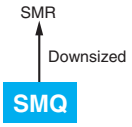
SMQ Series

- Endurance with ripple current : 2,000 hours at 85℃
- Non solvent resistant type
- RoHS2 Compliant

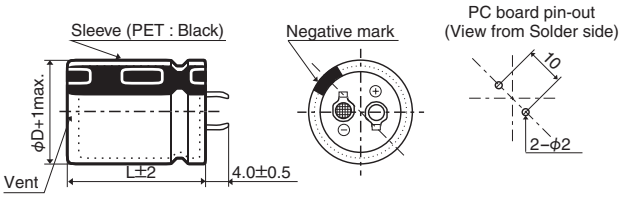


◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	-25 to +85℃				
Rated Voltage Range	160 to 450Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃ after 5 minutes)
Dissipation Factor (tan δ)	Rated voltage (Vdc)	160 to 250V	315 to 400V	420 & 450V	
	tan δ (Max.)	0.15	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	315 to 400V	420 & 450V	
	Z(-25℃)/Z(+20℃)	4	8	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃.				
	Capacitance change	≦±20% of the initial value			
	D. F. (tan δ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±15% of the initial value			
	D. F. (tan δ)	≦150% of the initial specified value			
	Leakage current	≦The initial specified value			

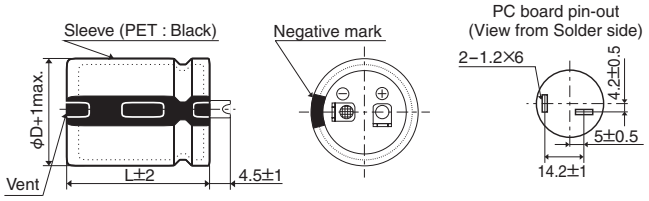
◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

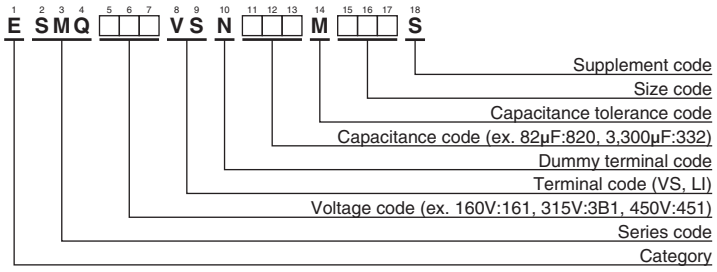


The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

SMQ Series

◆STANDARD RATINGS

WV (V_{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 85℃, 120Hz)	Part No.
160	560	22 × 25	0.15	2.25	ESMQ161VSN561MP25S
	680	22 × 30	0.15	2.50	ESMQ161VSN681MP30S
	820	22 × 35	0.15	2.75	ESMQ161VSN821MP35S
	1,000	22 × 40	0.15	3.00	ESMQ161VSN102MP40S
	1,000	25.4 × 30	0.15	3.00	ESMQ161VSN102MQ30S
	1,200	22 × 45	0.15	3.25	ESMQ161VSN122MP45S
	1,200	25.4 × 35	0.15	3.25	ESMQ161VSN122MQ35S
	1,200	30 × 25	0.15	3.25	ESMQ161VSN122MR25S
	1,500	22 × 50	0.15	3.73	ESMQ161VSN152MP50S
	1,500	25.4 × 40	0.15	3.73	ESMQ161VSN152MQ40S
	1,500	30 × 30	0.15	3.73	ESMQ161VSN152MR30S
	1,500	35 × 25	0.15	3.73	ESMQ161VSN152MA25S
	1,800	25.4 × 45	0.15	4.20	ESMQ161VSN182MQ45S
	1,800	30 × 35	0.15	4.20	ESMQ161VSN182MR35S
	1,800	35 × 30	0.15	4.20	ESMQ161VSN182MA30S
	2,200	30 × 40	0.15	4.78	ESMQ161VSN222MR40S
	2,200	35 × 35	0.15	4.78	ESMQ161VSN222MA35S
	2,700	35 × 40	0.15	5.45	ESMQ161VSN272MA40S
	3,300	35 × 45	0.15	5.75	ESMQ161VSN332MA45S
	3,900	35 × 50	0.15	6.00	ESMQ161VSN392MA50S
180	470	22 × 25	0.15	2.08	ESMQ181VSN471MP25S
	560	22 × 30	0.15	2.25	ESMQ181VSN561MP30S
	680	22 × 30	0.15	2.50	ESMQ181VSN681MP30S
	680	25.4 × 25	0.15	2.50	ESMQ181VSN681MQ25S
	820	22 × 35	0.15	2.75	ESMQ181VSN821MP35S
	820	25.4 × 30	0.15	2.75	ESMQ181VSN821MQ30S
	1,000	22 × 45	0.15	3.00	ESMQ181VSN102MP45S
	1,000	25.4 × 35	0.15	3.00	ESMQ181VSN102MQ35S
	1,000	30 × 25	0.15	3.00	ESMQ181VSN102MR25S
	1,200	22 × 50	0.15	3.31	ESMQ181VSN122MP50S
	1,200	25.4 × 40	0.15	3.31	ESMQ181VSN122MQ40S
	1,200	30 × 30	0.15	3.31	ESMQ181VSN122MR30S
	1,200	35 × 25	0.15	3.31	ESMQ181VSN122MA25S
	1,500	25.4 × 45	0.15	3.83	ESMQ181VSN152MQ45S
	1,500	30 × 35	0.15	3.83	ESMQ181VSN152MR35S
	1,500	35 × 30	0.15	3.83	ESMQ181VSN152MA30S
	1,800	25.4 × 50	0.15	4.32	ESMQ181VSN182MQ50S
	1,800	30 × 40	0.15	4.32	ESMQ181VSN182MR40S
	1,800	35 × 30	0.15	4.32	ESMQ181VSN182MA30S
	2,200	30 × 45	0.15	4.92	ESMQ181VSN222MR45S
	2,200	35 × 40	0.15	4.92	ESMQ181VSN222MA40S
	2,700	35 × 45	0.15	5.52	ESMQ181VSN272MA45S
	3,300	35 × 50	0.15	5.75	ESMQ181VSN332MA50S
200	390	22 × 25	0.15	1.68	ESMQ201VSN391MP25S
	470	22 × 30	0.15	1.85	ESMQ201VSN471MP30S
	560	22 × 30	0.15	2.43	ESMQ201VSN561MP30S
	560	25.4 × 25	0.15	2.43	ESMQ201VSN561MQ25S
	680	22 × 35	0.15	2.68	ESMQ201VSN681MP35S
	680	25.4 × 30	0.15	2.68	ESMQ201VSN681MQ30S
	820	22 × 40	0.15	2.93	ESMQ201VSN821MP40S
	820	25.4 × 30	0.15	2.93	ESMQ201VSN821MQ30S
	820	30 × 25	0.15	2.93	ESMQ201VSN821MR25S
	1,000	22 × 45	0.15	3.25	ESMQ201VSN102MP45S
	1,000	25.4 × 35	0.15	3.25	ESMQ201VSN102MQ35S
	1,000	30 × 30	0.15	3.25	ESMQ201VSN102MR30S
	1,000	35 × 25	0.15	3.25	ESMQ201VSN102MA25S
	1,200	25.4 × 40	0.15	3.50	ESMQ201VSN122MQ40S
	1,200	30 × 30	0.15	3.50	ESMQ201VSN122MR30S
	1,200	35 × 30	0.15	3.50	ESMQ201VSN122MA30S
	1,500	25.4 × 50	0.15	3.87	ESMQ201VSN152MQ50S
	1,500	30 × 35	0.15	3.87	ESMQ201VSN152MR35S
	1,500	35 × 30	0.15	3.87	ESMQ201VSN152MA30S
	1,800	30 × 45	0.15	4.32	ESMQ201VSN182MR45S
	1,800	35 × 35	0.15	4.32	ESMQ201VSN182MA35S
	2,200	30 × 50	0.15	4.92	ESMQ201VSN222MR50S
	2,200	35 × 40	0.15	4.92	ESMQ201VSN222MA40S
	2,700	35 × 50	0.15	5.45	ESMQ201VSN272MA50S

WV (V_{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 85℃, 120Hz)	Part No.
250	270	22 × 25	0.15	1.31	ESMQ251VSN271MP25S
	330	22 × 30	0.15	1.75	ESMQ251VSN331MP30S
	390	22 × 30	0.15	1.91	ESMQ251VSN391MP30S
	390	25.4 × 25	0.15	1.91	ESMQ251VSN391MQ25S
	470	22 × 35	0.15	2.11	ESMQ251VSN471MP35S
	470	25.4 × 30	0.15	2.11	ESMQ251VSN471MQ30S
	560	22 × 40	0.15	2.25	ESMQ251VSN561MP40S
	560	25.4 × 30	0.15	2.25	ESMQ251VSN561MQ30S
	560	30 × 25	0.15	2.25	ESMQ251VSN561MR25S
	680	22 × 45	0.15	2.50	ESMQ251VSN681MP45S
	680	25.4 × 35	0.15	2.50	ESMQ251VSN681MQ35S
	680	30 × 30	0.15	2.50	ESMQ251VSN681MR30S
	820	22 × 50	0.15	2.77	ESMQ251VSN821MP50S
	820	25.4 × 40	0.15	2.77	ESMQ251VSN821MQ40S
	820	30 × 30	0.15	2.77	ESMQ251VSN821MR30S
	820	35 × 25	0.15	2.77	ESMQ251VSN821MA25S
	1,000	25.4 × 45	0.15	3.32	ESMQ251VSN102MQ45S
	1,000	30 × 35	0.15	3.32	ESMQ251VSN102MR35S
	1,000	35 × 30	0.15	3.32	ESMQ251VSN102MA30S
	1,200	30 × 40	0.15	3.53	ESMQ251VSN122MR40S
	1,200	35 × 35	0.15	3.53	ESMQ251VSN122MA35S
	1,500	30 × 50	0.15	4.04	ESMQ251VSN152MR50S
	1,500	35 × 40	0.15	4.04	ESMQ251VSN152MA40S
	1,800	35 × 45	0.15	4.55	ESMQ251VSN182MA45S
315	180	22 × 25	0.15	1.21	ESMQ3B1VSN181MP25S
	220	22 × 30	0.15	1.41	ESMQ3B1VSN221MP30S
	270	22 × 30	0.15	1.60	ESMQ3B1VSN271MP30S
	330	22 × 40	0.15	1.82	ESMQ3B1VSN331MP40S
	330	25.4 × 30	0.15	1.82	ESMQ3B1VSN331MQ30S
	330	30 × 25	0.15	1.82	ESMQ3B1VSN331MR25S
	390	22 × 45	0.15	2.01	ESMQ3B1VSN391MP45S
	390	25.4 × 35	0.15	2.01	ESMQ3B1VSN391MQ35S
	390	30 × 30	0.15	2.01	ESMQ3B1VSN391MR30S
	470	22 × 50	0.15	2.27	ESMQ3B1VSN471MP50S
	470	25.4 × 40	0.15	2.27	ESMQ3B1VSN471MQ40S
	470	30 × 30	0.15	2.27	ESMQ3B1VSN471MR30S
	470	35 × 25	0.15	2.27	ESMQ3B1VSN471MA25S
	560	25.4 × 45	0.15	2.56	ESMQ3B1VSN561MQ45S
	560	30 × 35	0.15	2.56	ESMQ3B1VSN561MR35S
	560	35 × 30	0.15	2.56	ESMQ3B1VSN561MA30S
	680	30 × 40	0.15	2.87	ESMQ3B1VSN681MR40S
	680	35 × 35	0.15	2.87	ESMQ3B1VSN681MA35S
	820	30 × 45	0.15	3.25	ESMQ3B1VSN821MR45S
	820	35 × 40	0.15	3.25	ESMQ3B1VSN821MA40S
	1,000	30 × 50	0.15	3.63	ESMQ3B1VSN102MR50S
	1,000	35 × 45	0.15	3.63	ESMQ3B1VSN102MA45S
350	150	22 × 25	0.15	1.12	ESMQ351VSN151MP25S
	180	22 × 30	0.15	1.22	ESMQ351VSN181MP30S
	220	22 × 35	0.15	1.44	ESMQ351VSN221MP35S
	270	22 × 40	0.15	1.66	ESMQ351VSN271MP40S
	270	25.4 × 30	0.15	1.66	ESMQ351VSN271MQ30S
	330	22 × 45	0.15	1.88	ESMQ351VSN331MP45S
	330	25.4 × 35	0.15	1.88	ESMQ351VSN331MQ35S
	390	22 × 50	0.15	2.06	ESMQ351VSN391MP50S
	390	25.4 × 40	0.15	2.06	ESMQ351VSN391MQ40S
	390	30 × 30	0.15	2.06	ESMQ351VSN391MR30S
	390	35 × 25	0.15	2.06	ESMQ351VSN391MA25S
	470	25.4 × 45	0.15	2.40	ESMQ351VSN471MQ45S
	470	30 × 35	0.15	2.40	ESMQ351VSN471MR35S
	470	35 × 30	0.15	2.40	ESMQ351VSN471MA30S
	560	25.4 × 50	0.15	2.60	ESMQ351VSN561MQ50S
	560	30 × 40	0.15	2.60	ESMQ351VSN561MR40S
	560	35 × 30	0.15	2.60	ESMQ351VSN561MA30S
	680	30 × 45	0.15	2.96	ESMQ351VSN681MR45S
	680	35 × 35	0.15	2.96	ESMQ351VSN681MA35S
	820	30 × 50	0.15	3.25	ESMQ351VSN821MR50S
	820	35 × 45	0.15	3.25	ESMQ351VSN821MA45S

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SMQ Series

◆STANDARD RATINGS

WV (V_{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 85℃, 120Hz)	Part No.
350	1,000	35 × 50	0.15	3.54	ESMQ351VSN102MA50S
400	120	22 × 25	0.15	1.02	ESMQ401VSN121MP25S
	150	22 × 30	0.15	1.16	ESMQ401VSN151MP30S
	180	22 × 35	0.15	1.44	ESMQ401VSN181MP35S
	220	22 × 40	0.15	1.49	ESMQ401VSN221MP40S
	220	25.4 × 30	0.15	1.49	ESMQ401VSN221MQ30S
	270	22 × 45	0.15	1.67	ESMQ401VSN271MP45S
	270	25.4 × 35	0.15	1.67	ESMQ401VSN271MQ35S
	270	30 × 25	0.15	1.67	ESMQ401VSN271MR25S
	330	22 × 50	0.15	1.90	ESMQ401VSN331MP50S
	330	25.4 × 40	0.15	1.90	ESMQ401VSN331MQ40S
	330	30 × 30	0.15	1.90	ESMQ401VSN331MR30S
	330	35 × 25	0.15	1.90	ESMQ401VSN331MA25S
	390	25.4 × 45	0.15	2.13	ESMQ401VSN391MQ45S
	390	30 × 35	0.15	2.13	ESMQ401VSN391MR35S
	390	35 × 30	0.15	2.13	ESMQ401VSN391MA30S
	470	25.4 × 50	0.15	2.39	ESMQ401VSN471MQ50S
	470	30 × 40	0.15	2.39	ESMQ401VSN471MR40S
	470	35 × 30	0.15	2.39	ESMQ401VSN471MA30S
	560	30 × 45	0.15	2.69	ESMQ401VSN561MR45S
	560	35 × 35	0.15	2.69	ESMQ401VSN561MA35S
	680	30 × 50	0.15	2.96	ESMQ401VSN681MR50S
	680	35 × 40	0.15	2.96	ESMQ401VSN681MA40S
	820	35 × 45	0.15	3.25	ESMQ401VSN821MA45S
420	100	22 × 25	0.20	0.97	ESMQ421VSN101MP25S
	120	22 × 25	0.20	1.08	ESMQ421VSN121MP25S
	150	22 × 30	0.20	1.30	ESMQ421VSN151MP30S
	150	25.4 × 25	0.20	1.30	ESMQ421VSN151MQ25S
	180	22 × 35	0.20	1.48	ESMQ421VSN181MP35S
	180	25.4 × 30	0.20	1.48	ESMQ421VSN181MQ30S
	220	22 × 40	0.20	1.65	ESMQ421VSN221MP40S
	220	25.4 × 35	0.20	1.65	ESMQ421VSN221MQ35S
	220	30 × 25	0.20	1.65	ESMQ421VSN221MR25S
	270	22 × 50	0.20	1.94	ESMQ421VSN271MP50S
	270	25.4 × 35	0.20	1.94	ESMQ421VSN271MQ35S

WV (V_{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 85℃, 120Hz)	Part No.
420	270	30 × 30	0.20	1.94	ESMQ421VSN271MR30S
	330	25.4 × 45	0.20	2.17	ESMQ421VSN331MQ45S
	330	30 × 35	0.20	2.17	ESMQ421VSN331MR35S
	330	35 × 30	0.20	2.17	ESMQ421VSN331MA30S
	390	25.4 × 50	0.20	2.27	ESMQ421VSN391MQ50S
	390	30 × 35	0.20	2.27	ESMQ421VSN391MR35S
	390	35 × 30	0.20	2.27	ESMQ421VSN391MA30S
	470	30 × 40	0.20	2.61	ESMQ421VSN471MR40S
	470	35 × 35	0.20	2.61	ESMQ421VSN471MA35S
	560	30 × 50	0.20	2.82	ESMQ421VSN561MR50S
	560	35 × 40	0.20	2.82	ESMQ421VSN561MA40S
	680	35 × 45	0.20	3.11	ESMQ421VSN681MA45S
450	82	22 × 25	0.20	0.83	ESMQ451VSN820MP25S
	100	22 × 25	0.20	0.93	ESMQ451VSN101MP25S
	120	22 × 30	0.20	1.04	ESMQ451VSN121MP30S
	150	22 × 35	0.20	1.19	ESMQ451VSN151MP35S
	150	25.4 × 25	0.20	1.19	ESMQ451VSN151MQ25S
	180	22 × 40	0.20	1.35	ESMQ451VSN181MP40S
	180	25.4 × 30	0.20	1.35	ESMQ451VSN181MQ30S
	220	22 × 45	0.20	1.55	ESMQ451VSN221MP45S
	220	25.4 × 40	0.20	1.55	ESMQ451VSN221MQ40S
	220	30 × 30	0.20	1.55	ESMQ451VSN221MR30S
	220	35 × 25	0.20	1.55	ESMQ451VSN221MA25S
	270	22 × 50	0.20	1.78	ESMQ451VSN271MP50S
	270	25.4 × 40	0.20	1.78	ESMQ451VSN271MQ40S
	270	30 × 30	0.20	1.78	ESMQ451VSN271MR30S
	330	25.4 × 50	0.20	2.01	ESMQ451VSN331MQ50S
	330	30 × 40	0.20	2.01	ESMQ451VSN331MR40S
	330	35 × 30	0.20	2.01	ESMQ451VSN331MA30S
	390	30 × 40	0.20	2.24	ESMQ451VSN391MR40S
	390	35 × 35	0.20	2.24	ESMQ451VSN391MA35S
	470	30 × 45	0.20	2.53	ESMQ451VSN471MR45S
	470	35 × 40	0.20	2.53	ESMQ451VSN471MA40S
	560	30 × 50	0.20	2.82	ESMQ451VSN561MR50S
	560	35 × 45	0.20	2.82	ESMQ451VSN561MA45S

◆RATED RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250V_{dc}	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450V_{dc}	0.77	1.00	1.16	1.30	1.41	1.43

The deterioration of aluminum electrolytic capacitors accelerates their life due to the internal heating produced by ripple current. For details, refer to Section "5-3 Ripple Current Effect on Lifetime" in the catalog, Technical Note.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

■ 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 and Packaging
Available Terminals for Snap-in and Screw Mount Type

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CAT. No. E1001Z 2025