CATALOG SM813

UNITED CHEMI-CON



U91/U92 Series

High Ripple Snap Mount Capacitors


UNITED
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Welcome to United Chemi-Con…

United Chemi-Con is introducing four new snap mount aluminum electrolytic capacitor series specifically designed for higher ripple current capability. These new series include the U91F, U92F, U92L and U92X which also feature very long life, wide temperature range, high voltage ratings and a variety of case sizes and terminal styles.

The U91F series is a high temperature series with a lifetime rating of 5,000 hours at +105°C. The three U92 series offer a lifetime rating of 5,000 hours for U92F, 10,000 hours for U92L or 15,000 hours for U92X at +85°C. The rated lifetime for all these series is measured with the rated ripple current applied.

All the U91/U92 series capacitors are RoHS compliant and are manufactured with or without an end disk in either a standard Pb-free PVC sleeve or optional PET sleeve. There are two basic types of PC board terminals, snap-in or straight standoffs. All of the new snap-in series offer 2, 3, 4 or 5-pin layouts as either standard or optional configurations depending on case size. Straight standoff terminals, 5-pin configuration, are available as an option for the larger case diameters.

Please contact United Chemi-Con with any questions about these new snap mount capacitors. Custom designs are also available upon request.









Specifications Guide for U91/U92 High Ripple Snap Mount Capacitors

Series	Page No.	Terminal Type	Features	RoHS Compliant	Temperature Range (°C)	Voltage Range (V)	Capacitance Range (µF)	Endurance (Hrs.+R*)	
								at +85°C	at +105°C
U91F	4	Snap Mount	Specific High Ripple Design, High Temperature, Long Life, Pin Options	○	−25°C~+105°C	350~500	120~2,700	—	5,000
U92F	11	Snap Mount	Specific High Ripple Design, Long Life, Pin Options	○	−25°C~+85°C	350~500	180~3,300	5,000	—
U92L	18	Snap Mount	Specific High Ripple Design, Longer Life, Pin Options	○	−25°C~+85°C	350~500	150~3,300	10,000	—
U92X	25	Snap Mount	Specific High Ripple Design, Longest Life, Pin Options	○	−25°C~+85°C	350~500	150~3,300	15,000	—

* +R = With rated ripple current applied.

In the construction of the components described, the full intent of the specification will be met. United Chemi-Con, however, reserves the right to make, from time to time, such departures from the detail specifications as may be required to permit improvements in the design of its products. Components made under military approvals will be in accordance with the approval requirements. The information included herein is believed to be accurate and reliable. However, United Chemi-Con assumes no responsibility for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

U91F Series

UNITED CHEMI-CON

- Snap Mount
- Specific Design For Higher Ripple Current
- 350 to 500VDC Voltage Range
- RoHS Compliant
- +105°C Maximum Temperature
- 5,000 Hours Lifetime at +105°C



The U91F series is a high temperature snap-in series specifically designed for higher ripple current capability. The U91F capacitors have an endurance rating of 5,000 hours at +105°C with the rated ripple current applied. All the U91F series capacitors are RoHS compliant and available in a variety of sizes, with or without an end disk, and encased in a standard Pb-free PVC sleeve or an optional PET sleeve. Snap-in terminals (2, 4 or 5-pin configurations) are available as standard or optional styles depending on case size. Straight standoff terminals (5-pin configuration) are an option for the 40, 45 and 50mm can diameters.

Summary of Specifications

- **PC board snap-in or straight standoff terminals available as standard or optional styles depending on pin styles and case size.**
- **Capacitance range: 120 to 2,700µF.**
- **Voltage range: 350 to 500VDC.**
- **Category temperature range: −25°C to +105°C.**
- **Leakage current: $3\sqrt{CV}$ (µA) or 3mA, whichever is smaller, after 5 minutes at +20°C.**
- **Standard capacitance tolerance: ±20%**
- **Nominal case size (D×L): 30×40mm to 50×105mm.**
- **Rated lifetime: 5,000 hours at +105°C with the rated ripple current applied.**

U91F Specifications - Snap Mount

Item	Characteristics
Category Temperature Range	−25 to +105°C
Rated Voltage Range	350 to 500VDC
Capacitance Range	120 to 2,700μF
Capacitance Tolerance	±20% (M) at +20°C, 120Hz
Leakage Current	I = $3\sqrt{CV}$ (μA) or 3mA, whichever is smaller, after 5 minutes at +20°C. Where I = Max. leakage current (μA), C = Nominal capacitance (μF) and V = Rated voltage (V)
Dissipation Factor (Tan δ)	At +20°C, 120Hz Rated Voltage (V): 350-400 | 420-500 Tan δ (DF) Max.: 0.15 | 0.20
Low Temperature Characteristics	At 120Hz, impedance (Z) ratio between the −25°C value and +20°C value shall not exceed the values given below. Rated Voltage (V): 350-500 Z(−25°C)/Z(+20°C): 8
Rated Ripple Current Multipliers	Ambient Temperature (°C) +65°C: 2.82 | +85°C: 1.73 | +105°C: 1.00 Frequency (Hz) DC Rated Voltage: 50Hz / 120Hz / 300Hz / 1kHz / 10kHz / 100kHz 350-450V: 0.77 / 1.00 / 1.16 / 1.30 / 1.41 / 1.43 500V: 0.70 / 1.00 / 1.16 / 1.30 / 1.41 / 1.43
Endurance (Load Life)	The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to DC voltage for 5,000 hours at +105°C with the rated ripple current applied. The sum of the DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitors. Capacitance change: ≤ ±20% of initial measured value Tan δ (DF) : ≤ 200% of initial specified value Leakage current : ≤ initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to +20°C after exposing them for 1,000 hours at +105°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements. Capacitance change: ≤ ±20% of initial measured value Tan δ (DF) : ≤ 150% of initial specified value Leakage current : ≤ initial specified value

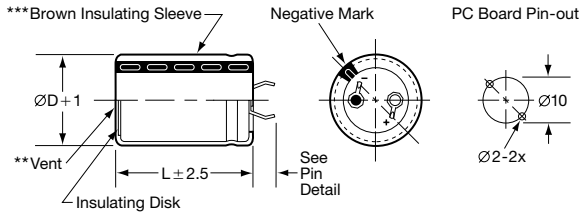
Product specifications are subject to change without notice.
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Diagram of Dimensions - Snap Mount

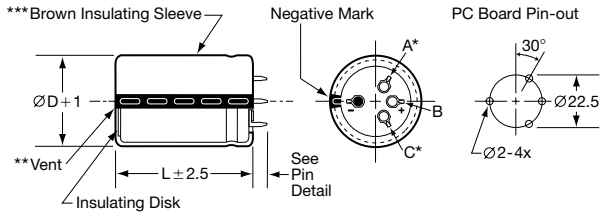
Snap Mount

Unit: mm

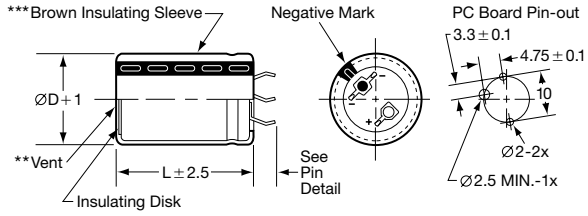
VSN Snap-in Ø30 and Ø35 standard
VNN Snap-in Ø30 and Ø35 optional



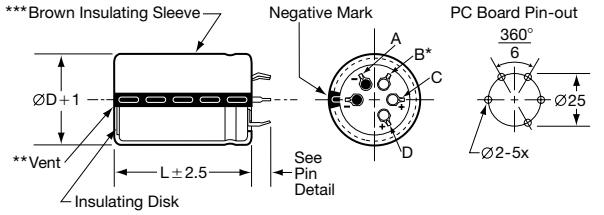
VND Snap-in Ø35 and Ø40 standard; Ø45 optional
VSD Snap-in Ø35 and Ø40 optional



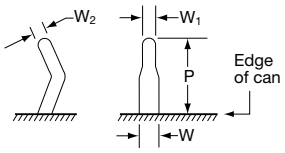
VEN Snap-in Ø30 and Ø35 optional



VNT Snap-in Ø45 and Ø50 standard



VS, VE & VN Snap-in Pin Dimensions



Type	P	W	W1	W2
VSN Ø30	4.0±0.5	1.5±0.2	0.8±0.1	0.8±0.1
VSN Ø35	3.5±0.5			
VNN Ø30-Ø35	5.8±1.0			
VEN Ø30-Ø35	4.0±0.5			
VSD Ø35-Ø40	3.5±1.0			
VND Ø35-Ø45	5.8±1.0			
VNT Ø45-Ø50	5.8±1.0			

CAUTION:

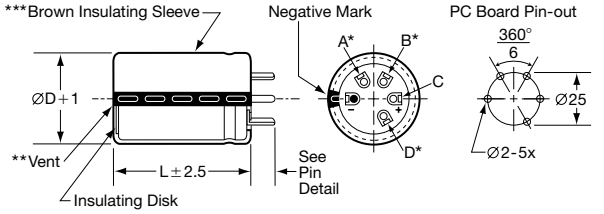
* Use the blank terminals for mechanical support only. The blank terminals must not be connected to a solder trace on the PC board but be electrically isolated from the negative and positive terminals.

** The vent may be located either on the bottom or side of the can.

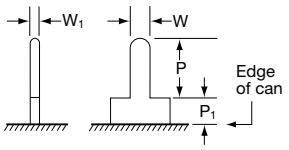
*** The brown sleeve with gray stripe negative pin indicator is standard. Also note in some cases, the sleeve color may change slightly due to the operating conditions, however, the discoloration will not impair capacitor function.

Straight Pin Mount

VQT Straight Standoff Ø40, Ø45 and Ø50 optional



VQ Standoff Pin Dimensions

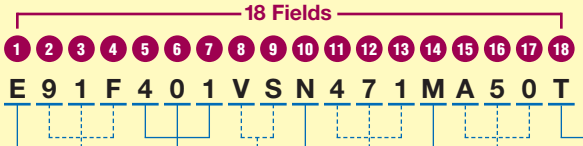


Type	P	P1	W	W1
Standoff Pin (VQ)	3.75±1.0	2.0 max.	1.5±0.1	0.7±0.2

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Part Numbering System for U91F Series

When ordering, always specify complete 18-field global part number.



9 Supplement Code. Field 18.
All construction options listed have Sn100% terminal plating.
- T = Pb-free PVC sleeve with end disk.
- M = Pb-free PVC sleeve without end disk.
- W = PET sleeve with end disk.
- S = PET sleeve without end disk.

8 Case Size. Fields 15, 16 and 17.
The single letter diameter code is inserted in field 15.
- R = Ø30mm
- A = Ø35mm
- B = Ø40mm
- U = Ø45mm
- C = Ø50mm

The double digit length code is inserted in fields 16 and 17.
- 40 = 40mm
- 50 = 50mm
- 65 = 65mm
- 80 = 80mm
- A0 = 100mm
- A5 = 105mm

7 Capacitance Tolerance. Field 14.
- M = ±20%

6 Capacitance. Fields 11, 12 and 13.
Expressed in Microfarads. The first two digits are significant figures inserted in fields 11 and 12, and the third digit inserted in field 13 indicates the number of zeros for capacitance of 10μF or more. R indicates the decimal point for capacitance less than 10μF (e.g. 4R7 = 4.7μF; 470 = 47μF; 471 = 470μF; 472 = 4,700μF; 473 = 47,000μF).

5 Dummy Terminals. Field 10.
- N = No dummy terminals.
- D = 2 dummy terminals.
- T = 3 dummy terminals.

4 Terminal Type. Fields 8 and 9.
- VS = Snap-in pins, 4.0mm in length (Ø30 VSN); 3.5mm in length (Ø35 VSN, Ø35 or Ø40 VSD).
- VN = Snap-in pins, 5.8mm in length.
- VE = Snap-in pins, polarized, Ø30 or Ø35 option.
- VQ = Straight standoff pins.

3 DC Rated Voltage. Fields 5, 6 and 7.
Expressed in Volts. The first two digits are significant figures inserted in fields 5 and 6, and the third digit inserted in field 7 indicates the number of zeros for rated voltage of 10VDC or more. R indicates the decimal point for rated voltage less than 10VDC (e.g. 4R0 = 4.0VDC; 400 = 40VDC; 401 = 400VDC).

Rule Exception: Coding for rated voltage 385VDC = 3J1.

2 Series Name. Fields 2, 3 and 4.
Enter the 3-letter/digit series name in fields 2, 3 and 4. If the series name is only 2 letters/digits, place a dash in field 4. For a series name with more than 3 letters/digits, refer to the individual series for the appropriate 3-field series name.

1 Capacitor Type. Field 1.
Aluminum Electrolytic Capacitor (Polar).

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Standard Voltage Ratings - Snap Mount

Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D×L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +105°C, 120Hz
350 Volts 400 Volts Surge	270	E91F351VSN271MR40T	30 × 40	R40	0.324	1.5
	390	E91F351VSN391MR50T	30 × 50	R50	0.225	2.0
	560	E91F351VSN561MR65T	30 × 65	R65	0.156	2.6
	390	E91F351VSN391MA40T	35 × 40	A40	0.235	2.0
	560	E91F351VSN561MA50T	35 × 50	A50	0.164	2.7
	820	E91F351VND821MA65T	35 × 65	A65	0.112	3.5
	1,000	E91F351VND102MA80T	35 × 80	A80	0.092	4.1
	1,200	E91F351VND122MAA0T	35 × 100	AA0	0.076	5.0
	820	E91F351VND821MB50T	40 × 50	B50	0.121	3.3
	1,200	E91F351VND122MB65T	40 × 65	B65	0.083	4.3
	1,500	E91F351VND152MB80T	40 × 80	B80	0.066	5.1
	1,800	E91F351VND182MBA0T	40 × 100	BA0	0.055	6.1
	820	E91F351VNT821MU50T	45 × 50	U50	0.131	3.3
	1,200	E91F351VNT122MU65T	45 × 65	U65	0.090	4.4
	1,800	E91F351VNT182MU80T	45 × 80	U80	0.060	5.8
	2,200	E91F351VNT222MUA5T	45 × 105	UA5	0.049	7.1
	1,200	E91F351VNT122MC50T	50 × 50	C50	0.092	4.1
	1,800	E91F351VNT182MC65T	50 × 65	C65	0.066	5.2
	2,200	E91F351VNT222MC80T	50 × 80	C80	0.054	6.3
	2,700	E91F351VNT272MCA5T	50 × 105	CA5	0.044	7.9
385 Volts 435 Volts Surge	220	E91F3J1VSN221MR40T	30 × 40	R40	0.336	1.5
	330	E91F3J1VSN331MR50T	30 × 50	R50	0.245	1.9
	470	E91F3J1VSN471MR65T	30 × 65	R65	0.174	2.5
	330	E91F3J1VSN331MA40T	35 × 40	A40	0.237	2.0
	470	E91F3J1VSN471MA50T	35 × 50	A50	0.173	2.6
	680	E91F3J1VND681MA65T	35 × 65	A65	0.123	3.3
	1,000	E91F3J1VND102MA80T	35 × 80	A80	0.095	4.0
	1,200	E91F3J1VND122MAA0T	35 × 100	AA0	0.073	5.1
	680	E91F3J1VND681MB50T	40 × 50	B50	0.135	3.1
	1,000	E91F3J1VND102MB65T	40 × 65	B65	0.096	4.0
	1,200	E91F3J1VND122MB80T	40 × 80	B80	0.075	4.8
	1,500	E91F3J1VND152MBA0T	40 × 100	BA0	0.058	6.0
	820	E91F3J1VNT821MU50T	45 × 50	U50	0.118	3.5
	1,200	E91F3J1VNT122MU65T	45 × 65	U65	0.084	4.5
	1,500	E91F3J1VNT152MU80T	45 × 80	U80	0.065	5.5
	1,800	E91F3J1VNT182MUA5T	45 × 105	UA5	0.047	7.2
	1,000	E91F3J1VNT102MC50T	50 × 50	C50	0.094	4.1
	1,500	E91F3J1VNT152MC65T	50 × 65	C65	0.073	5.0
	1,800	E91F3J1VNT182MC80T	50 × 80	C80	0.056	6.2
	2,700	E91F3J1VNT272MCA5T	50 × 105	CA5	0.041	8.2
400 Volts 450 Volts Surge	220	E91F401VSN221MR40T	30 × 40	R40	0.380	1.4
	330	E91F401VSN331MR50T	30 × 50	R50	0.253	1.8
	390	E91F401VSN391MR65T	30 × 65	R65	0.214	2.2
	330	E91F401VSN331MA40T	35 × 40	A40	0.265	1.9
	470	E91F401VSN471MA50T	35 × 50	A50	0.186	2.5
	680	E91F401VND681MA65T	35 × 65	A65	0.129	3.2
	820	E91F401VND821MA80T	35 × 80	A80	0.107	3.8
	1,000	E91F401VND102MAA0T	35 × 100	AA0	0.088	4.7
	560	E91F401VND561MB50T	40 × 50	B50	0.164	2.8
	820	E91F401VND821MB65T	40 × 65	B65	0.112	3.7
	1,200	E91F401VND122MB80T	40 × 80	B80	0.076	4.8
	1,500	E91F401VND152MBA0T	40 × 100	BA0	0.061	5.8
	680	E91F401VNT681MU50T	45 × 50	U50	0.146	3.1
	1,000	E91F401VNT102MU65T	45 × 65	U65	0.100	4.1

†For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

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Standard Voltage Ratings - Snap Mount

Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D×L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +105°C, 120Hz
400 Volts 450 Volts Surge	1,200	E91F401VNT122MU80T	45 × 80	U80	0.083	4.9
	1,800	E91F401VNT182MUA5T	45 × 105	UA5	0.055	6.7
	1,000	E91F401VNT102MC50T	50 × 50	C50	0.101	3.9
	1,200	E91F401VNT122MC65T	50 × 65	C65	0.093	4.4
	1,800	E91F401VNT182MC80T	50 × 80	C80	0.062	5.9
	2,200	E91F401VNT222MCA5T	50 × 105	CA5	0.051	7.4
420 Volts 470 Volts Surge	180	E91F421VSN181MR40T	30 × 40	R40	0.442	1.3
	270	E91F421VSN271MR50T	30 × 50	R50	0.295	1.7
	390	E91F421VSN391MR65T	30 × 65	R65	0.204	2.3
	270	E91F421VSN2711MA40T	35 × 40	A40	0.310	1.8
	390	E91F421VSN391MA50T	35 × 50	A50	0.214	2.3
	560	E91F421VND561MA65T	35 × 65	A65	0.149	3.0
	680	E91F421VND681MA80T	35 × 80	A80	0.123	3.5
	820	E91F421VND821MAA0T	35 × 100	AA0	0.102	4.3
	560	E91F421VND561MB50T	40 × 50	B50	0.156	2.9
	820	E91F421VND821MB65T	40 × 65	B65	0.107	3.8
	1,000	E91F421VND102MB80T	40 × 80	B80	0.088	4.5
	1,200	E91F421VND122MBA0T	40 × 100	BA0	0.073	5.3
	680	E91F421VNT681MU50T	45 × 50	U50	0.141	3.2
	1,000	E91F421VNT102MU65T	45 × 65	U65	0.096	4.2
	1,200	E91F421VNT122MU80T	45 × 80	U80	0.080	5.0
	1,700	E91F421VNT172MUA5T	45 × 105	UA5	0.056	6.6
	820	E91F421VNT821MC50T	50 × 50	C50	0.126	3.5
	1,200	E91F421VNT122MC65T	50 × 65	C65	0.086	4.6
	1,500	E91F421VNT152MC80T	50 × 80	C80	0.069	5.6
	2,200	E91F421VNT222MCA5T	50 × 105	CA5	0.047	7.7
450 Volts 500 Volts Surge	180	E91F451VSN181MR40T	30 × 40	R40	0.442	1.3
	220	E91F451VSN221MR50T	30 × 50	R50	0.362	1.5
	330	E91F451VSN331MR65T	30 × 65	R65	0.241	2.1
	270	E91F451VSN271MA40T	35 × 40	A40	0.310	1.8
	390	E91F451VSN391MA50T	35 × 50	A50	0.214	2.3
	470	E91F451VND471MA65T	35 × 65	A65	0.178	2.8
	680	E91F451VND681MA80T	35 × 80	A80	0.123	3.5
	820	E91F451VND821MAA0T	35 × 100	AA0	0.102	4.3
	470	E91F451VND471MB50T	40 × 50	B50	0.178	2.7
	680	E91F451VND681MB65T	40 × 65	B65	0.123	3.5
	820	E91F451VND821MB80T	40 × 80	B80	0.102	4.1
	1,200	E91F451VND122MBA0T	40 × 100	BA0	0.070	5.5
	680	E91F451VNT681MU50T	45 × 50	U50	0.135	3.3
	820	E91F451VNT821MU65T	45 × 65	U65	0.112	3.9
	1,000	E91F451VNT102MU80T	45 × 80	U80	0.092	4.7
	1,500	E91F451VNT152MUA5T	45 × 105	UA5	0.061	6.4
	820	E91F451VNT821MC50T	50 × 50	C50	0.121	3.6
	1,000	E91F451VNT102MC65T	50 × 65	C65	0.100	4.3
	1,500	E91F451VNT152MC80T	50 × 80	C80	0.066	5.7
	1,800	E91F451VNT182MCA5T	50 × 105	CA5	0.055	7.1
500 Volts 550 Volts Surge	120	E91F501VSN121MR40T	30 × 40	R40	0.663	1.0
	180	E91F501VSN181MR50T	30 × 50	R50	0.442	1.4
	270	E91F501VSN271MR65T	30 × 65	R65	0.295	1.9
	180	E91F501VSN181MA40T	35 × 40	A40	0.442	1.5
	270	E91F501VSN271MA50T	35 × 50	A50	0.295	2.0
	390	E91F501VND391MA65T	35 × 65	A65	0.204	2.6

†For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

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Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D × L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +105°C, 120Hz
500 Volts 550 Volts Surge	470	E91F501VND471MA80T	35 × 80	A80	0.169	3.0
	560	E91F501VND561MAA0T	35 × 100	AA0	0.142	3.7
	330	E91F501VND331MB50T	40 × 50	B50	0.253	2.3
	470	E91F501VND471MB65T	40 × 65	B65	0.178	2.9
	680	E91F501VND681MB80T	40 × 80	B80	0.123	3.8
	820	E91F501VND821MBA0T	40 × 100	BA0	0.102	4.5
	390	E91F501VNT391MU50T	45 × 50	U50	0.225	2.5
	560	E91F501VNT561MU65T	45 × 65	U65	0.156	3.3
	820	E91F501VNT821MU80T	45 × 80	U80	0.107	4.3
	1,000	E91F501VNT102MUA5T	45 × 105	UA5	0.088	5.3
	560	E91F501VNT561MC50T	50 × 50	C50	0.164	3.1
	820	E91F501VNT821MC65T	50 × 65	C65	0.112	4.0
	1,000	E91F501VNT102MC80T	50 × 80	C80	0.092	4.9
	1,200	E91F501VNT122MCA5T	50 × 105	CA5	0.076	6.0

† For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

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U92F Series

- Snap Mount
- Specific Design For Higher Ripple Current
- 350 to 500VDC Voltage Range
- RoHS Compliant
- +85°C Maximum Temperature
- 5,000 Hours Lifetime at +85°C



The U92F series is a specifically designed series for higher ripple current capability. The U92F capacitors have an endurance rating of 5,000 hours at +85°C with the rated ripple current applied. All U92F series capacitors are RoHS compliant and available in a variety of sizes, with or without an end disk, and encased in a PET sleeve or standard Pb-free PVC sleeve. Snap-in terminals (2, 4 or 5-pin configurations) are available as standard or optional styles depending on case size. Straight standoff terminals (5-pin configuration) are an option for 40, 45 and 50mm can diameters.

Summary of Specifications

- **PC board snap-in or straight standoff terminals available as standard or optional styles depending on pin styles and case size.**
- **Capacitance range: 180 to 3,300µF.**
- **Voltage range: 350 to 500VDC.**
- **Category temperature range: −25°C to +85°C.**
- **Leakage current: $3\sqrt{CV}$ (µA) or 3mA, whichever is smaller, after 5 minutes at +20°C.**
- **Standard capacitance tolerance: ±20%**
- **Nominal case size (D×L): 30×40mm to 50×105mm.**
- **Rated lifetime: 5,000 hours at +85°C with the rated ripple current applied.**

U92F Specifications - Snap Mount

<table>
<tr><th>Item</th><th>Characteristics</th></tr>
<tr><td>Category Temperature Range</td><td>−25 to +85°C</td></tr>
<tr><td>Rated Voltage Range</td><td>350 to 500VDC</td></tr>
<tr><td>Capacitance Range</td><td>180 to 3,300μF</td></tr>
<tr><td>Capacitance Tolerance</td><td>±20% (M) at +20°C, 120Hz</td></tr>
<tr><td>Leakage Current</td><td>$I = 3\sqrt{CV}$ (μA) or 3mA, whichever is smaller, after 5 minutes at +20°C.
Where I = Max. leakage current (μA), C = Nominal capacitance (μF) and V = Rated voltage (V)</td></tr>
<tr><td>Dissipation Factor (Tan δ)</td><td>At +20°C, 120Hz
<table>
<tr><td>Rated Voltage (V)</td><td>350-400</td><td>420-500</td></tr>
<tr><td>Tan δ (DF) Max.</td><td>0.15</td><td>0.20</td></tr>
</table></td></tr>
<tr><td>Low Temperature Characteristics</td><td>At 120Hz, impedance (Z) ratio between the −25°C value and +20°C value shall not exceed the values given below.
<table>
<tr><td>Rated Voltage (V)</td><td>350-500</td></tr>
<tr><td>Z(−25°C)/Z(+20°C)</td><td>8</td></tr>
</table></td></tr>
<tr><td>Rated Ripple Current Multipliers</td><td>Ambient Temperature (°C)
<table>
<tr><td>+45°C</td><td>+65°C</td><td>+85°C</td></tr>
<tr><td>2.82</td><td>1.73</td><td>1.00</td></tr>
</table>
Frequency (Hz)
<table>
<tr><td>DC Rated Voltage</td><td>50Hz</td><td>120Hz</td><td>300Hz</td><td>1kHz</td><td>10kHz</td><td>100kHz</td></tr>
<tr><td>350-450V</td><td>0.77</td><td>1.00</td><td>1.16</td><td>1.30</td><td>1.41</td><td>1.43</td></tr>
<tr><td>500V</td><td>0.70</td><td>1.00</td><td>1.16</td><td>1.30</td><td>1.41</td><td>1.43</td></tr>
</table></td></tr>
<tr><td>Endurance (Load Life)</td><td>The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to DC voltage for 5,000 hours at +85°C with the rated ripple current applied. The sum of the DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitors.
Capacitance change: ≤ ±20% of initial measured value
Tan δ (DF) : ≤ 200% of initial specified value
Leakage current : ≤ initial specified value</td></tr>
<tr><td>Shelf Life</td><td>The following specifications shall be satisfied when the capacitors are restored to +20°C after exposing them for 1,000 hours at +85°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements.
Capacitance change: ≤ ±20% of initial measured value
Tan δ (DF) : ≤ 150% of initial specified value
Leakage current : ≤ initial specified value</td></tr>
</table>

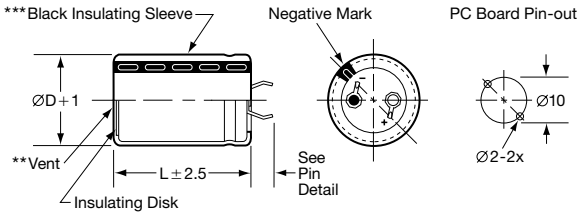
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Diagram of Dimensions - Snap Mount

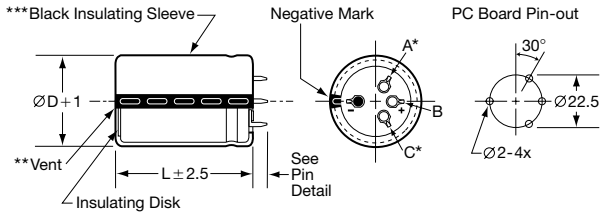
Snap Mount

Unit: mm

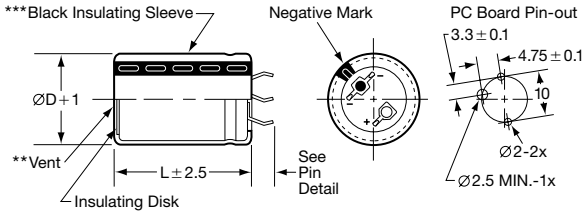
VSN Snap-in Ø30 and Ø35 standard
VNN Snap-in Ø30 and Ø35 optional



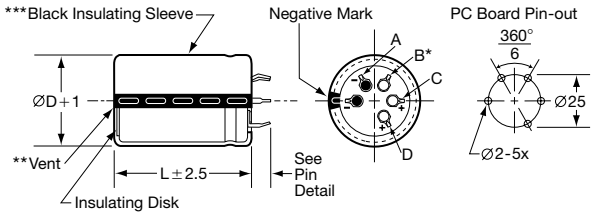
VND Snap-in Ø35 and Ø40 standard; Ø45 optional
VSD Snap-in Ø35 and Ø40 optional



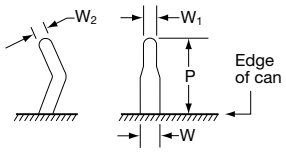
VEN Snap-in Ø30 and Ø35 optional



VNT Snap-in Ø45 and Ø50 standard



VS, VE & VN Snap-in Pin Dimensions



Type	P	W	W1	W2
VSN Ø30	4.0±0.5	1.5±0.2	0.8±0.1	0.8±0.1
VSN Ø35	3.5±0.5			
VNN Ø30-Ø35	5.8±1.0			
VEN Ø30-Ø35	4.0±0.5			
VSD Ø35-Ø40	3.5±1.0			
VND Ø35-Ø45	5.8±1.0			
VNT Ø45-Ø50	5.8±1.0			

CAUTION:

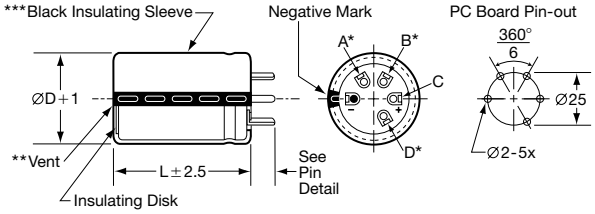
*Use the blank terminals for mechanical support only. The blank terminals must not be connected to a solder trace on the PC board but be electrically isolated from the negative and positive terminals.

**The vent may be located either on the bottom or side of the can.

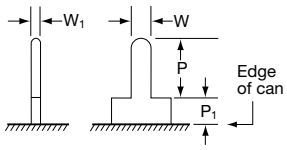
***The black sleeve with gray stripe negative pin indicator is standard. Also note in some cases, the sleeve color may change slightly due to the operating conditions, however, the discoloration will not impair capacitor function.

Straight Pin Mount

VQT Straight Standoff Ø40, Ø45 and Ø50 optional



VQ Standoff Pin Dimensions



Type	P	P1	W	W1
Standoff Pin (VQ)	3.75±1.0	2.0 max.	1.5±0.1	0.7±0.2

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Part Numbering System for U92F Series

When ordering, always specify complete 18-field global part number.



9 Supplement Code. Field 18.
All construction options listed have Sn100% terminal plating.
T = Pb-free PVC sleeve with end disk.
M = Pb-free PVC sleeve without end disk.
W = PET sleeve with end disk.
S = PET sleeve without end disk.

8 Case Size. Fields 15, 16 and 17.
The single letter diameter code is inserted in field 15.
R = Ø30mm
A = Ø35mm
B = Ø40mm
U = Ø45mm
C = Ø50mm

The double digit length code is inserted in fields 16 and 17.
40 = 40mm
50 = 50mm
65 = 65mm
80 = 80mm
A0 = 100mm
A5 = 105mm

7 Capacitance Tolerance. Field 14.
M = ±20%

6 Capacitance. Fields 11, 12 and 13.
Expressed in Microfarads. The first two digits are significant figures inserted in fields 11 and 12, and the third digit inserted in field 13 indicates the number of zeros for capacitance of 10μF or more. R indicates the decimal point for capacitance less than 10μF (e.g. 5R6 = 5.6μF; 560 = 56μF; 561 = 560μF; 562 = 5,600μF; 563 = 56,000μF).

5 Dummy Terminals. Field 10.
N = No dummy terminals.
D = 2 dummy terminals.
T = 3 dummy terminals.

4 Terminal Type. Fields 8 and 9.
VS = Snap-in pins, 4.0mm in length (Ø30 VSN); 3.5mm in length (Ø35 VSN, Ø35 or Ø40 VSD).
VN = Snap-in pins, 5.8mm in length.
VE = Snap-in pins, polarized, Ø30 or Ø35 option.
VQ = Straight standoff pins.

3 DC Rated Voltage. Fields 5, 6 and 7.
Expressed in Volts. The first two digits are significant figures inserted in fields 5 and 6, and the third digit inserted in field 7 indicates the number of zeros for rated voltage of 10VDC or more. R indicates the decimal point for rated voltage less than 10VDC (e.g. 4R0 = 4.0VDC; 400 = 40VDC; 401 = 400VDC).

Rule Exception: Coding for rated voltage 385VDC = 3J1.

2 Series Name. Fields 2, 3 and 4.
Enter the 3-letter/digit series name in fields 2, 3 and 4. If the series name is only 2 letters/digits, place a dash in field 4. For a series name with more than 3 letters/digits, refer to the individual series for the appropriate 3-field series name.

1 Capacitor Type. Field 1.
Aluminum Electrolytic Capacitor (Polar).

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Standard Voltage Ratings - Snap Mount

Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D×L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +85°C, 120Hz
350 Volts 400 Volts Surge	330	E92F351VSN331MR40T	30 × 40	R40	0.338	2.0
	470	E92F351VSN471MR50T	30 × 50	R50	0.237	2.6
	680	E92F351VSN681MR65T	30 × 65	R65	0.164	3.5
	560	E92F351VSN561MA40T	35 × 40	A40	0.192	3.2
	680	E92F351VSN681MA50T	35 × 50	A50	0.158	3.8
	1,000	E92F351VND102MA65T	35 × 65	A65	0.107	5.0
	1,200	E92F351VND122MA80T	35 × 80	A80	0.090	5.9
	1,800	E92F351VND182MAA0T	35 × 100	AA0	0.060	8.0
	820	E92F351VND821MB50T	40 × 50	B50	0.126	4.5
	1,200	E92F351VND122MB65T	40 × 65	B65	0.086	5.9
	1,500	E92F351VND152MB80T	40 × 80	B80	0.069	7.1
	2,200	E92F351VND222MBA0T	40 × 100	BA0	0.047	9.4
	1,200	E92F351VNT122MU50T	45 × 50	U50	0.093	5.6
	1,500	E92F351VNT152MU65T	45 × 65	U65	0.074	6.8
	2,200	E92F351VNT222MU80T	45 × 80	U80	0.051	8.9
	2,700	E92F351VNT272MUA5T	45 × 105	UA5	0.041	10.9
	1,500	E92F351VNT152MC50T	50 × 50	C50	0.082	6.2
	2,200	E92F351VNT222MC65T	50 × 65	C65	0.056	8.1
	2,700	E92F351VNT272MC80T	50 × 80	C80	0.046	9.8
	3,300	E92F351VNT332MCA5T	50 × 105	CA5	0.037	12.2
385 Volts 435 Volts Surge	330	E92F3J1VSN331MR40T	30 × 40	R40	0.302	2.1
	390	E92F3J1VSN391MR50T	30 × 50	R50	0.255	2.5
	560	E92F3J1VSN561MR65T	30 × 65	R65	0.178	3.4
	470	E92F3J1VSN471MA40T	35 × 40	A40	0.195	3.1
	560	E92F3J1VSN561MA50T	35 × 50	A50	0.164	3.8
	820	E92F3J1VND821MA65T	35 × 65	A65	0.112	4.9
	1,200	E92F3J1VND122MA80T	35 × 80	A80	0.076	6.4
	1,500	E92F3J1VND152MAA0T	35 × 100	AA0	0.061	7.9
	820	E92F3J1VND821MB50T	40 × 50	B50	0.121	4.6
	1,200	E92F3J1VND122MB65T	40 × 65	B65	0.083	6.0
	1,500	E92F3J1VND152MB80T	40 × 80	B80	0.066	7.3
	1,800	E92F3J1VND182MBA0T	40 × 100	BA0	0.055	8.7
	1,000	E92F3J1VNT102MU50T	45 × 50	U50	0.111	5.1
	1,500	E92F3J1VNT152MU65T	45 × 65	U65	0.074	6.8
	1,800	E92F3J1VNT182MU80T	45 × 80	U80	0.062	8.0
	2,200	E92F3J1VNT222MUA5T	45 × 105	UA5	0.051	9.9
	1,200	E92F3J1VNT122MC50T	50 × 50	C50	0.103	5.5
	1,800	E92F3J1VNT182MC65T	50 × 65	C65	0.069	7.3
	2,200	E92F3J1VNT222MC80T	50 × 80	C80	0.056	8.8
	3,300	E92F3J1VNT332MCA5T	50 × 105	CA5	0.037	12.2
400 Volts 450 Volts Surge	270	E92F401VSN271MR40T	30 × 40	R40	0.339	2.0
	390	E92F401VSN391MR50T	30 × 50	R50	0.235	2.6
	560	E92F401VSN561MR65T	30 × 65	R65	0.164	3.5
	390	E92F401VSN391MA40T	35 × 40	A40	0.225	2.9
	560	E92F401VSN561MA50T	35 × 50	A50	0.156	3.9
	820	E92F401VND821MA65T	35 × 65	A65	0.107	5.0
	1,000	E92F401VND102MA80T	35 × 80	A80	0.088	5.9
	1,200	E92F401VND122MAA0T	35 × 100	AA0	0.073	7.2
	680	E92F401VND681MB50T	40 × 50	B50	0.141	4.3
	1,000	E92F401VND102MB65T	40 × 65	B65	0.096	5.6
	1,200	E92F401VND122MB80T	40 × 80	B80	0.080	6.6
	1,800	E92F401VND182MBA0T	40 × 100	BA0	0.053	8.8
	1,000	E92F401VNT102MU50T	45 × 50	U50	0.100	5.4
	1,200	E92F401VNT122MU65T	45 × 65	U65	0.083	6.4

†For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

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Standard Voltage Ratings - Snap Mount

Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D×L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +85°C, 120Hz
400 Volts 450 Volts Surge	1,800	E92F401VNT182MU80T	45 × 80	U80	0.055	8.5
	2,200	E92F401VNT222MUA5T	45 × 105	UA5	0.045	10.4
	1,200	E92F401VNT122MC50T	50 × 50	C50	0.093	5.6
	1,800	E92F401VNT182MC65T	50 × 65	C65	0.062	7.7
	2,200	E92F401VNT222MC80T	50 × 80	C80	0.051	9.3
	2,700	E92F401VNT272MCA5T	50 × 105	CA5	0.041	11.6
420 Volts 470 Volts Surge	220	E92F421VSN221MR40T	30 × 40	R40	0.331	2.0
	330	E92F421VSN331MR50T	30 × 50	R50	0.241	2.6
	470	E92F421VSN471MR65T	30 × 65	R65	0.172	3.5
	390	E92F421VSN391MA40T	35 × 40	A40	0.213	3.0
	560	E92F421VSN561MA50T	35 × 50	A50	0.155	3.9
	680	E92F421VND681MA65T	35 × 65	A65	0.110	5.0
	1,000	E92F421VND102MA80T	35 × 80	A80	0.086	6.0
	1,200	E92F421VND122MAA0T	35 × 100	AA0	0.066	7.6
	560	E92F421VND561MB50T	40 × 50	B50	0.131	4.4
	820	E92F421VND821MB65T	40 × 65	B65	0.094	5.7
	1,200	E92F421VND122MB80T	40 × 80	B80	0.073	6.9
	1,500	E92F421VND152MBA0T	40 × 100	BA0	0.057	8.6
	820	E92F421VNT821MU50T	45 × 50	U50	0.110	5.1
	1,200	E92F421VNT122MU65T	45 × 65	U65	0.079	6.6
	1,500	E92F421VNT152MU80T	45 × 80	U80	0.062	8.0
	1,800	E92F421VNT182MUA5T	45 × 105	UA5	0.045	10.5
	1,000	E92F421VNT102MC50T	50 × 50	C50	0.093	5.6
	1,500	E92F421VNT152MC65T	50 × 65	C65	0.067	7.4
	1,800	E92F421VNT182MC80T	50 × 80	C80	0.052	9.1
	2,700	E92F421VNT272MCA5T	50 × 105	CA5	0.038	12.1
450 Volts 500 Volts Surge	220	E92F451VSN221MR40T	30 × 40	R40	0.340	2.0
	330	E92F451VSN331MR50T	30 × 50	R50	0.248	2.6
	390	E92F451VSN391MR65T	30 × 65	R65	0.177	3.4
	390	E92F451VSN391MA40T	35 × 40	A40	0.249	2.8
	470	E92F451VSN471MA50T	35 × 50	A50	0.159	3.8
	680	E92F451VND681MA65T	35 × 65	A65	0.113	4.9
	820	E92F451VND821MA80T	35 × 80	A80	0.088	5.9
	1,000	E92F451VND102MAA0T	35 × 100	AA0	0.068	7.5
	560	E92F451VND561MB50T	40 × 50	B50	0.135	4.4
	820	E92F451VND821MB65T	40 × 65	B65	0.097	5.6
	1,000	E92F451VND102MB80T	40 × 80	B80	0.075	6.8
	1,200	E92F451VND122MBA0T	40 × 100	BA0	0.058	8.4
	680	E92F451VNT681MU50T	45 × 50	U50	0.114	5.0
	1,000	E92F451VNT102MU65T	45 × 65	U65	0.081	6.5
	1,200	E92F451VNT122MU80T	45 × 80	U80	0.063	7.9
	1,800	E92F451VNT182MUA5T	45 × 105	UA5	0.046	10.3
	820	E92F451VNT821MC50T	50 × 50	C50	0.093	5.6
	1,200	E92F451VNT122MC65T	50 × 65	C65	0.066	7.4
	1,500	E92F451VNT152MC80T	50 × 80	C80	0.052	9.2
	2,200	E92F451VNT222MCA5T	50 × 105	CA5	0.038	12.1
500 Volts 550 Volts Surge	180	E92F501VSN181MR40T	30 × 40	R40	0.464	1.7
	220	E92F501VSN221MR50T	30 × 50	R50	0.380	2.1
	330	E92F501VSN331MR65T	30 × 65	R65	0.253	2.8
	270	E92F501VSN271MA40T	35 × 40	A40	0.295	2.6
	330	E92F501VSN331MA50T	35 × 50	A50	0.241	3.1
	470	E92F501VND471MA65T	35 × 65	A65	0.169	4.0

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*** Refer to diagram of dimensions for detailed case size specifications.**

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Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D×L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +85°C, 120Hz
500 Volts 550 Volts Surge	560	E92F501VND561MA80T	35 × 80	A80	0.142	4.7
	820	E92F501VND821MAA0T	35 × 100	AA0	0.097	6.2
	470	E92F501VND471MB50T	40 × 50	B50	0.178	3.8
	680	E92F501VND681MB65T	40 × 65	B65	0.123	5.0
	820	E92F501VND821MB80T	40 × 80	B80	0.102	5.8
	1,200	E92F501VND122MBA0T	40 × 100	BA0	0.070	7.7
	560	E92F501VNT561MU50T	45 × 50	U50	0.164	4.2
	820	E92F501VNT821MU65T	45 × 65	U65	0.112	5.5
	1,200	E92F501VNT122MU80T	45 × 80	U80	0.076	7.2
	1,500	E92F501VNT152MUA5T	45 × 105	UA5	0.061	9.0
	820	E92F501VNT821MC50T	50 × 50	C50	0.121	4.9
	1,200	E92F501VNT122MC65T	50 × 65	C65	0.083	6.6
	1,500	E92F501VNT152MC80T	50 × 80	C80	0.066	8.1
	1,800	E92F501VNT182MCA5T	50 × 105	CA5	0.055	10.0

†For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

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U92L Series

UNITED CHEMI-CON

- Snap Mount
- Specific Design For Higher Ripple Current
- 350 to 500VDC Voltage Range
- RoHS Compliant
- +85°C Maximum Temperature
- 10,000 Hours Lifetime at +85°C



The U92L series is a longer life series specifically designed for higher ripple current capability. The U92L capacitors have an endurance rating of 10,000 hours at +85°C with the rated ripple current applied. All U92L series capacitors are RoHS compliant and available in a variety of sizes, with or without an end disk, and encased in a PET sleeve or standard Pb-free PVC sleeve. Snap-in terminals (2, 4 or 5-pin configurations) are available as standard or optional styles depending on case size. Straight standoff terminals (5-pin configuration) are an option for 40, 45 and 50mm can diameters.

Summary of Specifications

- **PC board snap-in or straight standoff terminals available as standard or optional styles depending on pin styles and case size.**
- **Capacitance range: 150 to 3,300µF.**
- **Voltage range: 350 to 500VDC.**
- **Category temperature range: −25°C to +85°C.**
- **Leakage current: $3\sqrt{CV}$ (µA) or 3mA, whichever is smaller, after 5 minutes at +20°C.**
- **Standard capacitance tolerance: ±20%**
- **Nominal case size (D×L): 30×40mm to 50×105mm.**
- **Rated lifetime: 10,000 hours at +85°C with the rated ripple current applied.**

U92L Specifications - Snap Mount

<table>
<tr><th>Item</th><th>Characteristics</th></tr>
<tr><td>Category Temperature Range</td><td>−25 to +85°C</td></tr>
<tr><td>Rated Voltage Range</td><td>350 to 500VDC</td></tr>
<tr><td>Capacitance Range</td><td>150 to 3,300μF</td></tr>
<tr><td>Capacitance Tolerance</td><td>±20% (M) at +20°C, 120Hz</td></tr>
<tr><td>Leakage Current</td><td>$I = 3\sqrt{CV}$ (μA) or 3mA, whichever is smaller, after 5 minutes at +20°C.
Where I = Max. leakage current (μA), C = Nominal capacitance (μF) and V = Rated voltage (V)</td></tr>
<tr><td>Dissipation Factor (Tan δ)</td><td>At +20°C, 120Hz
<table><tr><td>Rated Voltage (V)</td><td>350 - 400</td><td>420 - 500</td></tr><tr><td>Tan δ (DF) Max.</td><td>0.15</td><td>0.20</td></tr></table></td></tr>
<tr><td>Low Temperature Characteristics</td><td>At 120Hz, impedance (Z) ratio between the −25°C value and +20°C value shall not exceed the values given below.
<table><tr><td>Rated Voltage (V)</td><td>350 - 500</td></tr><tr><td>Z(−25°C) / Z(+20°C)</td><td>8</td></tr></table></td></tr>
<tr><td>Rated Ripple Current Multipliers</td><td>Ambient Temperature (°C)
<table><tr><td>+45°C</td><td>+65°C</td><td>+85°C</td></tr><tr><td>2.82</td><td>1.73</td><td>1.00</td></tr></table>Frequency (Hz)
<table><tr><td>DC Rated Voltage</td><td>50Hz</td><td>120Hz</td><td>300Hz</td><td>1kHz</td><td>10kHz</td><td>100kHz</td></tr><tr><td>350 - 450V</td><td>0.77</td><td>1.00</td><td>1.16</td><td>1.30</td><td>1.41</td><td>1.43</td></tr><tr><td>500V</td><td>0.70</td><td>1.00</td><td>1.16</td><td>1.30</td><td>1.41</td><td>1.43</td></tr></table></td></tr>
<tr><td>Endurance (Load Life)</td><td>The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to DC voltage for 10,000 hours at +85°C with the rated ripple current applied. The sum of the DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitors.
Capacitance change: ≤ ±20% of initial measured value
Tan δ (DF) : ≤ 200% of initial specified value
Leakage current : ≤ initial specified value</td></tr>
<tr><td>Shelf Life</td><td>The following specifications shall be satisfied when the capacitors are restored to +20°C after exposing them for 1,000 hours at +85°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements.
Capacitance change: ≤ ±20% of initial measured value
Tan δ (DF) : ≤ 150% of initial specified value
Leakage current : ≤ initial specified value</td></tr>
</table>

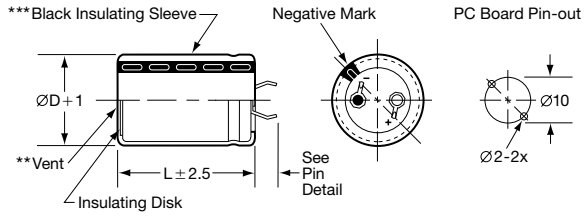
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Diagram of Dimensions - Snap Mount

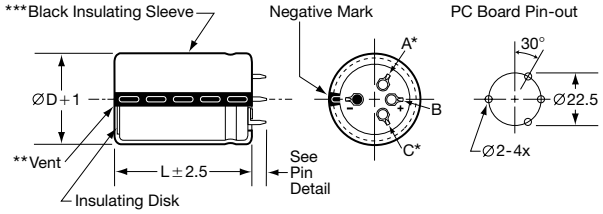
Snap Mount

Unit: mm

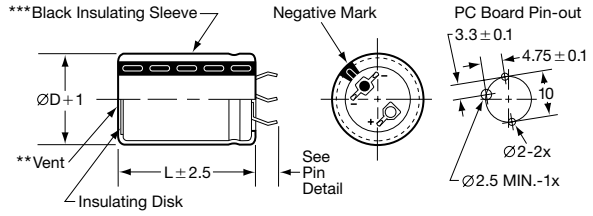
VSN Snap-in Ø30 and Ø35 standard
VNN Snap-in Ø30 and Ø35 optional



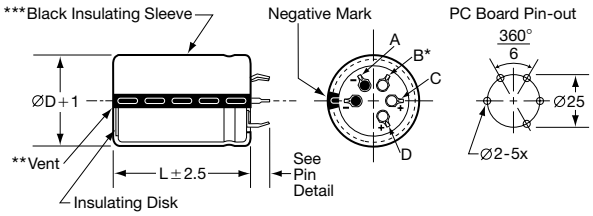
VND Snap-in Ø35 and Ø40 standard; Ø45 optional
VSD Snap-in Ø35 and Ø40 optional



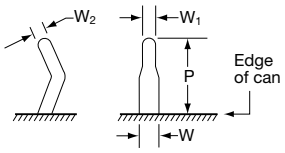
VEN Snap-in Ø30 and Ø35 optional



VNT Snap-in Ø45 and Ø50 standard



VS, VE & VN Snap-in Pin Dimensions



Type	P	W	W1	W2
VSN Ø30	4.0±0.5	1.5±0.2	0.8±0.1	0.8±0.1
VSN Ø35	3.5±0.5			
VNN Ø30-Ø35	5.8±1.0			
VEN Ø30-Ø35	4.0±0.5			
VSD Ø35-Ø40	3.5±1.0			
VND Ø35-Ø45	5.8±1.0			
VNT Ø45-Ø50	5.8±1.0			

CAUTION:

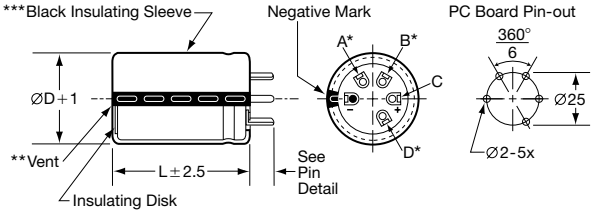
* Use the blank terminals for mechanical support only. The blank terminals must not be connected to a solder trace on the PC board but be electrically isolated from the negative and positive terminals.

** The vent may be located either on the bottom or side of the can.

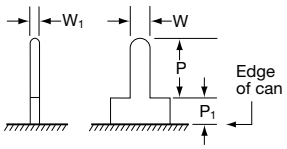
*** The black sleeve with gray stripe negative pin indicator is standard. Also note in some cases, the sleeve color may change slightly due to the operating conditions, however, the discoloration will not impair capacitor function.

Straight Pin Mount

VQT Straight Standoff Ø40, Ø45 and Ø50 optional



VQ Standoff Pin Dimensions



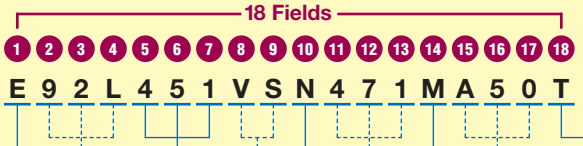
Type	P	P1	W	W1
Standoff Pin (VQ)	3.75±1.0	2.0 max.	1.5±0.1	0.7±0.2

U92L SNAP MOUNT 85°C

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Part Numbering System for U92L Series

When ordering, always specify complete 18-field global part number.



9 Supplement Code. Field 18.
All construction options listed have Sn100% terminal plating.
- T = Pb-free PVC sleeve with end disk.
- M = Pb-free PVC sleeve without end disk.
- W = PET sleeve with end disk.
- S = PET sleeve without end disk.

8 Case Size. Fields 15, 16 and 17.
The single letter diameter code is inserted in field 15.
- R = Ø30mm
- A = Ø35mm
- B = Ø40mm
- U = Ø45mm
- C = Ø50mm

The double digit length code is inserted in fields 16 and 17.
- 40 = 40mm
- 50 = 50mm
- 65 = 65mm
- 80 = 80mm
- A0 = 100mm
- A5 = 105mm

7 Capacitance Tolerance. Field 14.
- M = ±20%

6 Capacitance. Fields 11, 12 and 13.
Expressed in Microfarads. The first two digits are significant figures inserted in fields 11 and 12, and the third digit inserted in field 13 indicates the number of zeros for capacitance of 10μF or more. R indicates the decimal point for capacitance less than 10μF (e.g. 4R7 = 4.7μF; 470 = 47μF; 471 = 470μF; 472 = 4,700μF; 473 = 47,000μF).

5 Dummy Terminals. Field 10.
- N = No dummy terminals.
- D = 2 dummy terminals.
- T = 3 dummy terminals.

4 Terminal Type. Fields 8 and 9.
- VS = Snap-in pins, 4.0mm in length (Ø30 VSN); 3.5mm in length (Ø35 VSN, Ø35 or Ø40 VSD).
- VN = Snap-in pins, 5.8mm in length.
- VE = Snap-in pins, polarized, Ø30 or Ø35 option.
- VQ = Straight standoff pins.

3 DC Rated Voltage. Fields 5, 6 and 7.
Expressed in Volts. The first two digits are significant figures inserted in fields 5 and 6, and the third digit inserted in field 7 indicates the number of zeros for rated voltage of 10VDC or more. R indicates the decimal point for rated voltage less than 10VDC (e.g. 4R5 = 4.5VDC; 450 = 45VDC; 451 = 450VDC).

Rule Exception: Coding for rated voltage 385VDC = 3J1.

2 Series Name. Fields 2, 3 and 4.
Enter the 3-letter/digit series name in fields 2, 3 and 4. If the series name is only 2 letters/digits, place a dash in field 4. For a series name with more than 3 letters/digits, refer to the individual series for the appropriate 3-field series name.

1 Capacitor Type. Field 1.
Aluminum Electrolytic Capacitor (Polar).

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Standard Voltage Ratings - Snap Mount

Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D×L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +85°C, 120Hz
350 Volts 400 Volts Surge	330	E92L351VSN331MR40T	30 × 40	R40	0.314	2.1
	470	E92L351VSN471MR50T	30 × 50	R50	0.220	2.7
	680	E92L351VSN681MR65T	30 × 65	R65	0.152	3.7
	470	E92L351VSN471MA40T	35 × 40	A40	0.212	3.0
	680	E92L351VSN681MA50T	35 × 50	A50	0.146	4.0
	1,000	E92L351VND102MA65T	35 × 65	A65	0.100	5.2
	1,200	E92L351VND122MA80T	35 × 80	A80	0.083	6.1
	1,500	E92L351VND152MAA0T	35 × 100	AA0	0.066	7.6
	820	E92L351VND821MB50T	40 × 50	B50	0.126	4.5
	1,200	E92L351VND122MB65T	40 × 65	B65	0.086	5.9
	1,500	E92L351VND152MB80T	40 × 80	B80	0.069	7.1
	2,200	E92L351VND222MBA0T	40 × 100	BA0	0.047	9.4
	1,200	E92L351VNT122MU50T	45 × 50	U50	0.096	5.5
	1,500	E92L351VNT152MU65T	45 × 65	U65	0.077	6.7
	2,200	E92L351VNT222MU80T	45 × 80	U80	0.052	8.7
	2,700	E92L351VNT272MUA5T	45 × 105	UA5	0.043	10.7
	1,500	E92L351VNT152MC50T	50 × 50	C50	0.088	5.8
	2,200	E92L351VNT222MC65T	50 × 65	C65	0.060	7.8
	2,700	E92L351VNT272MC80T	50 × 80	C80	0.049	9.5
	3,300	E92L351VNT332MCA5T	50 × 105	CA5	0.040	11.8
385 Volts 435 Volts Surge	270	E92L3J1VSN271MR40T	30 × 40	R40	0.369	1.9
	390	E92L3J1VSN391MR50T	30 × 50	R50	0.255	2.5
	560	E92L3J1VSN561MR65T	30 × 65	R65	0.178	3.4
	470	E92L3J1VSN471MA40T	35 × 40	A40	0.203	3.1
	560	E92L3J1VSN561MA50T	35 × 50	A50	0.171	3.7
	820	E92L3J1VND821MA65T	35 × 65	A65	0.117	4.8
	1,200	E92L3J1VND122MA80T	35 × 80	A80	0.080	6.2
	1,500	E92L3J1VND152MAA0T	35 × 100	AA0	0.064	7.7
	820	E92L3J1VND821MB50T	40 × 50	B50	0.121	4.6
	1,200	E92L3J1VND122MB65T	40 × 65	B65	0.083	6.0
	1,500	E92L3J1VND152MB80T	40 × 80	B80	0.066	7.3
	1,800	E92L3J1VND182MBA0T	40 × 100	BA0	0.055	8.7
	1,000	E92L3J1VNT102MU50T	45 × 50	U50	0.107	5.2
	1,200	E92L3J1VNT122MU65T	45 × 65	U65	0.090	6.2
	1,800	E92L3J1VNT182MU80T	45 × 80	U80	0.060	8.2
	2,200	E92L3J1VNT222MUA5T	45 × 105	UA5	0.049	10.0
	1,200	E92L3J1VNT122MC50T	50 × 50	C50	0.103	5.5
	1,800	E92L3J1VNT182MC65T	50 × 65	C65	0.069	7.3
	2,200	E92L3J1VNT222MC80T	50 × 80	C80	0.056	8.8
	2,700	E92L3J1VNT272MCA5T	50 × 105	CA5	0.046	11.0
400 Volts 450 Volts Surge	270	E92L401VSN271MR40T	30 × 40	R40	0.354	1.9
	390	E92L401VSN391MR50T	30 × 50	R50	0.245	2.6
	560	E92L401VSN561MR65T	30 × 65	R65	0.171	3.5
	390	E92L401VSN391MA40T	35 × 40	A40	0.235	2.9
	560	E92L401VSN561MA50T	35 × 50	A50	0.164	3.8
	820	E92L401VND821MA65T	35 × 65	A65	0.112	4.9
	1,000	E92L401VND102MA80T	35 × 80	A80	0.092	5.8
	1,200	E92L401VND122MAA0T	35 × 100	AA0	0.076	7.0
	680	E92L401VND681MB50T	40 × 50	B50	0.146	4.2
	1,000	E92L401VND102MB65T	40 × 65	B65	0.100	5.5
	1,200	E92L401VND122MB80T	40 × 80	B80	0.083	6.5
	1,800	E92L401VND182MBA0T	40 × 100	BA0	0.055	8.7
	1,000	E92L401VNT102MU50T	45 × 50	U50	0.107	5.2
	1,200	E92L401VNT122MU65T	45 × 65	U65	0.090	6.2

†For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

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Standard Voltage Ratings - Snap Mount

Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D×L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +85°C, 120Hz
400 Volts 450 Volts Surge	1,500	E92L401VNT152MU80T	45 × 80	U80	0.072	7.5
	2,200	E92L401VNT222MUA5T	45 × 105	UA5	0.049	10.0
	1,200	E92L401VNT122MC50T	50 × 50	C50	0.100	5.4
	1,500	E92L401VNT152MC65T	50 × 65	C65	0.080	6.8
	2,200	E92L401VNT222MC80T	50 × 80	C80	0.054	9.0
	2,700	E92L401VNT272MCA5T	50 × 105	CA5	0.044	11.2
420 Volts 470 Volts Surge	220	E92L421VSN221MR40T	30 × 40	R40	0.408	1.8
	330	E92L421VSN331MR50T	30 × 50	R50	0.298	2.3
	470	E92L421VSN471MR65T	30 × 65	R65	0.212	3.1
	390	E92L421VSN391MA40T	35 × 40	A40	0.264	2.7
	560	E92L421VSN561MA50T	35 × 50	A50	0.193	3.5
	680	E92L421VND681MA65T	35 × 65	A65	0.137	4.4
	820	E92L421VND821MA80T	35 × 80	A80	0.106	5.4
	1,200	E92L421VND122MAA0T	35 × 100	AA0	0.082	6.8
	680	E92L421VND681MB50T	40 × 50	B50	0.150	4.2
	820	E92L421VND821MB65T	40 × 65	B65	0.107	5.3
	1,200	E92L421VND122MB80T	40 × 80	B80	0.084	6.5
	1,500	E92L421VND152MBA0T	40 × 100	BA0	0.065	8.0
	820	E92L421VNT821MU50T	45 × 50	U50	0.130	4.7
	1,200	E92L421VNT122MU65T	45 × 65	U65	0.093	6.1
	1,500	E92L421VNT152MU80T	45 × 80	U80	0.073	7.4
	1,800	E92L421VNT182MUA5T	45 × 105	UA5	0.053	9.6
	1,000	E92L421VNT102MC50T	50 × 50	C50	0.113	5.1
	1,500	E92L421VNT152MC65T	50 × 65	C65	0.081	6.7
	1,800	E92L421VNT182MC80T	50 × 80	C80	0.063	8.3
	2,200	E92L421VNT222MCA5T	50 × 105	CA5	0.046	10.9
450 Volts 500 Volts Surge	220	E92L451VSN221MR40T	30 × 40	R40	0.428	1.8
	330	E92L451VSN331MR50T	30 × 50	R50	0.312	2.3
	390	E92L451VSN391MR65T	30 × 65	R65	0.222	3.0
	330	E92L451VSN331MA40T	35 × 40	A40	0.318	2.5
	470	E92L451VSN471MA50T	35 × 50	A50	0.202	3.4
	680	E92L451VND681MA65T	35 × 65	A65	0.143	4.3
	820	E92L451VND821MA80T	35 × 80	A80	0.111	5.3
	1,000	E92L451VND102MAA0T	35 × 100	AA0	0.086	6.6
	560	E92L451VND561MB50T	40 × 50	B50	0.170	3.9
	820	E92L451VND821MB65T	40 × 65	B65	0.122	5.0
	1,000	E92L451VND102MB80T	40 × 80	B80	0.095	6.1
	1,200	E92L451VND122MBA0T	40 × 100	BA0	0.073	7.5
	680	E92L451VNT681MU50T	45 × 50	U50	0.142	4.5
	1,000	E92L451VNT102MU65T	45 × 65	U65	0.102	5.8
	1,200	E92L451VNT122MU80T	45 × 80	U80	0.079	7.1
	1,800	E92L451VNT182MUA5T	45 × 105	UA5	0.058	9.2
	820	E92L451VNT821MC50T	50 × 50	C50	0.120	5.0
	1,200	E92L451VNT122MC65T	50 × 65	C65	0.086	6.5
	1,500	E92L451VNT152MC80T	50 × 80	C80	0.067	8.1
	2,200	E92L451VNT222MCA5T	50 × 105	CA5	0.049	10.6
500 Volts 550 Volts Surge	150	E92L501VSN151MR40T	30 × 40	R40	0.557	1.6
	220	E92L501VSN221MR50T	30 × 50	R50	0.380	2.1
	270	E92L501VSN271MR65T	30 × 65	R65	0.310	2.6
	220	E92L501VSN221MA40T	35 × 40	A40	0.380	2.3
	330	E92L501VSN331MA50T	35 × 50	A50	0.253	3.0
	390	E92L501VND391MA65T	35 × 65	A65	0.214	3.6

†For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

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Standard Voltage Ratings - Snap Mount

Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D × L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +85°C, 120Hz
500 Volts 550 Volts Surge	560	E92L501VND561MA80T	35 × 80	A80	0.149	4.6
	680	E92L501VND681MAA0T	35 × 100	AA0	0.123	5.6
	390	E92L501VND391MB50T	40 × 50	B50	0.225	3.4
	560	E92L501VND561MB65T	40 × 65	B65	0.156	4.4
	680	E92L501VND681MB80T	40 × 80	B80	0.129	5.2
	1,000	E92L501VND102MBA0T	40 × 100	BA0	0.088	6.9
	560	E92L501VNT561MU50T	45 × 50	U50	0.164	4.2
	820	E92L501VNT821MU65T	45 × 65	U65	0.112	5.5
	1,000	E92L501VNT102MU80T	45 × 80	U80	0.092	6.6
	1,500	E92L501VNT152MUA5T	45 × 105	UA5	0.061	9.0
	680	E92L501VNT681MC50T	50 × 50	C50	0.146	4.5
	1,000	E92L501VNT102MC65T	50 × 65	C65	0.100	6.1
	1,200	E92L501VNT122MC80T	50 × 80	C80	0.083	7.2
	1,800	E92L501VNT182MCA5T	50 × 105	CA5	0.055	10.0

†For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

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U92X Series

UNITED CHEMI-CON

- Snap Mount
- Specific Design For Higher Ripple Current
- 350 to 500VDC Voltage Range
- RoHS Compliant
- +85°C Maximum Temperature
- 15,000 Hours Lifetime at +85°C



The U92X series is a longest life series specifically designed for higher ripple current capability. The U92X capacitors have an endurance rating of 15,000 hours at +85°C with the rated ripple current applied. All U92X series capacitors are RoHS compliant and available in a variety of sizes, with or without an end disk, and encased in a PET sleeve or standard Pb-free PVC sleeve. Snap-in terminals (2, 4 or 5-pin configurations) are available as standard or optional styles depending on case size. Straight standoff terminals (5-pin configuration) are an option for 40, 45 and 50mm can diameters.

Summary of Specifications

- **PC board snap-in or straight standoff terminals available as standard or optional styles depending on pin styles and case size.**
- **Capacitance range: 150 to 3,300µF.**
- **Voltage range: 350 to 500VDC.**
- **Category temperature range: −25°C to +85°C.**
- **Leakage current: $3\sqrt{CV}$ (µA) or 3mA, whichever is smaller, after 5 minutes at +20°C.**
- **Standard capacitance tolerance: ±20%**
- **Nominal case size (D×L): 30×40mm to 50×105mm.**
- **Rated lifetime: 15,000 hours at +85°C with the rated ripple current applied.**

U92X Specifications - Snap Mount

<table>
<tr><th>Item</th><th>Characteristics</th></tr>
<tr><td>Category Temperature Range</td><td>−25 to +85°C</td></tr>
<tr><td>Rated Voltage Range</td><td>350 to 500VDC</td></tr>
<tr><td>Capacitance Range</td><td>150 to 3,300μF</td></tr>
<tr><td>Capacitance Tolerance</td><td>±20% (M) at +20°C, 120Hz</td></tr>
<tr><td>Leakage Current</td><td>$I = 3\sqrt{CV}$ (μA) or 3mA, whichever is smaller, after 5 minutes at +20°C.
Where I = Max. leakage current (μA), C = Nominal capacitance (μF) and V = Rated voltage (V)</td></tr>
<tr><td>Dissipation Factor (Tan δ)</td><td>At +20°C, 120Hz
<table>
<tr><td>Rated Voltage (V)</td><td>350-400</td><td>420-500</td></tr>
<tr><td>Tan δ (DF) Max.</td><td>0.15</td><td>0.20</td></tr>
</table></td></tr>
<tr><td>Low Temperature Characteristics</td><td>At 120Hz, impedance (Z) ratio between the −25°C value and +20°C value shall not exceed the values given below.
<table>
<tr><td>Rated Voltage (V)</td><td>350-500</td></tr>
<tr><td>Z(−25°C)/Z(+20°C)</td><td>8</td></tr>
</table></td></tr>
<tr><td>Rated Ripple Current Multipliers</td><td>Ambient Temperature (°C)
<table>
<tr><td>+45°C</td><td>+65°C</td><td>+85°C</td></tr>
<tr><td>2.82</td><td>1.73</td><td>1.00</td></tr>
</table>
Frequency (Hz)
<table>
<tr><td>DC Rated Voltage</td><td>50Hz</td><td>120Hz</td><td>300Hz</td><td>1kHz</td><td>10kHz</td><td>100kHz</td></tr>
<tr><td>350-450V</td><td>0.77</td><td>1.00</td><td>1.16</td><td>1.30</td><td>1.41</td><td>1.43</td></tr>
<tr><td>500V</td><td>0.70</td><td>1.00</td><td>1.16</td><td>1.30</td><td>1.41</td><td>1.43</td></tr>
</table></td></tr>
<tr><td>Endurance (Load Life)</td><td>The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to DC voltage for 15,000 hours at +85°C with the rated ripple current applied. The sum of the DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitors.
Capacitance change: ≤ ±20% of initial measured value
Tan δ (DF) : ≤ 200% of initial specified value
Leakage current : ≤ initial specified value</td></tr>
<tr><td>Shelf Life</td><td>The following specifications shall be satisfied when the capacitors are restored to +20°C after exposing them for 1,000 hours at +85°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements.
Capacitance change: ≤ ±20% of initial measured value
Tan δ (DF) : ≤ 150% of initial specified value
Leakage current : ≤ initial specified value</td></tr>
</table>

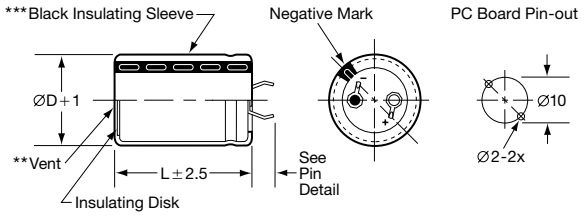
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Diagram of Dimensions - Snap Mount

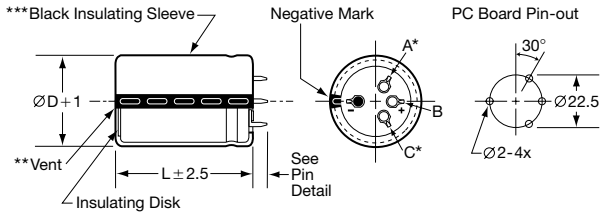
Snap Mount

Unit: mm

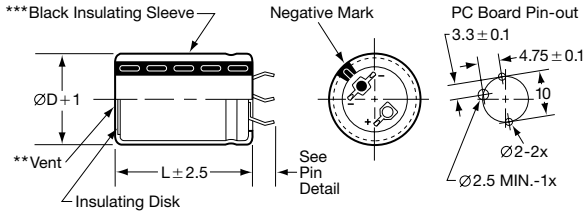
VSN Snap-in Ø30 and Ø35 standard
VNN Snap-in Ø30 and Ø35 optional



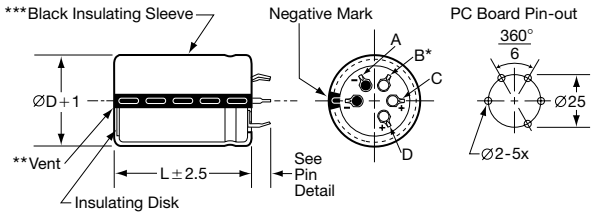
VND Snap-in Ø35 and Ø40 standard; Ø45 optional
VSD Snap-in Ø35 and Ø40 optional



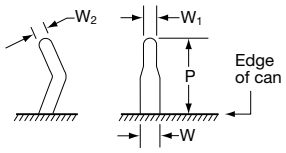
VEN Snap-in Ø30 and Ø35 optional



VNT Snap-in Ø45 and Ø50 standard



VS, VE & VN Snap-in Pin Dimensions



Type	P	W	W1	W2
VSN Ø30	4.0±0.5	1.5±0.2	0.8±0.1	0.8±0.1
VSN Ø35	3.5±0.5			
VNN Ø30-Ø35	5.8±1.0			
VEN Ø30-Ø35	4.0±0.5			
VSD Ø35-Ø40	3.5±1.0			
VND Ø35-Ø45	5.8±1.0			
VNT Ø45-Ø50	5.8±1.0			

CAUTION:

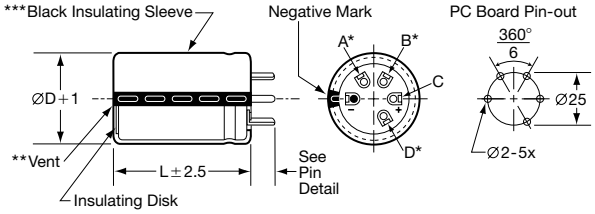
* Use the blank terminals for mechanical support only. The blank terminals must not be connected to a solder trace on the PC board but be electrically isolated from the negative and positive terminals.

** The vent may be located either on the bottom or side of the can.

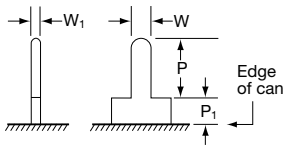
*** The black sleeve with gray stripe negative pin indicator is standard. Also note in some cases, the sleeve color may change slightly due to the operating conditions, however, the discoloration will not impair capacitor function.

Straight Pin Mount

VQT Straight Standoff Ø40, Ø45 and Ø50 optional



VQ Standoff Pin Dimensions



Type	P	P1	W	W1
Standoff Pin (VQ)	3.75±1.0	2.0 max.	1.5±0.1	0.7±0.2

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Part Numbering System for U92X Series

When ordering, always specify complete 18-field global part number.



9 Supplement Code. Field 18.
All construction options listed have Sn100% terminal plating.
- T = Pb-free PVC sleeve with end disk.
- M = Pb-free PVC sleeve without end disk.
- W = PET sleeve with end disk.
- S = PET sleeve without end disk.

8 Case Size. Fields 15, 16 and 17.
The single letter diameter code is inserted in field 15.
- R = Ø30mm
- A = Ø35mm
- B = Ø40mm
- U = Ø45mm
- C = Ø50mm

The double digit length code is inserted in fields 16 and 17.
- 40 = 40mm
- 50 = 50mm
- 65 = 65mm
- 80 = 80mm
- A0 = 100mm
- A5 = 105mm

7 Capacitance Tolerance. Field 14.
- M = ±20%

6 Capacitance. Fields 11, 12 and 13.
Expressed in Microfarads. The first two digits are significant figures inserted in fields 11 and 12, and the third digit inserted in field 13 indicates the number of zeros for capacitance of 10μF or more. R indicates the decimal point for capacitance less than 10μF (e.g. 6R8 = 6.8μF; 680 = 68μF; 681 = 680μF; 682 = 6,800μF; 683 = 68,000μF).

5 Dummy Terminals. Field 10.
- N = No dummy terminals.
- D = 2 dummy terminals.
- T = 3 dummy terminals.

4 Terminal Type. Fields 8 and 9.
- VS = Snap-in pins, 4.0mm in length (Ø30 VSN); 3.5mm in length (Ø35 VSN, Ø35 or Ø40 VSD).
- VN = Snap-in pins, 5.8mm in length.
- VE = Snap-in pins, polarized, Ø30 or Ø35 option.
- VQ = Straight standoff pins.

3 DC Rated Voltage. Fields 5, 6 and 7.
Expressed in Volts. The first two digits are significant figures inserted in fields 5 and 6, and the third digit inserted in field 7 indicates the number of zeros for rated voltage of 10VDC or more. R indicates the decimal point for rated voltage less than 10VDC (e.g. 5R0 = 5.0VDC; 500 = 50VDC; 501 = 500VDC).

Rule Exception: Coding for rated voltage 385VDC = 3J1.

2 Series Name. Fields 2, 3 and 4.
Enter the 3-letter/digit series name in fields 2, 3 and 4. If the series name is only 2 letters/digits, place a dash in field 4. For a series name with more than 3 letters/digits, refer to the individual series for the appropriate 3-field series name.

1 Capacitor Type. Field 1.
Aluminum Electrolytic Capacitor (Polar).

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Standard Voltage Ratings - Snap Mount

Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D×L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +85°C, 120Hz
350 Volts 400 Volts Surge	330	E92X351VSN331MR40T	30 × 40	R40	0.302	2.1
	470	E92X351VSN471MR50T	30 × 50	R50	0.212	2.8
	680	E92X351VSN681MR65T	30 × 65	R65	0.146	3.7
	470	E92X351VSN471MA40T	35 × 40	A40	0.195	3.1
	680	E92X351VSN681MA50T	35 × 50	A50	0.135	4.2
	1,000	E92X351VND102MA65T	35 × 65	A65	0.092	5.4
	1,200	E92X351VND122MA80T	35 × 80	A80	0.076	6.4
	1,500	E92X351VND152MAA0T	35 × 100	AA0	0.061	7.9
	820	E92X351VND821MB50T	40 × 50	B50	0.121	4.6
	1,200	E92X351VND122MB65T	40 × 65	B65	0.083	6.0
	1,500	E92X351VND152MB80T	40 × 80	B80	0.066	7.3
	1,800	E92X351VND182MBA0T	40 × 100	BA0	0.055	8.7
	1,000	E92X351VNT102MU50T	45 × 50	U50	0.107	5.2
	1,500	E92X351VNT152MU65T	45 × 65	U65	0.072	6.9
	1,800	E92X351VNT182MU80T	45 × 80	U80	0.060	8.2
	2,700	E92X351VNT272MUA5T	45 × 105	UA5	0.040	11.1
	1,200	E92X351VNT122MC50T	50 × 50	C50	0.103	5.4
	1,800	E92X351VNT182MC65T	50 × 65	C65	0.069	7.3
	2,200	E92X351VNT222MC80T	50 × 80	C80	0.056	8.8
	3,300	E92X351VNT332MCA5T	50 × 105	CA5	0.037	12.2
385 Volts 435 Volts Surge	270	E92X3J1VSN271MR40T	30 × 40	R40	0.339	2.0
	390	E92X3J1VSN391MR50T	30 × 50	R50	0.235	2.6
	560	E92X3J1VSN561MR65T	30 × 65	R65	0.164	3.5
	390	E92X3J1VSN391MA40T	35 × 40	A40	0.225	2.9
	560	E92X3J1VSN561MA50T	35 × 50	A50	0.156	3.9
	820	E92X3J1VND821MA65T	35 × 65	A65	0.107	5.0
	1,000	E92X3J1VND102MA80T	35 × 80	A80	0.088	5.9
	1,200	E92X3J1VND122MAA0T	35 × 100	AA0	0.073	7.2
	680	E92X3J1VND681MB50T	40 × 50	B50	0.135	4.4
	1,000	E92X3J1VND102MB65T	40 × 65	B65	0.092	5.8
	1,200	E92X3J1VND122MB80T	40 × 80	B80	0.076	6.8
	1,800	E92X3J1VND182MBA0T	40 × 100	BA0	0.051	9.0
	1,000	E92X3J1VNT102MU50T	45 × 50	U50	0.100	5.4
	1,200	E92X3J1VNT122MU65T	45 × 65	U65	0.083	6.4
	1,500	E92X3J1VNT152MU80T	45 × 80	U80	0.066	7.7
	2,200	E92X3J1VNT222MUA5T	45 × 105	UA5	0.045	10.4
	1,200	E92X3J1VNT122MC50T	50 × 50	C50	0.096	5.7
	1,500	E92X3J1VNT152MC65T	50 × 65	C65	0.077	6.9
	2,200	E92X3J1VNT222MC80T	50 × 80	C80	0.052	9.1
	2,700	E92X3J1VNT272MCA5T	50 × 105	CA5	0.043	11.4
400 Volts 450 Volts Surge	270	E92X401VSN271MR40T	30 × 40	R40	0.339	2.0
	390	E92X401VSN391MR50T	30 × 50	R50	0.235	2.6
	470	E92X401VSN471MR65T	30 × 65	R65	0.195	3.2
	390	E92X401VSN391MA40T	35 × 40	A40	0.225	2.9
	560	E92X401VSN561MA50T	35 × 50	A50	0.156	3.9
	680	E92X401VND681MA65T	35 × 65	A65	0.129	4.6
	1,000	E92X401VND102MA80T	35 × 80	A80	0.088	5.9
	1,200	E92X401VND122MAA0T	35 × 100	AA0	0.073	7.2
	680	E92X401VND681MB50T	40 × 50	B50	0.135	4.4
	1,000	E92X401VND102MB65T	40 × 65	B65	0.092	5.8
	1,200	E92X401VND122MB80T	40 × 80	B80	0.076	6.8
	1,500	E92X401VND152MBA0T	40 × 100	BA0	0.061	8.2
	820	E92X401VNT821MU50T	45 × 50	U50	0.121	4.9
	1,200	E92X401VNT122MU65T	45 × 65	U65	0.083	6.4

†For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

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Standard Voltage Ratings - Snap Mount

Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D×L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +85°C, 120Hz
400 Volts 450 Volts Surge	1,500	E92X401VNT152MU80T	45 × 80	U80	0.066	7.7
	2,200	E92X401VNT222MUA5T	45 × 105	UA5	0.045	10.4
	1,200	E92X401VNT122MC50T	50 × 50	C50	0.093	5.6
	1,500	E92X401VNT152MC65T	50 × 65	C65	0.074	7.0
	1,800	E92X401VNT182MC80T	50 × 80	C80	0.062	8.4
	2,700	E92X401VNT272MCA5T	50 × 105	CA5	0.041	11.6
420 Volts 470 Volts Surge	220	E92X421VSN221MR40T	30 × 40	R40	0.389	1.9
	330	E92X421VSN331MR50T	30 × 50	R50	0.284	2.4
	470	E92X421VSN471MR65T	30 × 65	R65	0.202	3.2
	390	E92X421VSN391MA40T	35 × 40	A40	0.251	2.8
	470	E92X421VSN471MA50T	35 × 50	A50	0.183	3.6
	680	E92X421VND681MA65T	35 × 65	A65	0.130	4.6
	820	E92X421VND821MA80T	35 × 80	A80	0.101	5.5
	1,200	E92X421VND122MAA0T	35 × 100	AA0	0.078	7.0
	680	E92X421VND681MB50T	40 × 50	B50	0.142	4.3
	820	E92X421VND821MB65T	40 × 65	B65	0.102	5.5
	1,200	E92X421VND122MB80T	40 × 80	B80	0.079	6.6
	1,500	E92X421VND152MBA0T	40 × 100	BA0	0.061	8.2
	820	E92X421VNT821MU50T	45 × 50	U50	0.124	4.8
	1,000	E92X421VNT102MU65T	45 × 65	U65	0.089	6.2
	1,200	E92X421VNT122MU80T	45 × 80	U80	0.069	7.6
	1,800	E92X421VNT182MUA5T	45 × 105	UA5	0.051	9.9
	1,000	E92X421VNT102MC50T	50 × 50	C50	0.109	5.2
	1,200	E92X421VNT122MC65T	50 × 65	C65	0.078	6.8
	1,800	E92X421VNT182MC80T	50 × 80	C80	0.061	8.5
	2,200	E92X421VNT222MCA5T	50 × 105	CA5	0.044	11.2
450 Volts 500 Volts Surge	220	E92X451VSN221MR40T	30 × 40	R40	0.411	1.8
	330	E92X451VSN331MR50T	30 × 50	R50	0.300	2.3
	390	E92X451VSN391MR65T	30 × 65	R65	0.213	3.1
	330	E92X451VSN331MA40T	35 × 40	A40	0.304	2.5
	470	E92X451VSN471MA50T	35 × 50	A50	0.193	3.5
	560	E92X451VND561MA65T	35 × 65	A65	0.138	4.4
	820	E92X451VND821MA80T	35 × 80	A80	0.107	5.4
	1,000	E92X451VND102MAA0T	35 × 100	AA0	0.082	6.8
	560	E92X451VND561MB50T	40 × 50	B50	0.163	4.0
	820	E92X451VND821MB65T	40 × 65	B65	0.117	5.1
	1,000	E92X451VND102MB80T	40 × 80	B80	0.091	6.2
	1,200	E92X451VND122MBA0T	40 × 100	BA0	0.070	7.7
	680	E92X451VNT681MU50T	45 × 50	U50	0.137	4.6
	1,000	E92X451VNT102MU65T	45 × 65	U65	0.098	5.9
	1,200	E92X451VNT122MU80T	45 × 80	U80	0.076	7.2
	1,800	E92X451VNT182MUA5T	45 × 105	UA5	0.056	9.4
	820	E92X451VNT821MC50T	50 × 50	C50	0.115	5.1
	1,200	E92X451VNT122MC65T	50 × 65	C65	0.083	6.6
	1,500	E92X451VNT152MC80T	50 × 80	C80	0.064	8.2
	2,200	E92X451VNT222MCA5T	50 × 105	CA5	0.047	10.8
500 Volts 550 Volts Surge	150	E92X501VSN151MR40T	30 × 40	R40	0.557	1.6
	180	E92X501VSN181MR50T	30 × 50	R50	0.464	1.9
	270	E92X501VSN271MR65T	30 × 65	R65	0.310	2.6
	220	E92X501VSN221MA40T	35 × 40	A40	0.362	2.3
	270	E92X501VSN271MA50T	35 × 50	A50	0.295	2.8
	390	E92X501VND391MA65T	35 × 65	A65	0.204	3.6

†For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

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Standard Voltage Ratings - Snap Mount

Rated Voltage (WVDC)	Capacitance (µF)	Global Part Number†	Nominal Case Size* D×L (mm)	Case Size Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (A rms) at +85°C, 120Hz
500 Volts 550 Volts Surge	560	E92X501VND561MA80T	35 × 80	A80	0.142	4.7
	680	E92X501VND681MAA0T	35 × 100	AA0	0.117	5.7
	390	E92X501VND391MB50T	40 × 50	B50	0.204	3.6
	560	E92X501VND561MB65T	40 × 65	B65	0.142	4.6
	680	E92X501VND681MB80T	40 × 80	B80	0.117	5.5
	820	E92X501VND821MBA0T	40 × 100	BA0	0.097	6.5
	560	E92X501VNT561MU50T	45 × 50	U50	0.156	4.3
	680	E92X501VNT681MU65T	45 × 65	U65	0.129	5.2
	1,000	E92X501VNT102MU80T	45 × 80	U80	0.088	6.7
	1,200	E92X501VNT122MUA5T	45 × 105	UA5	0.073	8.2
	680	E92X501VNT681MC50T	50 × 50	C50	0.141	4.6
	1,000	E92X501VNT102MC65T	50 × 65	C65	0.096	6.2
	1,200	E92X501VNT122MC80T	50 × 80	C80	0.080	7.4
	1,800	E92X501VNT182MCA5T	50 × 105	CA5	0.053	10.2

†For construction and terminal options, refer to the part numbering system for descriptions and codes.
*** Refer to diagram of dimensions for detailed case size specifications.**

Product specifications are subject to change without notice.
Ask for UCC product bulletins and review specifications before purchase and/or use. Please use our products based on parameters specified in our bulletins.

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