



U37X Series



- Large Can
- Screw Terminals
- General Purpose U37 Grade
- High Ripple
- 350 to 500VDC Ratings
- RoHS Compliant
- 15,000 Hours Lifetime at +85°C
- Up to 175,000 Hours Useful Life



The U37X series is the longest life version of the U37 grade series and is specifically designed to provide the ripple current capability and long life required for high reliability inverter applications. The U37X has an endurance rating of 15,000 hours at +85°C with the rated ripple current applied. The useful life can exceed 175,000 hours at +40°C and 2.1x the ripple current. These capacitors are available in a variety of high current English or Metric thread terminals. Mounting options include a three-footed clamp or bottom threaded stud. Custom designs are also available.

Summary of Specifications

- Screw terminals: high and low post, English and Metric thread.
- Capacitance range: 1,200 to 18,000μF.
- Voltage range: 350 to 500VDC.
- Category temperature range: -40°C to +85°C.
- Leakage current: 0.02CV(μA) or 5mA, whichever is smaller, after 5 minutes at +25°C.
- Standard capacitance tolerance: ±20%
- Nominal case size (D×L): D = 50mm (2.000") to 89mm (3.500"); L = 92mm (3.625") to 219mm (8.625").
- Rated lifetime: 15,000 hours at +85°C with rated ripple current applied.



U37X_{Series}

U37X Specifications - Screw Terminals

Item	Characteristics									
Category Temperature Range	− 40 to +85°C									
Rated Voltage Range	350 to 500VDC									
Capacitance Range	1,200 to 18,000μF at +25°C, 120Hz									
Capacitance Tolerance	±20% (M) at +25°C, 120Hz									
Leakage Current	I = 0.02CV (μA) or 5mA, whichever is smaller, after 5 minutes at +25°C. Where I = Max. leakage current (μA), C = Nominal capacitance (μF) and V = Rated voltage (V)									
Rated Ripple Current Multipliers	Ambient Temperature (°C)									
	+45°C		+65°C		+85°C					
	2.82		1.73		1.00					
	Frequency (Hz)									
	DC Rated Voltage	50Hz	120Hz	300Hz	1kHz	3kHz	10kHz			
	350-500V	0.80	1.00	1.20	1.30	1.40	1.41			
	To determine maximum ripple current at a specified temperature and frequency, use the appropriate multiplier shown.									
Endurance (Load Life)	The following specifications shall be satisfied when the capacitors are restored to +25°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% from initial measurement ESR change : ≤ 200% of initial specified limit Leakage current : ≤ initial specified limit									
Useful Life	With specified standard voltage and ripple current applied, typical life as function of ambient temperature is listed below.									
	+85°C		20,000 hours max.		Capacitance change: ≤ 30% from initial measurement ESR change : ≤ 300% of initial specified limit Leakage current : ≤ initial specified limit					
	+65°C		71,600 hours max.							
+45°C		175,000 hours max.								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to +25°C after exposing them for 500 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% from initial measurement ESR change : ≤ 200% of initial specified limit Leakage current : ≤ initial specified limit									
Vibration Rating	10-55Hz, 10g sinusoidal in three axes, 2 hours per axis.									
Maximum Tightening Torque	Terminal Code		HP		HL	CD	CP	CH	CA	CS
	Thread Size		10-32 NF-2B		M5x0.8-6H		1/4-28 NF-2B		M6x1-6H	
	3 Threads Engaged		2.0 N·m (18.0 in·lb)				4.0 N·m (35.0 in·lb)			
	6 Threads Engaged		2.8 N·m (25.0 in·lb)				6.2 N·m (55.0 in·lb)			
Typical Inductance (nH) at 1MHz	Case Diameter (mm)		Terminal Code							
			HP	HL	CD	CP	CH	CA	CS	
	ø50.8	—	—	NA	NA	NA	NA	NA		
	ø63.5	—	—	—	—	—	—	—		
	ø76.2	30	30	25	20	25	20	25		
ø89.0	30	30	25	20	25	20	25			
Custom Designs	Custom CV values per case size and termination type may be available upon request. Contact appropriate representative with specific requirements.									



U37X Series

U37X Useful Life

Useful Life: 20,000 Hours at +85°C

The life expectancy of a capacitor is shown as a function of ambient temperature and ripple current load.

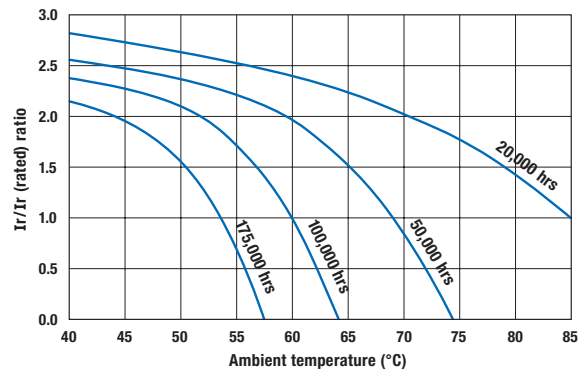
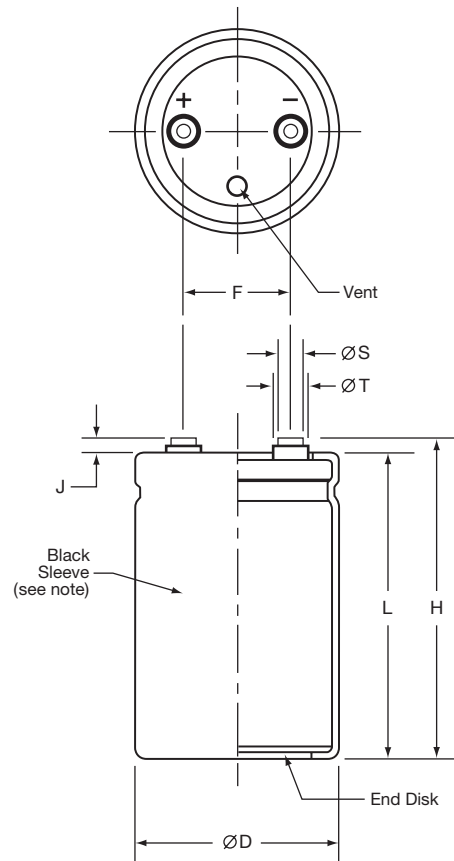


Diagram of Dimensions - Screw Terminals

Large Can/Screw Terminals

Unit: mm (inches)



Case Dimensions and Standard Box Quantities

Case Size Code	ØD +2.0 (0.080)	L ±1.0 (0.040)	F ±0.25 (0.010)	Standard Box Quantity
CB7 CD0	50.8 (2.000)	117 (4.625) 130 (5.125)	22.2 (0.875)	49
D92 DA5 DB7 DD0 DE3	63.5 (2.500)	92 (3.625) 105 (4.125) 117 (4.625) 130 (5.125) 143 (5.625)	28.6 (1.125)	20
E92 EA5 EB7 EE3 EJ1 EM9	76.2 (3.000)	92 (3.625) 105 (4.125) 117 (4.625) 143 (5.625) 181 (7.125) 219 (8.625)	31.8 (1.250)	16 9
F92 FA5 FB7 FE3 FF5 FK0 FM9	89.0 (3.500)	92 (3.625) 105 (4.125) 117 (4.625) 143 (5.625) 155 (6.125) 190 (7.500) 219 (8.625)	31.8 (1.250)	5

Note:

In some cases, the color of the sleeve may change slightly due to the operating conditions, however, the discoloration will not impair capacitor function.

Terminal Specifications

Terminal Code	Available Case Diameter		Thread Size	Minimum Thread Depth	J ±0.5 (0.020)	H ±2.0 (0.080)	ØS ±0.25 (0.010)	ØT ±0.25 (0.010)
	ØD Code	ØD mm (inches)						
HP	C	50.8 (2.000)	10-32 NF-2B	9.5 (0.375)	6.4 (0.250)	L+J	8.0 (0.313)	11.1 (0.438)
HL	C	50.8 (2.000)	M5x0.8-6H	9.5 (0.375)	6.4 (0.250)	L+J	8.0 (0.313)	11.1 (0.438)
CD	D-E	63.5 - 76.2 (2.500 - 3.000)	M5x0.8-6H	8.5 (0.335)	5.0 (0.200)	L+J	13.0 (0.512)	18.8 (0.740)
CP	D-F	63.5 - 89.0 (2.500 - 3.500)	1/4-28 NF-2B	8.7 (0.344)	2.4 (0.093)	L+J	17.5 (0.689)	—
CH	D-F	63.5 - 89.0 (2.500 - 3.500)	1/4-28 NF-2B	11.9 (0.468)	6.4 (0.250)	L+J	17.5 (0.689)	—
CA	D-F	63.5 - 89.0 (2.500 - 3.500)	M6x1-6H	8.7 (0.344)	2.4 (0.093)	L+J	17.5 (0.689)	—
CS	D-F	63.5 - 89.0 (2.500 - 3.500)	M6x1-6H	11.9 (0.468)	6.4 (0.250)	L+J	17.5 (0.689)	—

Mounting Hardware is optional. Refer to hardware specifications on the following page.

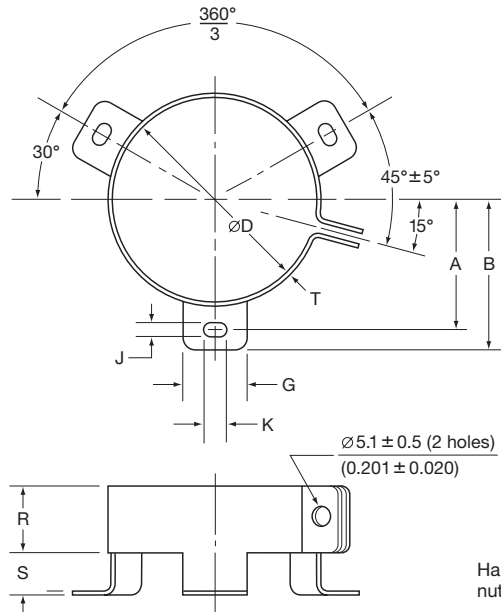


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Mounting Hardware - Screw Terminals

Type C: Three-Footed Clamp

Unit: mm (inches)

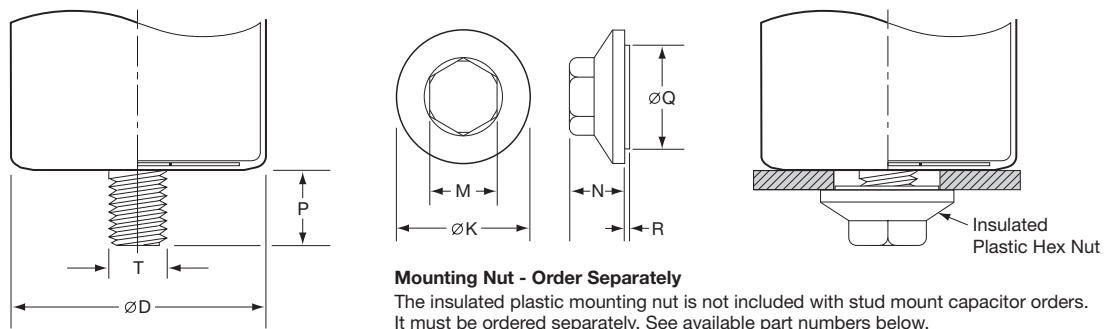


Hardware: Screw, washer and hexagon nut included with each clamp.

Type C: Clamp Dimensions

Mounting Code	Case ØD	A ±1.0 (0.040)	B ±1.0 (0.040)	G ±1.0 (0.040)	J ±0.5 (0.020)	K ±0.5 (0.020)	R ±1.0 (0.040)	S ±1.0 (0.040)	T ±0.5 (0.020)
C	50.8 (2.000)	31.8 (1.250)	36.5 (1.437)	13.3 (0.524)	4.5 (0.177)	7.1 (0.280)	19.1 (0.751)	9.5 (0.374)	0.8 (0.032)
C	63.5 (2.500)	38.1 (1.500)	42.9 (1.689)	13.3 (0.524)	4.5 (0.177)	7.1 (0.280)	19.1 (0.751)	9.5 (0.374)	0.8 (0.032)
C	76.2 (3.000)	44.5 (1.750)	49.2 (1.937)	13.3 (0.524)	4.5 (0.177)	7.1 (0.280)	19.1 (0.751)	9.5 (0.374)	1.0 (0.040)
C	89.0 (3.500)	50.8 (2.000)	56.5 (2.224)	16.0 (0.630)	4.5 (0.177)	8.0 (0.313)	21.0 (0.827)	9.0 (0.354)	1.0 (0.040)

Type S: Stud Mounting



Type S: Stud Dimensions

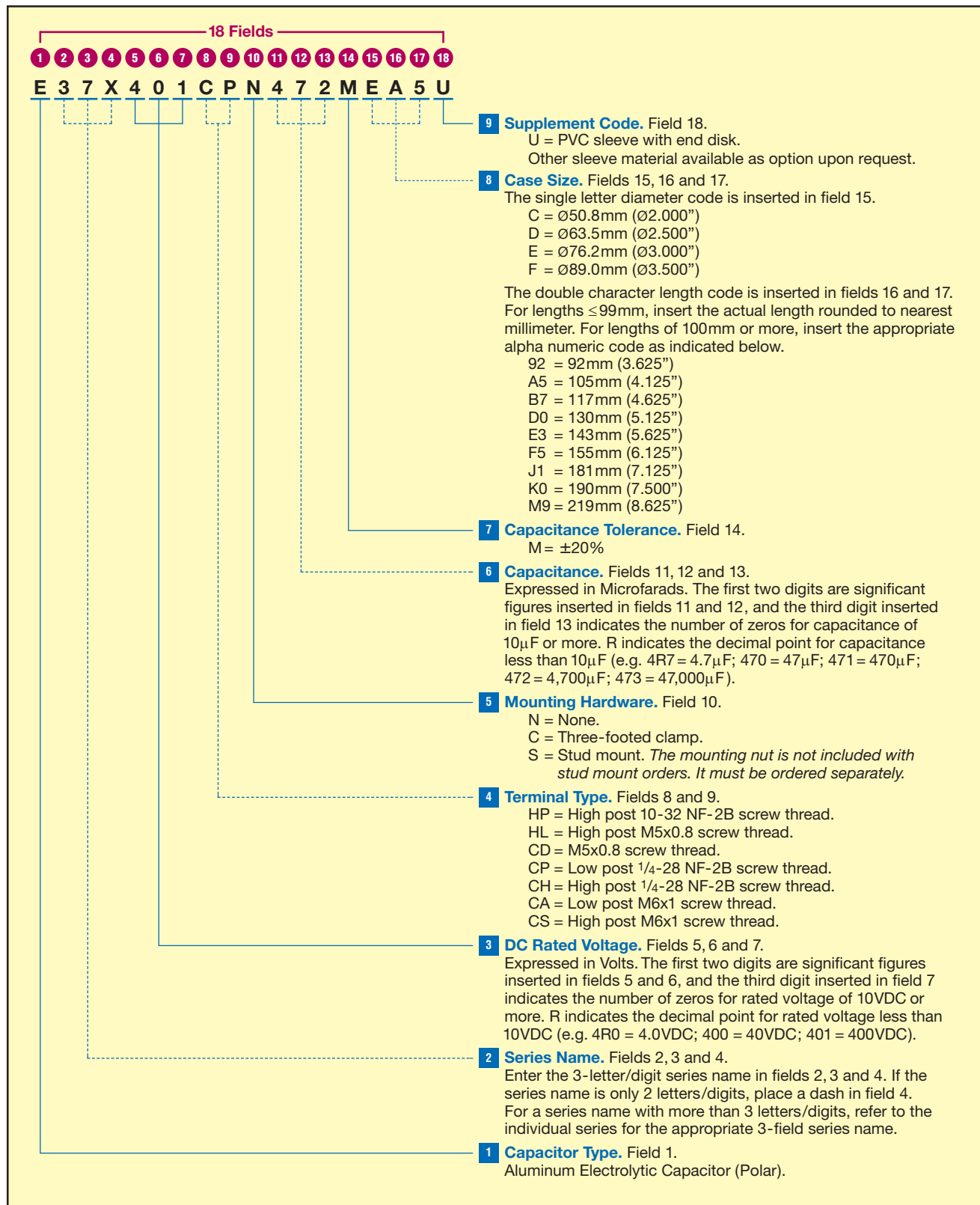
Mounting Code	P ±1.0 (0.040)	T Thread Size
S	16.0 (0.630)	M12

Mounting Nut Dimensions

Part Number	ØK ±2.0 (0.080)	M ±1.0 (0.040)	N ±1.0 (0.040)	Q ±1.0 (0.040)	R ±1.0 (0.040)
50-8D	30.0 (1.181)	19.0 (0.748)	18.0 (0.709)	22.0 (0.866)	1.40 (0.055)
50-8E	38.0 (1.496)	19.0 (0.748)	18.0 (0.709)	30.0 (1.181)	1.40 (0.055)

U37X Series

Part Numbering System for U37X Series When ordering, always specify complete 18-field global part number.





U37X_{Series}

Standard Voltage Ratings - Screw Terminals

Rated Voltage (WVDC)	Capacitance (μF)	Global Part Number†	Nominal Case Size* D × L (mm)	Case Size Code	Maximum ESR (mΩ) at +25°C, 120Hz	Rated Ripple Current (A rms) at +85°C		
						120Hz	300Hz	>3kHz
350 Volts 400 Volts Surge	2,700	E37X351HPN272MCB7U	50 × 117	CB7	35	9.6	11.5	13.4
	3,300	E37X351HPN332MCD0U	50 × 130	CD0	31	10.6	12.8	14.9
	2,700	E37X351CPN272MD92U	63.5 × 92	D92	37	9.7	11.6	13.5
	3,300	E37X351CPN332MDA5U	63.5 × 105	DA5	31	11.1	13.3	15.5
	3,900	E37X351CPN392MDB7U	63.5 × 117	DB7	26	12.4	14.9	17.4
	4,700	E37X351CPN472MDD0U	63.5 × 130	DD0	23	13.8	16.5	19.3
	4,700	E37X351CPN472MDE3U	63.5 × 143	DE3	21	15.1	18.1	21.2
	3,900	E37X351CPN392ME92U	76.2 × 92	E92	26	12.7	15.2	17.8
	4,700	E37X351CPN472MEA5U	76.2 × 105	EA5	22	14.5	17.4	20.3
	5,600	E37X351CPN562MEB7U	76.2 × 117	EB7	19	16.3	19.5	22.8
	8,200	E37X351CPN822MEE3U	76.2 × 143	EE3	15	19.8	23.7	27.7
	10,000	E37X351CPN103MEJ1U	76.2 × 181	EJ1	11	25.0	30.0	35.0
	12,000	E37X351CPN123MEM9U	76.2 × 219	EM9	9	30.1	36.1	42.2
	5,600	E37X351CPN562MF92U	89 × 92	F92	19	16.2	19.4	22.7
	6,800	E37X351CPN682MFA5U	89 × 105	FA5	16	18.5	22.2	25.9
	8,200	E37X351CPN822MFB7U	89 × 117	FB7	14	20.7	24.9	29.0
	12,000	E37X351CPN123MFE3U	89 × 143	FE3	11	25.2	30.2	35.2
	12,000	E37X351CPN123MFF5U	89 × 155	FF5	10	27.3	32.8	38.2
400 Volts 450 Volts Surge	15,000	E37X351CPN153MFK0U	89 × 190	FK0	8	33.3	40.0	46.6
	18,000	E37X351CPN183MFM9U	89 × 219	FM9	6	38.2	45.8	53.5
400 Volts 450 Volts Surge	2,700	E37X401HPN272MCB7U	50 × 117	CB7	41	8.9	10.7	12.5
	2,700	E37X401HPN272MCD0U	50 × 130	CD0	35	9.9	11.9	13.9
	2,700	E37X401CPN272MD92U	63.5 × 92	D92	43	9.0	10.8	12.6
	2,700	E37X401CPN272MDA5U	63.5 × 105	DA5	36	10.3	12.3	14.4
	3,300	E37X401CPN332MDB7U	63.5 × 117	DB7	31	11.6	13.9	16.2
	3,900	E37X401CPN392MDD0U	63.5 × 130	DD0	27	12.8	15.4	18.0
	3,900	E37X401CPN392MDE3U	63.5 × 143	DE3	24	14.1	16.9	19.7
	3,900	E37X401CPN392ME92U	76.2 × 92	E92	30	11.8	14.2	16.5
	4,700	E37X401CPN472MEA5U	76.2 × 105	EA5	25	13.5	16.2	18.9
	5,600	E37X401CPN562MEB7U	76.2 × 117	EB7	22	15.2	18.2	21.2
	6,800	E37X401CPN682MEE3U	76.2 × 143	EE3	17	18.4	22.1	25.8
	8,200	E37X401CPN822MEJ1U	76.2 × 181	EJ1	13	23.3	27.9	32.6
	12,000	E37X401CPN123MEM9U	76.2 × 219	EM9	10	28.0	33.6	39.3
	5,600	E37X401CPN562MF92U	89 × 92	F92	22	15.1	18.1	21.1
	6,800	E37X401CPN682MFA5U	89 × 105	FA5	19	17.2	20.6	24.1
	6,800	E37X401CPN682MFB7U	89 × 117	FB7	16	19.3	23.2	27.0
	10,000	E37X401CPN103MFE3U	89 × 143	FE3	12	23.4	28.1	32.8
	10,000	E37X401CPN103MFF5U	89 × 155	FF5	11	25.4	30.5	35.6
420 Volts 470 Volts Surge	12,000	E37X401CPN123MFK0U	89 × 190	FK0	9	31.0	37.2	43.4
	15,000	E37X401CPN153MFM9U	89 × 219	FM9	7	35.6	42.7	49.8
420 Volts 470 Volts Surge	2,200	E37X421HPN222MCB7U	50 × 117	CB7	44	8.5	10.2	11.9
	2,700	E37X421HPN272MCD0U	50 × 130	CD0	39	9.4	11.3	13.2
	2,200	E37X421CPN222MD92U	63.5 × 92	D92	47	8.6	10.3	12.0
	2,700	E37X421CPN272MDA5U	63.5 × 105	DA5	39	9.8	11.8	13.8
	3,300	E37X421CPN332MDB7U	63.5 × 117	DB7	33	11.0	13.3	15.5
	3,900	E37X421CPN392MDD0U	63.5 × 130	DD0	29	12.2	14.7	17.1
	3,900	E37X421CPN392MDE3U	63.5 × 143	DE3	26	13.4	16.1	18.8
	3,300	E37X421CPN332ME92U	76.2 × 92	E92	33	11.3	13.5	15.8
	3,900	E37X421CPN392MEA5U	76.2 × 105	EA5	28	12.9	15.5	18.0
	4,700	E37X421CPN472MEB7U	76.2 × 117	EB7	24	14.5	17.4	20.3
	5,600	E37X421CPN562MEE3U	76.2 × 143	EE3	19	17.6	21.1	24.6
	8,200	E37X421CPN822MEJ1U	76.2 × 181	EJ1	14	22.2	26.6	31.1
	10,000	E37X421CPN103MEM9U	76.2 × 219	EM9	11	26.8	32.1	37.5
	4,700	E37X421CPN472MF92U	89 × 92	F92	25	14.4	17.3	20.2
	5,600	E37X421CPN562MFA5U	89 × 105	FA5	21	16.4	19.7	23.0

† For terminal, mounting and construction options, refer to the part numbering system for descriptions and codes.

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



U37X_{Series}

Standard Voltage Ratings - Screw Terminals

Rated Voltage (WVDC)	Capacitance (μF)	Global Part Number†	Nominal Case Size* D × L (mm)	Case Size Code	Maximum ESR (mΩ) at +25°C, 120Hz	Rated Ripple Current (A rms) at +85°C		
						120Hz	300Hz	>3kHz
420 Volts 470 Volts Surge	6,800	E37X421CPN682MFB7U	89 × 117	FB7	18	18.4	22.1	25.8
	8,200	E37X421CPN822MFE3U	89 × 143	FE3	14	22.4	26.8	31.3
	10,000	E37X421CPN103MFF5U	89 × 155	FF5	12	24.3	29.1	34.0
	12,000	E37X421CPN123MFK0U	89 × 190	FK0	10	29.6	35.5	41.4
	15,000	E37X421CPN153MFM9U	89 × 219	FM9	8	34.0	40.7	47.5
450 Volts 500 Volts Surge	1,800	E37X451HPN182MCB7U	50 × 117	CB7	51	8.0	9.6	11.2
	2,200	E37X451HPN222MCD0U	50 × 130	CD0	44	8.9	10.6	12.4
	2,200	E37X451CPN222MD92U	63.5 × 92	D92	53	8.1	9.7	11.3
	2,200	E37X451CPN222MDA5U	63.5 × 105	DA5	44	9.2	11.1	12.9
	2,700	E37X451CPN272MDB7U	63.5 × 117	DB7	38	10.4	12.4	14.5
	3,300	E37X451CPN332MDD0U	63.5 × 130	DD0	33	11.5	13.8	16.1
	3,900	E37X451CPN392MDE3U	63.5 × 143	DE3	30	12.6	15.1	17.6
	3,300	E37X451CPN332ME92U	76.2 × 92	E92	38	10.6	12.7	14.8
	3,900	E37X451CPN392MEA5U	76.2 × 105	EA5	32	12.1	14.5	16.9
	3,900	E37X451CPN392MEB7U	76.2 × 117	EB7	27	13.6	16.3	19.0
	5,600	E37X451CPN562MEE3U	76.2 × 143	EE3	21	16.5	19.8	23.1
	6,800	E37X451CPN682MEJ1U	76.2 × 181	EJ1	16	20.8	25.0	29.2
	8,200	E37X451CPN822MEM9U	76.2 × 219	EM9	13	25.1	30.1	35.2
	3,900	E37X451CPN392MF92U	89 × 92	F92	28	13.5	16.2	18.9
	4,700	E37X451CPN472MFA5U	89 × 105	FA5	23	15.4	18.5	21.6
	5,600	E37X451CPN562MFB7U	89 × 117	FB7	20	17.3	20.7	24.2
	8,200	E37X451CPN822MFE3U	89 × 143	FE3	16	21.0	25.2	29.4
	8,200	E37X451CPN822MFF5U	89 × 155	FF5	14	22.8	27.3	31.9
	10,000	E37X451CPN103MFK0U	89 × 190	FK0	11	27.8	33.3	38.9
	12,000	E37X451CPN123MFM9U	89 × 219	FM9	9	32.2	38.6	45.0
500 Volts 550 Volts Surge	1,200	E37X501HPN122MCB7U	50 × 117	CB7	78	6.4	7.7	9.0
	1,500	E37X501HPN152MCD0U	50 × 130	CD0	68	7.2	8.6	10.0
	1,500	E37X501CPN152MD92U	63.5 × 92	D92	67	7.2	8.6	10.1
	1,800	E37X501CPN182MDA5U	63.5 × 105	DA5	56	8.2	9.9	11.5
	2,200	E37X501CPN222MDB7U	63.5 × 117	DB7	48	9.3	11.1	13.0
	2,700	E37X501CPN272MDD0U	63.5 × 130	DD0	42	10.3	12.3	14.4
	2,700	E37X501CPN272MDE3U	63.5 × 143	DE3	37	11.3	13.5	15.8
	2,200	E37X501CPN222ME92U	76.2 × 92	E92	48	9.5	11.3	13.2
	2,700	E37X501CPN272MEA5U	76.2 × 105	EA5	40	10.8	13.0	15.1
	3,300	E37X501CPN332MEB7U	76.2 × 117	EB7	34	12.1	14.6	17.0
	3,900	E37X501CPN392MEE3U	76.2 × 143	EE3	26	14.8	17.7	20.7
	5,600	E37X501CPN562MEJ1U	76.2 × 181	EJ1	20	18.6	22.3	26.1
	6,800	E37X501CPN682MEM9U	76.2 × 219	EM9	16	22.5	26.9	31.4
	3,300	E37X501CPN332MF92U	89 × 92	F92	35	12.1	14.5	16.9
	3,900	E37X501CPN392MFA5U	89 × 105	FA5	29	13.8	16.5	19.3
	4,700	E37X501CPN472MFB7U	89 × 117	FB7	25	15.5	18.5	21.6
	5,600	E37X501CPN562MFE3U	89 × 143	FE3	19	18.8	22.5	26.3
	6,800	E37X501CPN682MFF5U	89 × 155	FF5	18	20.4	24.4	28.5
	8,200	E37X501CPN822MFK0U	89 × 190	FK0	14	24.8	29.8	34.8
	10,000	E37X501CPN103MFM9U	89 × 219	FM9	12	28.5	34.2	39.9

†For terminal, mounting and construction options, refer to the part numbering system for descriptions and codes.

*Refer to diagram of dimensions for detailed case size 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.

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

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