												
	PXH	8×6.7	40	2700												
100	PXK	6.3×5.8	24	2490												
	PXE	6.3×7.7	24	2700												
	PXE	8×6.7	24	3010												
120	PXS	8×6.7	27	2900												
	PXE	8×6.7	24	3010												
150	PXE	8×7.7	22	3150	PXA	10×12.2	20	4320								
	PXA	10×7.7	26	3430												
	PXH	10×7.7	35	3020												
180	PXE	8×10	18	3890												
	PXA	8×12	16	4360												
	PXA	10×7.7	26	3430												
	PXH	10×7.7	35	3020												
220	PXE	8×10	18	3890												
	PXE	10×7.7	22	3450												
	PXA	10×12.2	14	5050												
330	PXE	10×10	16	4350												
	PXA	10×12.2	14	5050												

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS
Product List

*1 ESR(mΩ max.)20℃,100k to 300kHz
*2 Rated ripple current(mArms)105℃,100kHz

◆RADIAL LEAD TYPE (2 to 10V_{dc})

Cap (μF)	Rated voltage(V_{dc}) 2				2.5				4				6.3				10			
	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2
47																	PSA	6.3×10.5	25	2820
68																	PSA	6.3×10.5	25	2820
100																	PSA	6.3×10.5	25	2820
150																	PSA	6.3×10.5	25	2820
220					PSK	5×8	7	4350					PSA	6.3×10.5	20	3160				
270									PSA	6.3×10.5	20	3160					PSA	8×11.5	9	4710
																	PS	8×11.5	14	4420
330					PSK	5×8	7	4350					PSA	6.3×10.5	28	3190	PS	8×11.5	14	4420
					PSF	6.3×8	5	5900												
390					PSA	6.3×10.5	20	3160	PSA	6.3×10.5	24	3300	PSA	8×11.5	8	5080	PSC	8×11.5	9	5650
													PS	8×11.5	12	4770				
470					PSK	5×8	7	4350					PSE	6.3×8	8	4700	PSA	10×11.5	8	5650
					PSF	6.3×8	5	5900					PSC	8×8	8	5700	PS	10×12.5	12	5300
													PSA	8×11.5	7	5700				
													PS	8×11.5	12	4770				
560					PSK	5×8	7	4350	PSE	6.3×8	7	5000	PSE	6.3×8	8	4700	PS	10×12.5	12	5300
					PSF	6.3×8	5	5900	PSC	8×8	7	6100	PSC	8×8	8	5700				
					PSC	8×8	7	6100	PSA	8×11.5	7	5580								
									PS	8×11.5	10	5230								
680					PSE	8×6	8	4900	PSC	8×11.5	7	6100	PSA	10×11.5	7	5860	PSC	10×11.5	7	6100
					PSA	8×11.5	7	5580					PS	10×12.5	10	5500				
					PS	8×11.5	10	5230												
820					PSF	6.3×8	5	5900	PSA	10×11.5	6	5860	PSC	10×11.5	7	6640				
					PSE	6.3×8	7	5000	PS	10×12.5	8	5500	PS	10×12.5	10	5500				
					PSC	8×8	5	6100												
					PSC	8×8	7	6100												
					PSA	8×11.5	7	5580												
					PS	8×11.5	10	5230												
1000	PSF	6.3×8	5	5900	PSC	8×8	7	6100	PSC	10×11.5	6	6640	PS	10×12.5	10	5500				
					PSC	8×11.5	7	6100	PS	10×12.5	8	5500								
					PSA	10×11.5	6	5860												
1200									PS	10×12.5	8	5500								
1500					PSC	8×11.5	7	6100					PSC	10×11.5	10	5560				
					PSA	10×11.5	7	5860												
					PS	10×12.5	8	5500												
1600					PSF	8×8	5	6100												
2700					PSC	10×11.5	8	5560												

◆RADIAL LEAD TYPE (16 to 35V_{dc})

Cap (μF)	Rated voltage(V_{dc}) 16				20				25				35			
	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2
18													PS	8×11.5	34	2830
33													PS	10×12.5	30	3270
68									PS	8×11.5	24	3320				
100	PSF	6.3×5	24	2490	PS	8×11.5	24	3320	PS	10×12.5	20	4320				
	PSF	6.3×10.5	25	2820												
	PSA	6.3×10.5	25	2820												
	PS	8×11.5	16	4360												
120					PSG	6.3×5	20	3200								
150	PSG	6.3×5	20	3200	PS	10×12.5	20	4320								
180	PS	8×11.5	16	4360												
270	PSG	6.3×8	15	3800												
	PSG	8×6	22	3300												
	PSF	8×8	10	5000												
	PSF	8×11.5	11	5080												
	PSC	8×11.5	11	5080												
	PS	10×12.5	14	5050												
330	PSF	8×8	13	4700												
	PSC	10×12.5	10	6100												
	PS	10×12.5	14	5050												
470	PSG	8×8	16	4000												
	PSF	8×11.5	11	5400												
	PSF	10×11.5	10	6100												
	PSC	10×11.5	10	6100												
560	PSG	8×11.5	14	4970												
820	PSG	10×11.5	12	5400												
1000	PSG	10×11.5	12	5400												

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

New!

NPCAP™-PXK Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Rated voltage range : 2.5 to 16Vdc, Capacitance range : 100 to 560µF
- Suitable for DC-DC converters, voltage regulators and decoupling applications used to computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

PXK ↑ Downsized PXE

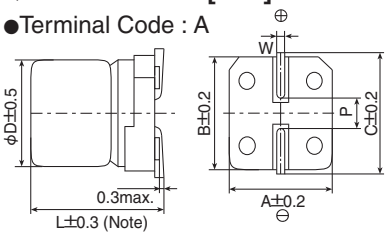
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15V (at 105℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (F46 : 1,000 hours) at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours (F46 : 500hours). Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after following voltage treatment.
Voltage treatment : DC rated voltage are applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A

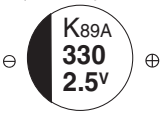


Note : L+0.1/-0.2 for F46

Size Code	ϕD	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F46	6.3	4.5	6.6	6.6	7.2	0.5 to 0.8	1.9
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9

◆MARKING

EX) 2.5V330µF



◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	P	X	K				A	R	A				M				G

- 18 : Supplement code
- 15–17 : Size code
- 14 : Capacitance tolerance code
- 11–13 : Capacitance code (ex. 330µF:331, 560µF:561)
- 9–10 : Taping code
- 8 : Terminal code
- 5–7 : Voltage code (ex. 2.5V:2R5, 6.3V:6R3)
- 4 : Series code
- 1 : Category

Please refer to "Product code guide (conductive polymer type)"

CAT. No. E1001L

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

New!
NPCAP™-PXK Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	220	F46	300	19	2,780	APXK2R5ARA221MF46G
	330	E61	412	16	3,500	APXK2R5ARA331ME61G
	330	F46	700	16	3,500	APXK2R5ARA331MF46G
	560	F61	700	16	3,500	APXK2R5ARA561MF61G
4	180	F46	360	19	2,780	APXK4R0ARA181MF46G
	220	E61	440	17	3,390	APXK4R0ARA221ME61G
	390	F61	780	17	3,390	APXK4R0ARA391MF61G
6.3	150	F46	472	19	2,780	APXK6R3ARA151MF46G
	180	E61	567	17	3,390	APXK6R3ARA181ME61G
	220	F46	700	18	3,200	APXK6R3ARA221MF46G
	330	F61	1,040	17	3,390	APXK6R3ARA331MF61G
16	100	F61	320	24	2,490	APXK160ARA101MF61G

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXS Series

- Super low ESR, high ripple current capability
- Longer life (5,000 hours at 105℃)
- Rated voltage range : 4 to 16Vdc, Capacitance : 22 to 560μF
- Case size : φ5×5.8L to φ8×6.7L
- Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

PXS
↑ Longer life
PXA/PXE

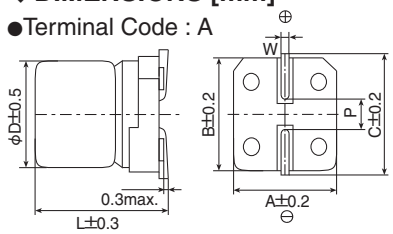
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	4 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current	I=0.2CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃.
	Appearance : No significant damage
	Capacitance change : ≦±20%of the initial value
	DF (tanδ) : ≦150% of the initial specified value
	ESR : ≦150% of the initial specified value
	Leakage current : ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance : No significant damage
	Capacitance change : ≦±20% of the initial value
	DF (tanδ) : ≦150% of the initial specified value
	ESR : ≦150% of the initial specified value
	Leakage current : ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ)and discharge for 5 minutes 30 seconds.
	Appearance : No significant damage
	Capacitance change : ≦±20% of the initial value
	DF (tanδ) : ≦150% of the initial specified value
	ESR : ≦150% of the initial specified value
	Leakage current : ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A



Size Code	φD	L	A	B	C	W	P
E61	5.0	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8.0	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1

◆MARKING

EX) 6.3V390μF

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	P	X	S				A	R	A				M				G

- 18 : Supplement code
- 15–17 : Size code
- 14 : Capacitance tolerance code
- 11–13 : Capacitance code (ex. 47μF:470, 150μF:151)
- 9–10 : Taping code
- 8 : Terminal code
- 5–7 : Voltage code (ex. 6.3V:6R3, 10V:100)
- 4 : Series code
- 1 : Category

Please refer to "Product code guide (conductive polymer type)"

CAT. No. E1001L

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXS Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
4	150	E61	25	2,150	APXS4R0ARA151ME61G
	560	H70	22	3,220	APXS4R0ARA561MH70G
6.3	47	E61	30	1,970	APXS6R3ARA470ME61G
	100	E61	25	2,150	APXS6R3ARA101ME61G
	120	F61	22	2,570	APXS6R3ARA121MF61G
	220	F61	22	2,570	APXS6R3ARA221MF61G
	390	H70	22	3,220	APXS6R3ARA391MH70G
10	33	E61	70	1,100	APXS100ARA330ME61G
	68	E61	30	1,970	APXS100ARA680ME61G
	120	F61	27	2,320	APXS100ARA121MF61G
	150	H70	30	2,760	APXS100ARA151MH70G
16	22	E61	90	1,060	APXS160ARA220ME61G
	39	E61	35	1,820	APXS160ARA390ME61G
	39	F61	37	2,050	APXS160ARA390MF61G
	68	F61	30	2,200	APXS160ARA680MF61G
	82	H70	30	2,760	APXS160ARA820MH70G
	120	H70	27	2,900	APXS160ARA121MH70G

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

Upgrade!

NPCAP™-PXF Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Rated voltage range : 2 to 6.3Vdc, Capacitance range : 150 to 1,000μF
- Case size range : φ5×5.8L to φ8×7.7L
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

PXF
↑ Lower ESR
PXE

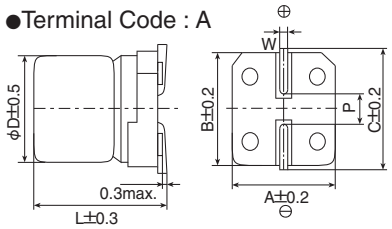
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2 to 6.3Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.15 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A



Size Code	φD	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
H80	8	7.7	8.3	8.3	9.0	0.7 to 1.1	3.1

◆MARKING

EX) 2.5V390μF

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	P	X	F				A	R	A				M				G

- 18: Supplement code
- 15–17: Size code
- 14: Capacitance tolerance code
- 11–13: Capacitance code (ex. 330μF:331, 1,000μF:102)
- 10: Taping code
- 9: Terminal code
- 8: Voltage code (ex. 2.5V:2R5, 6.3V:6R3)
- 5–7: Series code
- 4: Category

Please refer to "Product code guide (conductive polymer type)"

CAT. No. E1001L

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

Upgrade!
NPCAP™-PXF Series

◆STANDARD RATINGS

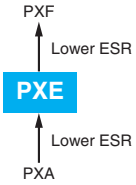
WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2	680	F61	700	12	3,500	APXF2R0ARA681MF61G
2.5	330	E61	700	10	3,900	APXF2R5ARA331ME61G
	390	E61	700	10	3,900	APXF2R5ARA391ME61G
	390	F61	292	10	3,900	APXF2R5ARA391MF61G
	470	F80	352	9	4,200	APXF2R5ARA471MF80G
	560	F61	700	10	3,900	APXF2R5ARA561MF61G
	560	F80	420	9	4,200	APXF2R5ARA561MF80G
	560	H70	420	10	4,500	APXF2R5ARA561MH70G
	680	H70	510	10	4,500	APXF2R5ARA681MH70G
	1,000	H80	750	9	4,500	APXF2R5ARA102MH80G
4	330	F61	396	10	3,900	APXF4R0ARA331MF61G
	390	F80	468	9	4,200	APXF4R0ARA391MF80G
	470	H70	564	10	4,500	APXF4R0ARA471MH70G
	560	H70	672	10	4,500	APXF4R0ARA561MH70G
	680	H80	816	9	4,500	APXF4R0ARA681MH80G
6.3	150	E61	700	12	3,500	APXF6R3ARA151ME61G
	220	E61	700	12	3,500	APXF6R3ARA221ME61G
	220	F61	415	10	3,900	APXF6R3ARA221MF61G
	270	F80	510	9	4,200	APXF6R3ARA271MF80G
	330	F61	700	10	3,900	APXF6R3ARA331MF61G
	330	F80	623	9	4,200	APXF6R3ARA331MF80G
	330	H70	623	10	4,500	APXF6R3ARA331MH70G
	390	H70	737	10	4,500	APXF6R3ARA391MH70G
	470	H80	888	9	4,500	APXF6R3ARA471MH80G
	560	H80	1,050	9	4,500	APXF6R3ARA561MH80G

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXE Series



- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
  (ESR and rated ripple current values are improved from PXA series.)
- Rated voltage range : 2.5 to 16Vdc, Capacitance range : 33 to 2,700µF
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

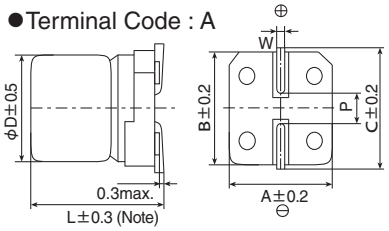
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A



(Note) L±0.5 for HA0, HC0, JA0, JC0

Size Code	φD	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
H80	8	7.7	8.3	8.3	9.0	0.7 to 1.1	3.1
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
HC0	8	12.0	8.3	8.3	9.0	0.7 to 1.1	3.1
J80	10	7.7	10.3	10.3	11.0	0.7 to 1.1	4.5
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
JC0	10	12.2	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 2.5V390µF

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	P	X	E				A	R	A				M				G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47µF:470,100µF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100)
- Series code
- Category

Please refer to "Product code guide (conductive polymer type)"

CAT. No. E1001L

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	180	E61	90.0	21	2,670	APXE2R5ARA181ME61G
	390	F61	195	15	3,160	APXE2R5ARA391MF61G
	470	F80	235	13	3,600	APXE2R5ARA471MF80G
	560	F80	280	13	3,600	APXE2R5ARA561MF80G
	560	H70	280	13	4,100	APXE2R5ARA561MH70G
	680	H70	340	13	4,100	APXE2R5ARA681MH70G
	820	H80	410	12	4,260	APXE2R5ARA821MH80G
	820	HC0	410	9	5,400	APXE2R5ARA821MHC0G
	1,000	H80	500	12	4,260	APXE2R5ARA102MH80G
	1,200	J80	600	13	4,450	APXE2R5ARA122MJ80G
	1,500	HA0	750	10	5,220	APXE2R5ARA152MHA0G
	1,500	HC0	750	9	5,400	APXE2R5ARA152MHC0G
	2,200	JA0	1,100	10	5,500	APXE2R5ARA222MJA0G
	2,700	JC0	1,350	9	5,600	APXE2R5ARA272MJC0G
4	100	E61	80.0	22	2,610	APXE4R0ARA101ME61G
	150	E61	120	22	2,610	APXE4R0ARA151ME61G
	270	F61	216	15	3,160	APXE4R0ARA271MF61G
	330	F61	264	15	3,160	APXE4R0ARA331MF61G
	390	F80	312	14	3,470	APXE4R0ARA391MF80G
	470	H70	376	14	3,950	APXE4R0ARA471MH70G
	560	H70	448	14	3,950	APXE4R0ARA561MH70G
	680	H80	544	13	3,950	APXE4R0ARA681MH80G
	1,000	HA0	800	10	5,220	APXE4R0ARA102MHA0G
	1,000	J80	800	14	4,300	APXE4R0ARA102MJ80G
	1,200	HC0	960	9	5,400	APXE4R0ARA122MHC0G
	1,200	JA0	960	10	5,500	APXE4R0ARA122MJA0G
	1,500	JA0	1,200	10	5,500	APXE4R0ARA152MJA0G
	1,800	JA0	1,440	10	5,500	APXE4R0ARA182MJA0G
	1,800	JC0	1,440	9	5,600	APXE4R0ARA182MJC0G
6.3	100	E61	126	24	2,500	APXE6R3ARA101ME61G
	120	E61	151	24	2,500	APXE6R3ARA121ME61G
	220	F61	277	15	3,160	APXE6R3ARA221MF61G
	270	F80	340	14	3,470	APXE6R3ARA271MF80G
	330	F80	415	14	3,470	APXE6R3ARA331MF80G
	330	H70	415	14	3,950	APXE6R3ARA331MH70G
	390	H70	491	14	3,950	APXE6R3ARA391MH70G
	470	H80	592	13	3,950	APXE6R3ARA471MH80G
	820	HA0	1,030	12	4,770	APXE6R3ARA821MHA0G
	820	HC0	1,030	10	5,150	APXE6R3ARA821MHC0G
	820	J80	1,030	14	4,300	APXE6R3ARA821MJ80G
	1,200	JA0	1,510	12	5,025	APXE6R3ARA122MJA0G
	1,500	JA0	1,890	12	5,025	APXE6R3ARA152MJA0G
	1,500	JC0	1,890	10	5,500	APXE6R3ARA152MJC0G
10	47	E61	94.0	28	2,310	APXE100ARA470ME61G
	56	E61	112	28	2,310	APXE100ARA560ME61G
	68	E61	136	28	2,310	APXE100ARA680ME61G
	120	F61	240	25	2,530	APXE100ARA121MF61G
	150	F80	300	21	2,880	APXE100ARA151MF80G
	220	H70	440	21	3,220	APXE100ARA221MH70G
	270	H70	540	21	3,220	APXE100ARA271MH70G
	330	H80	660	19	3,390	APXE100ARA331MH80G
	390	HA0	780	17	4,000	APXE100ARA391MHA0G
	470	J80	940	19	3,800	APXE100ARA471MJ80G
	680	JA0	1,360	13	4,820	APXE100ARA681MJA0G
16	33	E61	105	35	2,070	APXE160ARA330ME61G
	39	E61	124	35	2,070	APXE160ARA390ME61G
	68	F61	217	28	2,390	APXE160ARA680MF61G
	82	F80	262	24	2,700	APXE160ARA820MF80G
	100	F80	320	24	2,700	APXE160ARA101MF80G
	100	H70	320	24	3,010	APXE160ARA101MH70G
	120	H70	384	24	3,010	APXE160ARA121MH70G
	150	H80	480	22	3,150	APXE160ARA151MH80G
	180	HA0	576	18	3,890	APXE160ARA181MHA0G
	220	HA0	704	18	3,890	APXE160ARA221MHA0G
	220	J80	704	22	3,450	APXE160ARA221MJ80G
	330	JA0	1,050	16	4,350	APXE160ARA331MJA0G

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXA Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte
- Rated voltage range : 2.5 to 25Vdc, case size range : φ4×5.2L to φ10×12.2L
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

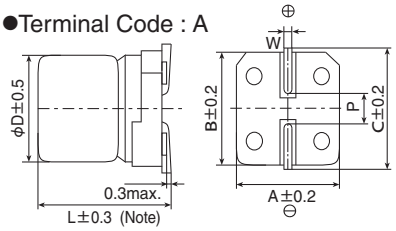
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 25Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (Rated voltage 2.5 to 20Vdc, 25Vdc) / Rated voltage×1.00 (Rated voltage 23Vdc) (at 105℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (F46 : 1,000 hours) at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours(F46 : 500 hours).
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A



Note : L+0.1/-0.2 for F46
L±0.5 for HC0 and JC0

Size code	φD	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E60	5	5.7	5.3	5.3	5.9	0.5 to 0.8	1.4
F46	6.3	4.5	6.6	6.6	7.2	0.5 to 0.8	1.9
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
HC0	8	12.0	8.3	8.3	9.0	0.7 to 1.1	3.1
J80	10	7.7	10.3	10.3	11.0	0.7 to 1.1	4.5
JC0	10	12.2	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 16V39μF

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	P	X	A				A	R	A				M				G

- 18 : Supplement code
- 15–17 : Size code
- 14 : Capacitance tolerance code
- 11–13 : Capacitance code (ex. 10μF:100,100μF:101)
- 10 : Taping code
- 8 : Terminal code
- 5–7 : Voltage code (ex. 6.3V:6R3,10V:100)
- 4 : Series code
- 1 : Category

Please refer to "Product code guide (conductive polymer type)"

CAT. No. E1001L

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/ after 2 min.)	ESR (mΩmax/ 20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	220	F55	110	25	2,500	APXA2R5ARA221MF55G
	220	F60	110	25	2,500	APXA2R5ARA221MF60G
	560	H70	280	23	3,100	APXA2R5ARA561MH70G
	680	HC0	340	12	4,770	APXA2R5ARA681MHC0G
	1,000	J80	500	19	4,240	APXA2R5ARA102MJ80G
	1,500	JC0	750	10	5,500	APXA2R5ARA152MJC0G
4	33	D55	66.0	200	740	APXA4R0ARA330MD55G
	100	F55	80.0	26	2,450	APXA4R0ARA101MF55G
	100	F60	80.0	26	2,450	APXA4R0ARA101MF60G
	120	F46	240	38	1,710	APXA4R0ARA121MF46G
	150	E60	120	30	1,490	APXA4R0ARA151ME60G
	150	F55	120	26	2,450	APXA4R0ARA151MF55G
	150	F60	120	26	2,450	APXA4R0ARA151MF60G
	220	H70	176	25	3,020	APXA4R0ARA221MH70G
	330	H70	264	25	3,020	APXA4R0ARA331MH70G
	470	J80	376	20	4,130	APXA4R0ARA471MJ80G
	560	HC0	448	12	4,770	APXA4R0ARA561MHC0G
	680	J80	544	20	4,130	APXA4R0ARA681MJ80G
	820	JC0	656	10	5,500	APXA4R0ARA821MJC0G
	1,200	JC0	960	10	5,500	APXA4R0ARA122MJC0G
6.3	22	D55	69.0	200	740	APXA6R3ARA220MD55G
	47	E60	59.2	35	1,380	APXA6R3ARA470ME60G
	68	F60	85.6	27	2,400	APXA6R3ARA680MF60G
	82	F46	267	40	1,670	APXA6R3ARA820MF46G
	82	F55	103	27	2,400	APXA6R3ARA820MF55G
	82	F60	103	27	2,400	APXA6R3ARA820MF60G
	100	E60	126	35	1,380	APXA6R3ARA101ME60G
	100	F46	315	40	1,670	APXA6R3ARA101MF46G
	100	F55	126	27	2,400	APXA6R3ARA101MF55G
	100	F60	126	27	2,400	APXA6R3ARA101MF60G
	120	F60	151	27	2,400	APXA6R3ARA121MF60G
	150	H70	189	25	3,020	APXA6R3ARA151MH70G
	220	H70	277	25	3,020	APXA6R3ARA221MH70G
	330	J80	416	20	4,130	APXA6R3ARA331MJ80G
	390	HC0	491	12	4,770	APXA6R3ARA391MHC0G
	470	HC0	592	12	4,770	APXA6R3ARA471MHC0G
	470	J80	592	20	4,130	APXA6R3ARA471MJ80G
	680	JC0	857	10	5,500	APXA6R3ARA681MJC0G
	820	JC0	1,030	10	5,500	APXA6R3ARA821MJC0G

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/ after 2 min.)	ESR (mΩmax/ 20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
10	4.7	D55	24.0	240	670	APXA100ARA4R7MD55G
	6.8	D55	34.0	240	670	APXA100ARA6R8MD55G
	10	D55	50.0	220	700	APXA100ARA100MD55G
	15	D55	75.0	200	740	APXA100ARA150MD55G
	33	E60	66.0	40	1,270	APXA100ARA330ME60G
	47	E60	94.0	40	1,270	APXA100ARA470ME60G
	47	F46	235	41	1,560	APXA100ARA470MF46G
	47	F60	94.0	31	2,250	APXA100ARA470MF60G
	56	F55	112	31	2,250	APXA100ARA560MF55G
	56	F60	112	31	2,250	APXA100ARA560MF60G
	120	H70	240	27	2,800	APXA100ARA121MH70G
	150	H70	300	27	2,800	APXA100ARA151MH70G
	270	HC0	540	14	4,420	APXA100ARA271MHC0G
	270	J80	540	24	3,770	APXA100ARA271MJ80G
	330	HC0	660	14	4,420	APXA100ARA331MHC0G
	330	J80	660	24	3,770	APXA100ARA331MJ80G
	470	JC0	940	12	5,300	APXA100ARA471MJC0G
	560	JC0	1,120	12	5,300	APXA100ARA561MJC0G
16	3.3	D55	26.0	260	660	APXA160ARA3R3MD55G
	22	E60	70.4	45	1,210	APXA160ARA220ME60G
	22	F46	176	45	1,490	APXA160ARA220MF46G
	33	F60	106	37	2,050	APXA160ARA330MF60G
	39	F55	125	37	2,050	APXA160ARA390MF55G
	39	F60	125	37	2,050	APXA160ARA390MF60G
	82	H70	262	30	2,700	APXA160ARA820MH70G
	150	J80	480	26	3,430	APXA160ARA151MJ80G
	180	HC0	576	16	4,360	APXA160ARA181MHC0G
	180	J80	576	26	3,430	APXA160ARA181MJ80G
	220	JC0	704	14	5,050	APXA160ARA221MJC0G
	330	JC0	1,050	14	5,050	APXA160ARA331MJC0G
20	15	F46	150	57	1,300	APXA200ARA150MF46G
	22	F55	88.0	50	1,650	APXA200ARA220MF55G
	22	F60	88.0	50	1,650	APXA200ARA220MF60G
	39	H70	156	45	2,000	APXA200ARA390MH70G
	47	H70	188	45	2,000	APXA200ARA470MH70G
	82	J80	328	40	2,500	APXA200ARA820MJ80G
	150	JC0	600	20	4,320	APXA200ARA151MJC0G
23	15	F46	172	57	1,300	APXA230ARA150MF46G
25	10	F60	125	65	1,500	APXA250ARA100MF60G
	22	H70	275	50	1,800	APXA250ARA220MH70G
	39	J80	488	45	2,100	APXA250ARA390MJ80G

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXH Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Suitable for DC-DC converters, voltage regulators and decoupling applications.
- Endurance : 125℃ 1,000 hours
- Rated voltage range : 2.5 to 20Vdc, Capacitance range : 22 to 1,000μF
- Case size range : φ6.3×5.7L to φ10×7.7L
- **RoHS Compliant**
- Halogen Free

PXH
↑ Higher temperature
PXA

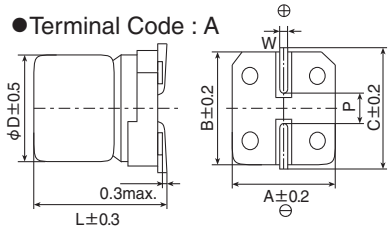
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +125℃
Rated Voltage Range	2.5 to 20Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 125℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 125℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦200% of the initial specified value
	ESR: ≦200% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 125℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 125℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 125℃.

◆DIMENSIONS [mm]

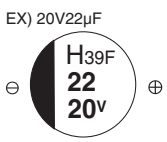
●Terminal Code : A



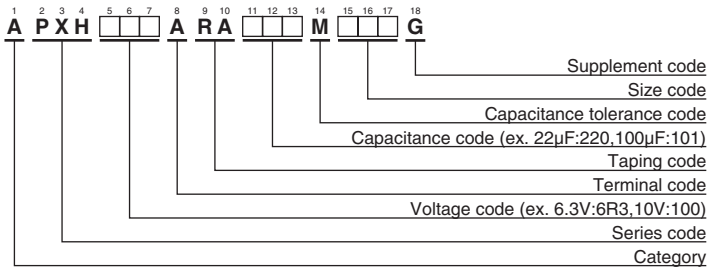
Size code	φD	L	A	B	C	W	P
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
J80	10	7.7	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 20V22μF



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

CAT. No. E1001L

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXH Series

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/100kHz)		Part No.
					-55℃ to +105℃	+105℃ to +125℃	
2.5	220	F60	110	35	2,500	770	APXH2R5ARA221MF60G
	560	H70	280	30	3,100	960	APXH2R5ARA561MH70G
	1,000	J80	500	25	3,700	1,100	APXH2R5ARA102MJ80G
4	150	F60	120	35	2,450	770	APXH4R0ARA151MF60G
	220	H70	176	30	3,020	960	APXH4R0ARA221MH70G
	680	J80	544	25	3,700	1,100	APXH4R0ARA681MJ80G
6.3	82	F60	103	40	2,400	720	APXH6R3ARA820MF60G
	100	F60	126	40	2,400	720	APXH6R3ARA101MF60G
	150	H70	189	30	3,020	960	APXH6R3ARA151MH70G
	220	H70	277	30	3,020	960	APXH6R3ARA221MH70G
	470	J80	592	25	3,700	1,100	APXH6R3ARA471MJ80G
10	56	F60	112	45	2,250	680	APXH100ARA560MF60G
	120	H70	240	35	2,800	880	APXH100ARA121MH70G
	150	H70	300	35	2,800	880	APXH100ARA151MH70G
	330	J80	660	30	3,700	1,010	APXH100ARA331MJ80G
16	39	F60	125	50	2,050	650	APXH160ARA390MF60G
	82	H70	262	40	2,700	830	APXH160ARA820MH70G
	150	J80	480	35	3,020	930	APXH160ARA151MJ80G
	180	J80	576	35	3,020	930	APXH160ARA181MJ80G
20	22	F60	88.0	60	1,650	590	APXH200ARA220MF60G
	47	H70	188	45	2,000	780	APXH200ARA470MH70G
	82	J80	328	45	2,400	820	APXH200ARA820MJ80G

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

New!

NPCAP™-PSG Series

●Super low ESR, high ripple current capability
●Endurance: 2,000 to 5,000 hours at 105℃
●Rated voltage : 16 to 25Vdc
●**RoHS Compliant**
●**Halogen Free**

PSG
↑ Downsized
PSF

◆SPECIFICATIONS

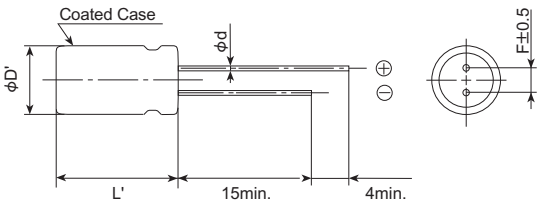
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage	16 to 25Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV or 500μA, whichever is greater Where, I : Leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours (20, 25V : 2,000 hours) at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

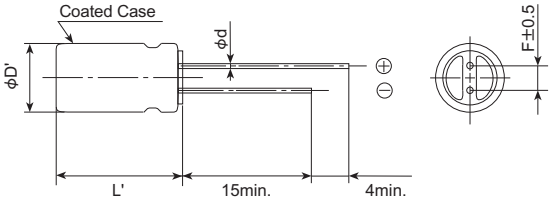
◆DIMENSIONS [mm]

●Terminal Code : E

F05,F08,H06,H08



HB5,JB5



Size code	F05	F08	H06	H08	HB5	JB5
φD	6.3		8.0			10.0
φd	0.45		0.6			
F	2.5		3.5			5.0
φD'	φD+0.5max.					
L'	L+1.0max.				L+1.5max.	

◆MARKING

EX) 16V150μF

NIPPON CHEMI-CON

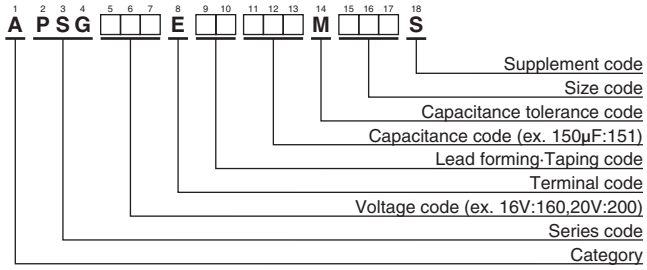
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

New!

NPCAP™-PSG Series

◆PART NUMBERING SYSTEM



Please refer to “Product code guide (conductive polymer type)”

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L (mm)	ESR (mΩ max./20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
16	150	6.3×5	20	3,200	APSG160E□□151MF05S
	270	6.3×8	15	3,800	APSG160E□□271MF08S
	270	8×6	22	3,300	APSG160E□□271MH06S
	470	8×8	16	4,000	APSG160E□□471MH08S
	560	8×11.5	14	4,970	APSG160E□□561MHB5S
	820	10×11.5	12	5,400	APSG160E□□821MJB5S
	1,000	10×11.5	12	5,400	APSG160E□□102MJB5S
20	120	6.3×5	20	3,200	APSG200E□□121MF05S
	330	8×8	17	3,880	APSG200E□□331MH08S
	390	8×11.5	14	4,970	APSG200E□□391MHB5S
	680	10×11.5	12	5,400	APSG200E□□681MJB5S
25	56	6.3×5	30	2,600	APSG250E□□560MF05S
	180	8×8	18	3,770	APSG250E□□181MH08S
	180	8×11.5	16	4,650	APSG250E□□181MHB5S
	220	8×11.5	16	4,650	APSG250E□□221MHB5S
	330	10×11.5	14	5,000	APSG250E□□331MJB5S
	390	10×11.5	14	5,000	APSG250E□□391MJB5S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

New!

NPCAP™-PSK Series

- Super low ESR, high ripple current capability
- Downsized from PSE series (φ6.3×8L to φ5×8L)
- Longer life (5,000 hours at 105℃)
- ESR after endurance is specified within the initial spec
- **RoHS Compliant**
- **Halogen Free**

PSK
↑ Downsized
PSE

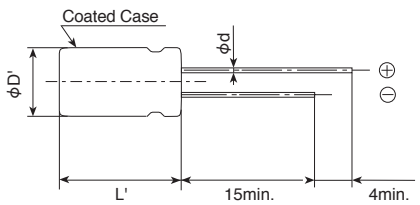
◆SPECIFICATIONS

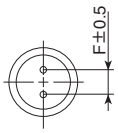
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current*Note	500μA max. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.10 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦The initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦The initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦The initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : E

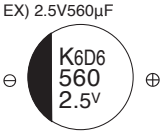




Size code	E08
φD	5.0
φd	0.45
F	2.0
φD'	φD+0.5max.
L'	L+1.0max.

◆MARKING

EX) 2.5V560μF



NIPPON CHEMI-CON

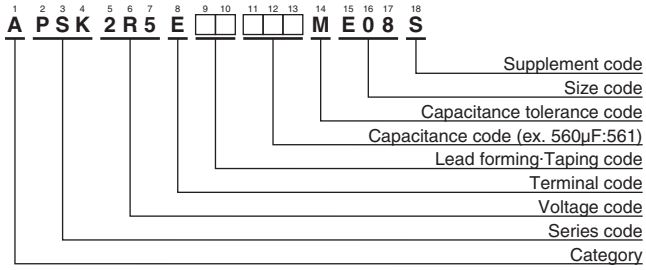
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

New!

NPCAP™-PSK Series

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L (mm)	ESR (mΩ max./20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	220	5×8	7	4,350	APSK2R5E□□221ME08S
	330	5×8	7	4,350	APSK2R5E□□331ME08S
	470	5×8	7	4,350	APSK2R5E□□471ME08S
	560	5×8	7	4,350	APSK2R5E□□561ME08S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSF Series

- Super low ESR, high ripple current capability
- ESR 5mΩ max. (2 & 2.5Vdc)
- Longer life (5,000 hours at 105℃)
- ESR after endurance is specified within the initial spec (2 & 2.5Vdc)
- Rated voltage range : 2 to 16Vdc
- **RoHS Compliant**
- **Halogen Free**

PSF ↑ Lower ESR — PSE

◆SPECIFICATIONS

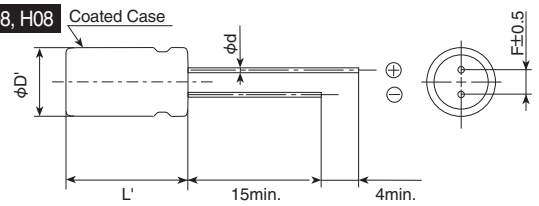
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV or 500μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.10 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: 2 & 2.5Vdc : ≦The initial specified value
	ESR: 16Vdc : ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: 2 & 2.5Vdc : ≦The initial specified value
	ESR: 16Vdc : ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ)and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: 2 & 2.5Vdc : ≦The initial specified value
	ESR: 16Vdc : ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

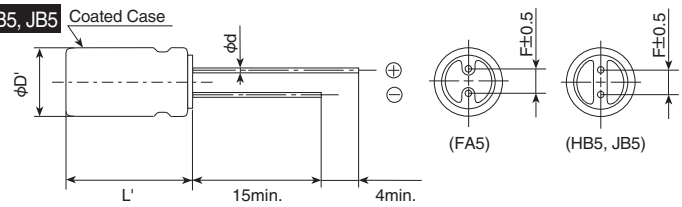
◆DIMENSIONS [mm]

●Terminal Code : E

F05, F08, H08 Coated Case



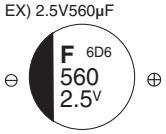
FA5, HB5, JB5 Coated Case



Size code	F05	F08	FA5	H08	HB5	JB5
φD	6.3			8.0		10.0
φd	0.45	0.6	0.5	0.6		
F	2.5			3.5		5.0
φD'	φD+0.5max.					
L'	L+1.0max.		L+0.3max.	L+1.0max.	L+1.5max.	

◆MARKING

EX) 2.5V560μF



CAT. No. E1001L

NIPPON CHEMI-CON

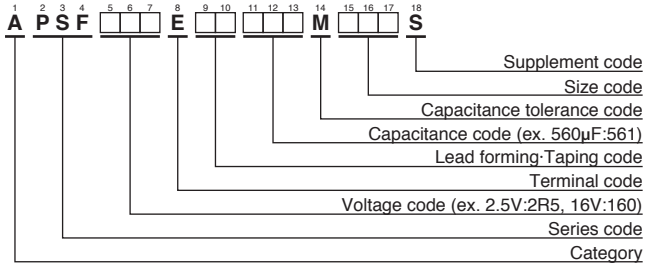
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSF Series

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩ max./20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2	1,000	6.3×8	5	5,900	APSF2R0E□□102MF08S
2.5	330	6.3×8	5	5,900	APSF2R5E□□331MF08S
	470	6.3×8	5	5,900	APSF2R5E□□471MF08S
	560	6.3×8	5	5,900	APSF2R5E□□561MF08S
	820	6.3×8	5	5,900	APSF2R5E□□821MF08S
	1,600	8×8	5	6,100	APSF2R5E□□162MH08S
16	100	6.3×5	24	2,490	APSF160E□□101MF05S
	100	6.3×10.5	25	2,820	APSF160E□□101MFA5S
	270	8×8	10	5,000	APSF160E□□271MH08S
	270	8×11.5	11	5,080	APSF160E□□271MHB5S
	330	8×8	13	4,700	APSF160E□□331MH08S
	470	8×11.5	11	5,400	APSF160E□□471MHB5S
	470	10×11.5	10	6,100	APSF160E□□471MJB5S

□□ : Enter the appropriate lead forming or taping code.

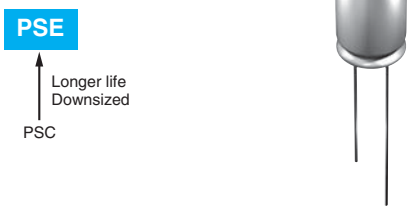
NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSE Series

- ●Super low ESR, high ripple current capability
- ●Downsized from PSC series (φ8×8L to φ6.3×8L)
- ●Endurance is longer life than PSC series (5,000 hours at 105℃)
- ●ESR after endurance is specified within the initial spec
- ●Rated voltage range : 2.5 to 6.3Vdc
- ●**RoHS Compliant**
- ●**Halogen Free**



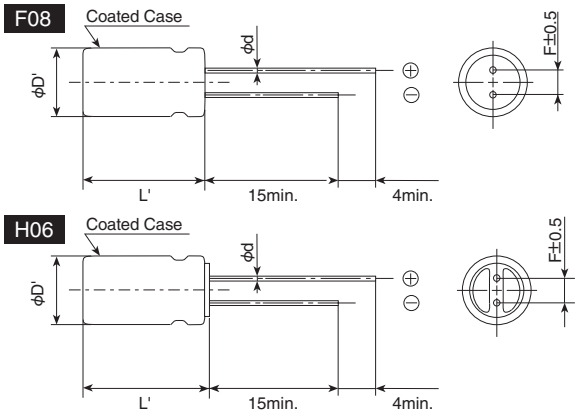
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 6.3Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV or 500μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.10 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦The initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦The initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦The initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : E



Size code	F08	H06
φD	6.3	8.0
φd	0.6	
F	2.5	3.5
φD'	φD+0.5max.	
L'	L+1.5max.	

◆MARKING

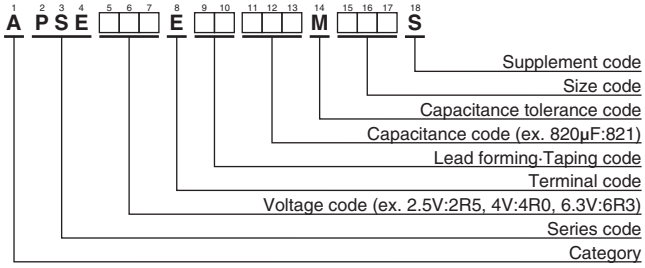
EX) 2.5V820μF

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSE Series

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩ max./20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	680	8×6	8	4,900	APSE2R5E□□681MH06S
	820	6.3×8	7	5,000	APSE2R5E□□821MF08S
4	560	6.3×8	7	5,000	APSE4R0E□□561MF08S
6.3	470	6.3×8	8	4,700	APSE6R3E□□471MF08S
	560	6.3×8	8	4,700	APSE6R3E□□561MF08S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSC Series

- Super low ESR, high ripple current capability
- Lower profile than PSA (φ8×8L to φ10×12.5L)
- Rated voltage range : 2.5 to 16Vdc
- Nominal capacitance range : 270 to 2,700μF
- Endurance : 2,000 hours at 105℃
- Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards
- Added 2.5V 820μF (ESR 5mΩ max.)
- **RoHS Compliant**

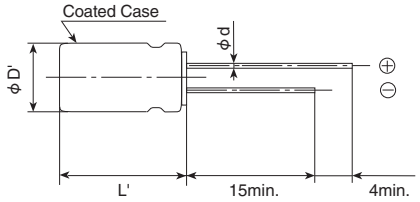
◆SPECIFICATIONS

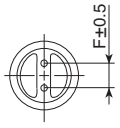
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV or 500μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.10 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.
	Appearance : No significant damage
	Capacitance change : ≦±20% of the initial value
	D.F. (tanδ) : ≦150% of the initial specified value
	ESR : ≦150% of the initial specified value
	Leakage current : ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance : No significant damage
	Capacitance change : ≦±20% of the initial value
	D.F. (tanδ) : ≦150% of the initial specified value
	ESR : ≦150% of the initial specified value
	Leakage current : ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance : No significant damage
	Capacitance change : ≦±20% of the initial value
	D.F. (tanδ) : ≦150% of the initial specified value
	ESR : ≦150% of the initial specified value
	Leakage current : ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : E



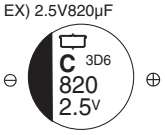


Size code	H08	HB5	JB5	JC5
φD	8.0	8.0	10.0	10.0
φd	0.6	0.8(Note1)	0.8(Note1)	0.6
F	3.5	3.5	5.0	5.0
φD'	φD+0.5max.			
L'	L+1.0max.	L+1.5max.		

Note1 : 0.6 for rated volt 16V.

◆MARKING

EX) 2.5V820μF



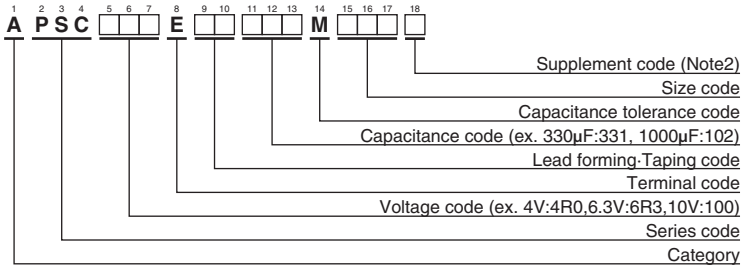
NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSC Series

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

(Note2) PSC series, 2.5V820μF(ESR 5mΩ max.) has supplement code "J".
Can case, terminal and terminal plating are the same as all others in PSC series.

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩ max/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	560	8×8	7	6,100	APSC2R5E□□561MH08S
	820	8×8	5	6,100	APSC2R5E□□821MH08J
	820	8×8	7	6,100	APSC2R5E□□821MH08S
	1,000	8×8	7	6,100	APSC2R5E□□102MH08S
	1,000	8×11.5	7	6,100	APSC2R5E□□102MHB5S
	1,500	8×11.5	7	6,100	APSC2R5E□□152MHB5S
	2,700	10×11.5	8	5,560	APSC2R5E□□272MJB5S
4	560	8×8	7	6,100	APSC4R0E□□561MH08S
	680	8×11.5	7	6,100	APSC4R0E□□681MHB5S
	1,000	10×11.5	6	6,640	APSC4R0E□□102MJB5S
6.3	470	8×8	8	5,700	APSC6R3E□□471MH08S
	560	8×8	8	5,700	APSC6R3E□□561MH08S
	820	10×11.5	7	6,640	APSC6R3E□□821MJB5S
	1,500	10×11.5	10	5,560	APSC6R3E□□152MJB5S
10	390	8×11.5	9	5,650	APSC100E□□391MHB5S
	680	10×11.5	7	6,100	APSC100E□□681MJB5S
16	270	8×11.5	11	5,080	APSC160E□□271MHB5S
	330	10×12.5	10	6,100	APSC160E□□331MJC5S
	470	10×11.5	10	6,100	APSC160E□□471MJB5S

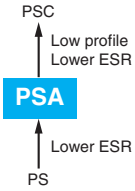
□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSA Series



- Super low ESR, high temperature resistance and high ripple current capability
- Rated voltage range : 2.5 to 16Vdc
- Endurance : 2,000 hours at 105℃
- Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards
- **RoHS Compliant**

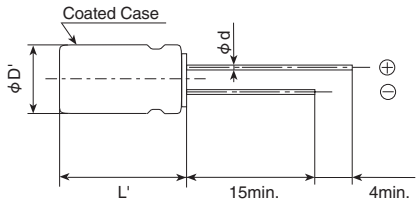
◆SPECIFICATIONS

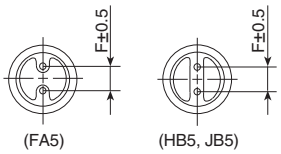
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.08 max. (FA5 size : 0.12max.) (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor (R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : E

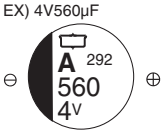




Size code	FA5	HB5	JB5
φD	6.3	8.0	10.0
φd	0.5	0.8	
F	2.5	3.5	5.0
φD'	φD+0.5max		
L'	L+0.3max	L+1.5max	

◆MARKING

EX) 4V560μF



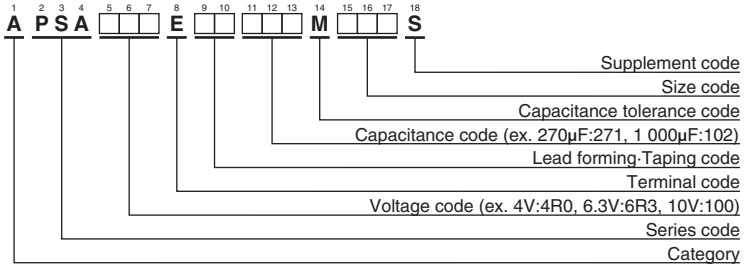
NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSA Series

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩ max/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	390	6.3×10.5	20	3,160	APSA2R5E□□391MFA5S
	680	8×11.5	7	5,580	APSA2R5E□□681MHB5S
	820	8×11.5	7	5,580	APSA2R5E□□821MHB5S
	1,000	10×11.5	6	5,860	APSA2R5E□□102MJB5S
	1,500	10×11.5	7	5,860	APSA2R5E□□152MJB5S
4	270	6.3×10.5	20	3,160	APSA4R0E□□271MFA5S
	390	6.3×10.5	24	3,300	APSA4R0E□□391MFA5S
	560	8×11.5	7	5,580	APSA4R0E□□561MHB5S
	820	10×11.5	6	5,860	APSA4R0E□□821MJB5S
6.3	220	6.3×10.5	20	3,160	APSA6R3E□□221MFA5S
	330	6.3×10.5	28	3,190	APSA6R3E□□331MFA5S
	390	8×11.5	8	5,080	APSA6R3E□□391MHB5S
	470	8×11.5	7	5,700	APSA6R3E□□471MHB5S
	680	10×11.5	7	5,860	APSA6R3E□□681MJB5S
10	47	6.3×10.5	25	2,820	APSA100E□□470MFA5S
	68	6.3×10.5	25	2,820	APSA100E□□680MFA5S
	100	6.3×10.5	25	2,820	APSA100E□□101MFA5S
	150	6.3×10.5	25	2,820	APSA100E□□151MFA5S
	270	8×11.5	9	4,710	APSA100E□□271MHB5S
	470	10×11.5	8	5,650	APSA100E□□471MJB5S
16	100	6.3×10.5	25	2,820	APSA160E□□101MFA5S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

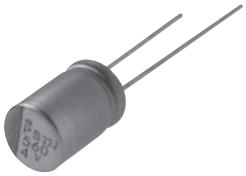
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PS Series

- ●Super low ESR, high temperature resistance
- ●Large capacitance & Improved high ripple current capability
- ●Rated voltage range : 2.5 to 35Vdc
- ●Endurance : 2,000 hours at 105℃
- ●Suitable for DC-DC converters, voltage regulators and decoupling applications
  For computer motherboards
- ●**RoHS Compliant**

PSA
↑
Lower ESR
PS



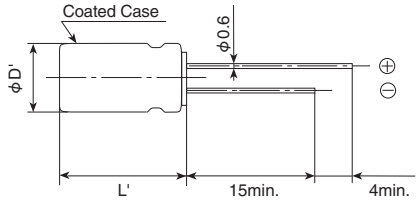
◆SPECIFICATIONS

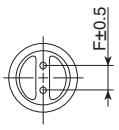
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 35Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV (Rated voltage 2.5 to 25Vdc) / I=0.5CV (Rated voltage 35Vdc) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : E

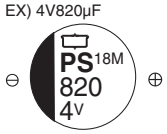




Size code	HB5	JC5
φD	8	10
φd	0.6	
F	3.5	5.0
φD'	φD+0.5max	
L'	L+1.5max.	

◆MARKING

EX) 4V820μF



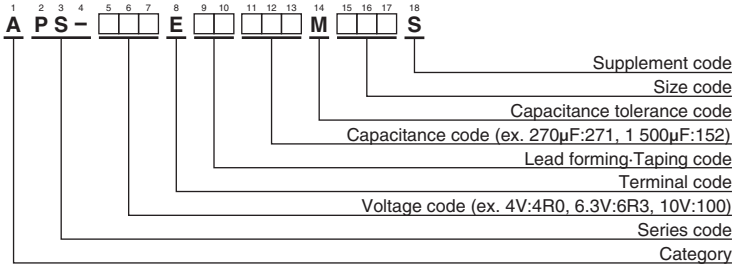
NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PS Series

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	680	8×11.5	10	5,230	APS-2R5E□□681MHB5S
	820	8×11.5	10	5,230	APS-2R5E□□821MHB5S
	1,500	10×12.5	8	5,500	APS-2R5E□□152MJC5S
4	560	8×11.5	10	5,230	APS-4R0E□□561MHB5S
	820	10×12.5	8	5,500	APS-4R0E□□821MJC5S
	1,000	10×12.5	8	5,500	APS-4R0E□□102MJC5S
	1,200	10×12.5	8	5,500	APS-4R0E□□122MJC5S
6.3	390	8×11.5	12	4,770	APS-6R3E□□391MHB5S
	470	8×11.5	12	4,770	APS-6R3E□□471MHB5S
	680	10×12.5	10	5,500	APS-6R3E□□681MJC5S
	820	10×12.5	10	5,500	APS-6R3E□□821MJC5S
	1,000	10×12.5	10	5,500	APS-6R3E□□102MJC5S
10	270	8×11.5	14	4,420	APS-100E□□271MHB5S
	330	8×11.5	14	4,420	APS-100E□□331MHB5S
	470	10×12.5	12	5,300	APS-100E□□471MJC5S
	560	10×12.5	12	5,300	APS-100E□□561MJC5S
16	100	8×11.5	16	4,360	APS-160E□□101MHB5S
	180	8×11.5	16	4,360	APS-160E□□181MHB5S
	270	10×12.5	14	5,050	APS-160E□□271MJC5S
	330	10×12.5	14	5,050	APS-160E□□331MJC5S
20	100	8×11.5	24	3,320	APS-200E□□101MHB5S
	150	10×12.5	20	4,320	APS-200E□□151MJC5S
25	68	8×11.5	24	3,320	APS-250E□□680MHB5S
	100	10×12.5	20	4,320	APS-250E□□101MJC5S
35	18	8×11.5	34	2,830	APS-350E□□180MHB5S
	33	10×12.5	30	3,270	APS-350E□□330MJC5S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

PART NUMBERING SYSTEM

Appendix (Part number)

◆Capacitance code

* How to use the table

	1st
2nd	Cap. Value

For less than 10μF, a decimal point position is displayed with R.
For 10μF or more, capacitance code is set to the first 2 digits and index (1digit).
Treatment of fraction (Refer to the table)

Capacitance value part

2nd	1st								
	1	2	3	4	5	6	7	8	9
0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0
A	10.5	20.5	30.5	40.5	50.5	60.5	70.5	80.5	90.5
1	11.0	21.0	31.0	41.0	51.0	61.0	71.0	81.0	91.0
B	11.5	21.5	31.5	41.5	51.5	61.5	71.5	81.5	91.5
2	12.0	22.0	32.0	42.0	52.0	62.0	72.0	82.0	92.0
C	12.5	22.5	32.5	42.5	52.5	62.5	72.5	82.5	92.5
3	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0	93.0
D	13.5	23.5	33.5	43.5	53.5	63.5	73.5	83.5	93.5
4	14.0	24.0	34.0	44.0	54.0	64.0	74.0	84.0	94.0
E	14.5	24.5	34.5	44.5	54.5	64.5	74.5	84.5	94.5
5	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	95.0
F	15.5	25.5	35.5	45.5	55.5	65.5	75.5	85.5	95.5
6	16.0	26.0	36.0	46.0	56.0	66.0	76.0	86.0	96.0
G	16.5	26.5	36.5	46.5	56.5	66.5	76.5	86.5	96.5
7	17.0	27.0	37.0	47.0	57.0	67.0	77.0	87.0	97.0
H	17.5	27.5	37.5	47.5	57.5	67.5	77.5	87.5	97.5
8	18.0	28.0	38.0	48.0	58.0	68.0	78.0	88.0	98.0
J	18.5	28.5	38.5	48.5	58.5	68.5	78.5	88.5	98.5
9	19.0	29.0	39.0	49.0	59.0	69.0	79.0	89.0	99.0
K	19.5	29.5	39.5	49.5	59.5	69.5	79.5	89.5	99.5

Example of conversion

Real cap.	The first 2 digits	Treatment of fraction	Code 11th	Code 12th	Code 13th
10.0μF →	10.0 →	10.0 →	1	0	0
10.1μF →	10.1 →	10.0 →	1	0	0
10.2μF →	10.2 →	10.0 →	1	0	0
10.3μF →	10.3 →	10.5 →	1	A	0
10.4μF →	10.4 →	10.5 →	1	A	0
10.5μF →	10.5 →	10.5 →	1	A	0
10.6μF →	10.6 →	10.5 →	1	A	0
10.7μF →	10.7 →	10.5 →	1	A	0
10.8μF →	10.8 →	11.0 →	1	1	0
10.9μF →	10.9 →	11.0 →	1	1	0
11.0μF →	11.0 →	11.0 →	1	1	0
132μF →	13.2 →	13.0 →	1	3	1
133μF →	13.3 →	13.5 →	1	D	1
167μF →	16.7 →	16.5 →	1	G	1
168μF →	16.8 →	17.0 →	1	7	1
1110μF →	11.1 →	11.0 →	1	1	2
1340μF →	13.4 →	13.5 →	1	D	2
13200μF →	13.2 →	13.0 →	1	3	3
13600μF →	13.6 →	13.5 →	1	D	3
270000μF →	27.0 →	27.0 →	2	7	4

◆Case length (Radial lead type)

Case length [mm]	16th	17th
0.0	—	—
0.1	0	B
0.2	0	C
0.3	0	D
0.4	0	E
0.5	0	F
0.6	0	G
0.7	0	H
0.8	0	J
0.9	0	K

Case length [mm]	16th	17th
1.0	0	1
1.1	1	B
1.2	1	C
1.3	1	D
1.4	1	E
1.5	1	F
1.6	1	G
1.7	1	H
1.8	1	J
1.9	1	K

Case length [mm]	16th	17th
2.0	0	2
2.1	2	B
2.2	2	C
2.3	2	D
2.4	2	E
2.5	2	F
2.6	2	G
2.7	2	H
2.8	2	J
2.9	2	K

Case length [mm]	16th	17th
3.0	0	3
3.1	3	B
3.2	3	C
3.3	3	D
3.4	3	E
3.5	3	F
3.6	3	G
3.7	3	H
3.8	3	J
3.9	3	K

Case length [mm]	16th	17th
4.0	0	4
4.1	4	B
4.2	4	C
4.3	4	D
4.4	4	E
4.5	4	F
4.6	4	G
4.7	4	H
4.8	4	J
4.9	4	K

Case length [mm]	16th	17th
5.0	0	5
5.1	5	B
5.2	5	C
5.3	5	D
5.4	5	E
5.5	5	F
5.6	5	G
5.7	5	H
5.8	5	J
5.9	5	K

Case length [mm]	16th	17th
6.0	0	6
6.1	6	B
6.2	6	C
6.3	6	D
6.4	6	E
6.5	6	F
6.6	6	G
6.7	6	H
6.8	6	J
6.9	6	K

Case length [mm]	16th	17th
7.0	0	7
7.1	7	B
7.2	7	C
7.3	7	D
7.4	7	E
7.5	7	F
7.6	7	G
7.7	7	H
7.8	7	J
7.9	7	K

Case length [mm]	16th	17th
8.0	0	8
8.1	8	B
8.2	8	C
8.3	8	D
8.4	8	E
8.5	8	F
8.6	8	G
8.7	8	H
8.8	8	J
8.9	8	K

Case length [mm]	16th	17th
9.0	0	9
9.1	9	B
9.2	9	C
9.3	9	D
9.4	9	E
9.5	9	F
9.6	9	G
9.7	9	H
9.8	9	J
9.9	9	K

Case length [mm]	16th	17th
10.0	1	0
10.1	A	1
10.2	A	2
10.3	A	3
10.4	A	4
10.5	A	5
10.6	A	6
10.7	A	7
10.8	A	8
10.9	A	9

Case length [mm]	16th	17th
11.0	1	1
11.1	B	1
11.2	B	2
11.3	B	3
11.4	B	4
11.5	B	5
11.6	B	6
11.7	B	7
11.8	B	8
11.9	B	9

Case length [mm]	16th	17th
12.0	1	2
12.1	C	1
12.2	C	2
12.3	C	3
12.4	C	4
12.5	C	5
12.6	C	6
12.7	C	7
12.8	C	8
12.9	C	9

Case length [mm]	16th	17th
13.0	1	3
13.1	D	1
13.2	D	2
13.3	D	3
13.4	D	4
13.5	D	5
13.6	D	6
13.7	D	7
13.8	D	8
13.9	D	9

Case length [mm]	16th	17th
14.0	1	4
14.1	E	1
14.2	E	2
14.3	E	3
14.4	E	4
14.5	E	5
14.6	E	6
14.7	E	7
14.8	E	8
14.9	E	9

PART NUMBERING SYSTEM

Case length [mm]	16th	17th
15.0	1	5
15.1	F	1
15.2	F	2
15.3	F	3
15.4	F	4
15.5	F	5
15.6	F	6
15.7	F	7
15.8	F	8
15.9	F	9

Case length [mm]	16th	17th
16.0	1	6
16.1	G	1
16.2	G	2
16.3	G	3
16.4	G	4
16.5	G	5
16.6	G	6
16.7	G	7
16.8	G	8
16.9	G	9

Case length [mm]	16th	17th
17.0	1	7
17.1	H	1
17.2	H	2
17.3	H	3
17.4	H	4
17.5	H	5
17.6	H	6
17.7	H	7
17.8	H	8
17.9	H	9

Case length [mm]	16th	17th
18.0	1	8
18.1	J	1
18.2	J	2
18.3	J	3
18.4	J	4
18.5	J	5
18.6	J	6
18.7	J	7
18.8	J	8
18.9	J	9

Case length [mm]	16th	17th
19.0	1	9
19.1	K	1
19.2	K	2
19.3	K	3
19.4	K	4
19.5	K	5
19.6	K	6
19.7	K	7
19.8	K	8
19.9	K	9

Case length [mm]	16th	17th
20.0	2	0
20.5	L	1
21.0	2	1
21.5	L	3
22.0	2	2
22.5	L	5
23.0	2	3
23.5	L	7
24.0	2	4
24.5	L	9
25.0	2	5
25.5	M	1
26.0	2	6
26.5	M	3
27.0	2	7
27.5	M	5
28.0	2	8
28.5	M	7
29.0	2	9
29.5	M	9

Case length [mm]	16th	17th
30.0	3	0
30.5	N	1
31.0	3	1
31.5	N	3
32.0	3	2
32.5	N	5
33.0	3	3
33.5	N	7
34.0	3	4
34.5	N	9
35.0	3	5
35.5	P	1
36.0	3	6
36.5	P	3
37.0	3	7
37.5	P	5
38.0	3	8
38.5	P	7
39.0	3	9
39.5	P	9

Case length [mm]	16th	17th
40.0	4	0
40.5	Q	1
41.0	4	1
41.5	Q	3
42.0	4	2
42.5	Q	5
43.0	4	3
43.5	Q	7
44.0	4	4
44.5	Q	9
45.0	4	5
45.5	R	1
46.0	4	6
46.5	R	3
47.0	4	7
47.5	R	5
48.0	4	8
48.5	R	7
49.0	4	9
49.5	R	9

Case length [mm]	16th	17th
50.0	5	0
50.5	S	1
51.0	5	1
51.5	S	3
52.0	5	2
52.5	S	5
53.0	5	3
53.5	S	7
54.0	5	4
54.5	S	9
55.0	5	5
55.5	T	1
56.0	5	6
56.5	T	3
57.0	5	7
57.5	T	5
58.0	5	8
58.5	T	7
59.0	5	9
59.5	T	9

Case length [mm]	16th	17th
60.0	6	0
60.5	U	1
61.0	6	1
61.5	U	3
62.0	6	2
62.5	U	5
63.0	6	3
63.5	U	7
64.0	6	4
64.5	U	9
65.0	6	5
65.5	V	1
66.0	6	6
66.5	V	3
67.0	6	7
67.5	V	5
68.0	6	8
68.5	V	7
69.0	6	9
69.5	V	9

Case length [mm]	16th	17th
70.0	7	0
70.5	W	1
71.0	7	1
71.5	W	3
72.0	7	2
72.5	W	5
73.0	7	3
73.5	W	7
74.0	7	4
74.5	W	9
75.0	7	5
75.5	X	1
76.0	7	6
76.5	X	3
77.0	7	7
77.5	X	5
78.0	7	8
78.5	X	7
79.0	7	9
79.5	X	9

Case length [mm]	16th	17th
80.0	8	0
80.5	Y	1
81.0	8	1
81.5	Y	3
82.0	8	2
82.5	Y	5
83.0	8	3
83.5	Y	7
84.0	8	4
84.5	Y	9
85.0	8	5
85.5	Z	1
86.0	8	6
86.5	Z	3
87.0	8	7
87.5	Z	5
88.0	8	8
88.5	Z	7
89.0	8	9
89.5	Z	9

NIPPON CHEMI-CON

PART NUMBERING SYSTEM

◆Case length (Snap-in type / Screw mount terminal type)

Case length [mm]	16th	17th
20	2	0
21	2	1
22	2	2
23	2	3
24	2	4
25	2	5
26	2	6
27	2	7
28	2	8
29	2	9

Case length [mm]	16th	17th
30	3	0
31	3	1
32	3	2
33	3	3
34	3	4
35	3	5
36	3	6
37	3	7
38	3	8
39	3	9

Case length [mm]	16th	17th
40	4	0
41	4	1
42	4	2
43	4	3
44	4	4
45	4	5
46	4	6
47	4	7
48	4	8
49	4	9

Case length [mm]	16th	17th
50	5	0
51	5	1
52	5	2
53	5	3
54	5	4
55	5	5
56	5	6
57	5	7
58	5	8
59	5	9

Case length [mm]	16th	17th
60	6	0
61	6	1
62	6	2
63	6	3
64	6	4
65	6	5
66	6	6
67	6	7
68	6	8
69	6	9

Case length [mm]	16th	17th
70	7	0
71	7	1
72	7	2
73	7	3
74	7	4
75	7	5
76	7	6
77	7	7
78	7	8
79	7	9

Case length [mm]	16th	17th
80	8	0
81	8	1
82	8	2
83	8	3
84	8	4
85	8	5
86	8	6
87	8	7
88	8	8
89	8	9

Case length [mm]	16th	17th
90	9	0
91	9	1
92	9	2
93	9	3
94	9	4
95	9	5
96	9	6
97	9	7
98	9	8
99	9	9

Case length [mm]	16th	17th
100	A	0
101	A	1
102	A	2
103	A	3
104	A	4
105	A	5
106	A	6
107	A	7
108	A	8
109	A	9

Case length [mm]	16th	17th
110	B	0
111	B	1
112	B	2
113	B	3
114	B	4
115	B	5
116	B	6
117	B	7
118	B	8
119	B	9

Case length [mm]	16th	17th
120	C	0
121	C	1
122	C	2
123	C	3
124	C	4
125	C	5
126	C	6
127	C	7
128	C	8
129	C	9

Case length [mm]	16th	17th
130	D	0
131	D	1
132	D	2
133	D	3
134	D	4
135	D	5
136	D	6
137	D	7
138	D	8
139	D	9

Case length [mm]	16th	17th
140	E	0
141	E	1
142	E	2
143	E	3
144	E	4
145	E	5
146	E	6
147	E	7
148	E	8
149	E	9

Case length [mm]	16th	17th
150	F	0
151	F	1
152	F	2
153	F	3
154	F	4
155	F	5
156	F	6
157	F	7
158	F	8
159	F	9

Case length [mm]	16th	17th
160	G	0
161	G	1
162	G	2
163	G	3
164	G	4
165	G	5
166	G	6
167	G	7
168	G	8
169	G	9

Case length [mm]	16th	17th
170	H	0
171	H	1
172	H	2
173	H	3
174	H	4
175	H	5
176	H	6
177	H	7
178	H	8
179	H	9

Case length [mm]	16th	17th
180	J	0
181	J	1
182	J	2
183	J	3
184	J	4
185	J	5
186	J	6
187	J	7
188	J	8
189	J	9

Case length [mm]	16th	17th
190	K	0
191	K	1
192	K	2
193	K	3
194	K	4
195	K	5
196	K	6
197	K	7
198	K	8
199	K	9

Case length [mm]	16th	17th
200	L	0
201	L	1
202	L	2
203	L	3
204	L	4
205	L	5
206	L	6
207	L	7
208	L	8
209	L	9

Case length [mm]	16th	17th
210	M	0
211	M	1
212	M	2
213	M	3
214	M	4
215	M	5
216	M	6
217	M	7
218	M	8
219	M	9

Case length [mm]	16th	17th
220	N	0
221	N	1
222	N	2
223	N	3
224	N	4
225	N	5
226	N	6
227	N	7
228	N	8
229	N	9

Case length [mm]	16th	17th
230	P	0
231	P	1
232	P	2
233	P	3
234	P	4
235	P	5
236	P	6
237	P	7
238	P	8
239	P	9

Case length [mm]	16th	17th
240	Q	0
241	Q	1
242	Q	2
243	Q	3
244	Q	4
245	Q	5
246	Q	6
247	Q	7
248	Q	8
249	Q	9

Case length [mm]	16th	17th
250	R	0
251	R	1
252	R	2
253	R	3
254	R	4
255	R	5
256	R	6
257	R	7
258	R	8
259	R	9

PART NUMBERING SYSTEM

◆Supplement code

Conductive polymer Chip and Radial lead type / Electrolytec Chip type

	Terminal plating material	
	Sn	Sn-Bi
Coating case	S	G

Radial lead type / Snap-in type

		Terminal plating material	
		Sn	Sn-Bi
Outer sleeve	PET	S	D
	Coating case	H	G
	Polyolefin	L	—
	Pb-free PVC	M	—

* Pb-free snap-in type does not have a plastic disk.
We also produce Pb-free snap-in type with "Plastic disk, Pb-free PVC sleeve and Sn terminal plating".
In this case, supplement code (the 18th digit) is "T".

Screw mount terminal type

	Screw terminal
Pb-free PVC	M
Polyolefin	S
PET	C