

# NPCAP™-PNA Series

New!

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Suitable for applications requiring operation under harsh environmental conditions, such as communication base stations, wide operating temperature ranges, or high humidity.
- Endurance : 125°C 12,000 hours
- Rated voltage range : 2.5 to 16V<sub>dc</sub>, Capacitance range : 100 to 560μF
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- RoHS2 Compliant
- Halogen Free
- AEC-Q200 compliant : Please contact Chemi-Con for more details, test data, information.

PNA  
↑  
Longer life  
PXH



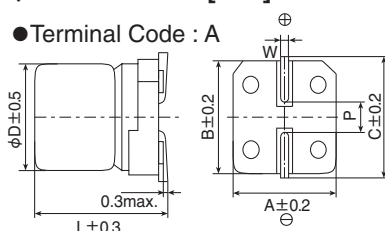
## SPECIFICATIONS

Items	Characteristics			
Category	-55 to +125°C			
Temperature Range				
Rated Voltage Range	2.5 to 16V <sub>dc</sub>			
Capacitance Tolerance	± 20% (M)			(at 20°C, 120Hz)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS.			(at 20°C after 2 minutes)
*Note				
Dissipation Factor (tan δ )	0.12 max.			(at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(-25°C)/Z(+20°C)≤1.15 Z(-55°C)/Z(+20°C)≤1.25			(at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 12,000 hours at 125°C.			
	Appearance	No significant damage		
	Capacitance change	≤ ±20% of the initial value		
	D.F. (tan δ )	≤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°C after subjecting them to the DC rated voltage at 85°C, 85% RH for 1,000 hours.			
	Appearance	No significant damage		
	Capacitance change	≤ ±30% of the initial value		
	D.F. (tan δ )	≤200% of the initial specified value		
	ESR	≤200% 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°C for 30 seconds through a protective resistor(R=1kΩ ) and discharge for 5 minutes 30 seconds.			
	Rated voltage (V <sub>dc</sub> )	2.5	6.3	16
	Surge voltage (V <sub>dc</sub> )	2.9	7.2	18
	Appearance	No significant damage		
	Capacitance change	≤ ±20% of the initial value		
	D.F. (tan δ )	≤150% of the initial specified value		
	ESR	≤150% of the initial specified value		
	Leakage current	≤The initial specified value		
Soldering Heat	The following specifications shall be satisfied when the solder temperature is reduced back to 20°C after soldering has been performed under the recommended soldering conditions.			
	Appearance	No significant damage		
	Capacitance value	Within the specified tolerance range		
	D.F. (tan δ )	≤The initial specified value		
	ESR	≤The initial specified value		
	Leakage current	≤The initial specified value (Voltage treatment)		

\*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°C.

## DIMENSIONS [mm]

### Terminal Code : A



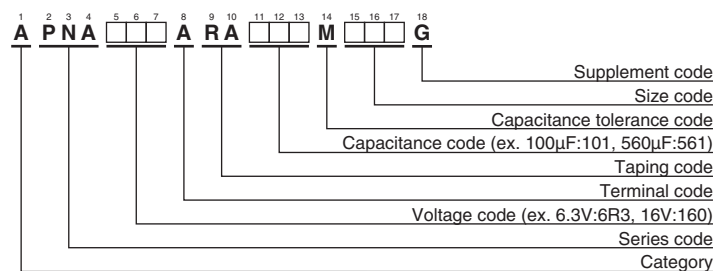
Size code	φD	L	A	B	C	W	P
F70	6.3	6.7	6.6	6.6	7.2	0.5 to 0.8	1.9

## MARKING

EX) 2.5V560μF



# ◆PART NUMBERING SYSTEM



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

# ◆STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Size code	Leakage current (μA max./after 2min.)	ESR (mΩ max./20°C, 100k to 300kHz)	Rated ripple current (mArms/100kHz)		Part No.
					-55°C ≤ T <sub>x</sub> ≤ +105°C <sup>*1</sup>	+105°C < T <sub>x</sub> ≤ +125°C <sup>*1</sup>	
2.5	560	F70	700	15	3,630	1,300	APNA2R5ARA561MF70G
6.3	330	F70	700	15	3,630	1,300	APNA6R3ARA331MF70G
16	100	F70	320	25	2,000	1,000	APNA160ARA101MF70G

\*1 T<sub>x</sub> : Ambient temperature (°C)

# ◆RATED RIPPLE CURRENT MULTIPLIERS

## ● Frequency Multipliers

Frequency(Hz)	120	1k	10k	50k	100k to 500k
SMD type	0.05	0.30	0.55	0.70	1.00



- Always read "Notes on Use" before using the product in order to enable you to use the product correctly and prevent any faults and accidents from occurring.
- Request the Product Specification on the product of NIPPON CHEMI-CON CORPORATION to refer to it as well as this brochure prior to the order of the products. Some specific notes on use of the ordered product may be described in the specifications.
- The products listed in this catalog are designed and manufactured for general electronics equipment use and are not intended for use in applications that can adversely affect human life; where the malfunction of equipment may cause damage to life or property. In addition, our products are not intended to be used in specific applications that may cause a major social impact. Please consult with us in advance of usage of our products in the following listed applications. ① Aerospace equipment ② Power generation equipment such as thermal power, nuclear power etc. ③ Medical equipment ④ Transport equipment (automobiles, trains, ships, etc.) ⑤ Transportation control equipment ⑥ Disaster prevention / crime prevention equipment ⑦ Highly publicized information processing equipment ⑧ Submarine equipment ⑨ Other applications that are not considered general-purpose applications.
- The circuits described as examples in this catalog and the "delivery specifications" are featured in order to show the operations and usage of our products, however, this fact does not guarantee that the circuits are available to function in your equipment systems. We are not in any case responsible for any failures or damage caused by the use of information contained herein. You should examine our products, of which the characteristics are described in the "delivery specifications" and other documents, and determine whether or not our products suit your requirements according to the specifications of your equipment systems. Therefore, you bear final responsibility regarding the use of our products.  
Please make sure that you take appropriate safety measures such as use of redundant design and malfunction prevention measures in order to prevent fatal accidents and/or fires in the event any of our products malfunction.
- We strongly recommend our customers to purchase Nippon Chemi-Con products only through our official sales channels. We assume no responsibility for any defects or damages caused by using products purchased from outside our official sales channel or of counterfeit goods. In addition, we will ask the customer to pay the investigation cost for products purchased outside our official sales channel.
- We reserve the right to discontinue production and delivery of products. We do not guarantee that all the products included in this catalog will be available in the future.  
The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products
- We continually strive to improve the quality and reliability of our products, but in any case that our product does not meet our published specifications, please stop using it promptly and contact us immediately. As for compensation for non-conforming goods delivered by Chemi-Con, we will limit it only to goods found in non-compliance of our published specifications. This may be accomplished by a no cost replacement of non-conforming individual products, a credit of the piece price paid per each individual non-conforming product, or in other ways deemed necessary.  
In addition, we have an established system with enhanced traceability, therefore we will limit the applicable lot items for any potential compensation.

[Part Numbering System](#)

[Part Numbering System \(Appendix\)](#)

[Standardization](#)

[Available Items by Manufacturing Locations](#)

[Environmental Measures](#)

[Technical Note](#)

[Precautions and Guidelines](#)

[Recommended Soldering Conditions](#)

[Taping, Lead-preforming, Terminal and Packaging Options](#)