

# 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 18,000 µF.
- 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 Specifications - Screw Terminals**

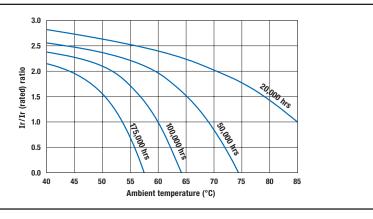
Item				Chai	acter	istics				
Category Temperature Range	-40 to +85°C									
Rated Voltage Range	350 to 500VDC									
Capacitance Range	1,200 to 18,000μF	at +25	5°C. 120H:	 Z						
Capacitance Tolerance		±20% (M) at +25°C, 120Hz								
	• • • • • • • • • • • • • • • • • • • •	-		or io omol	lor off	or E minu	itos et 1 06	5°C		
Leakage Current	$I = 0.02CV (\mu A) o$								otod vol	taga (\/\
Data d Disasta Occurs at Multislians	Where I = Max. leal			1), C = NO	IIIIIai	Барасна	rice (μr ) ai	iiu v = r	ialeu voi	tage (v)
Rated Ripple Current Multipliers	Ambient Temperat	ure (°C	·)	,						
	+45°C +65	-	+85°C	1						
	2.82 1.7	3	1.00							
	Frequency (Hz)									
	DC Rated Voltage	5	50Hz	120Hz	30	00Hz	1kHz	3kl	Hz	10kHz
	350-500V	(	0.80	1.00	1	.20	1.30	1.4	10	1.41
	To determine maximum multiplier shown.	ım ripp	le current a	t a specifie	d temp	erature a	nd frequency	y, use the	e appropr	iate
Endurance (Load Life)	The following specifications shall be satisfied when the capacitors are restored to +25°C aft subjecting them to DC voltage for 15,000 hours at +85°C with the rated ripple current applie. The sum of the DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitors.							t applied.		
	Capacitance change ESR change Leakage current	:≤2	20% from 200% of ir nitial spec	itial spec	ified li					
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									
	+65°C 71,	600 ho	urs max.	ESR	chang	е	: ≤ 300%	of initia	al specifi	
	+45°C 175,	000 ho	urs max.	Leak	age cı	ırrent	: ≤ initial :	specifie	d limit	
Shelf Life	The following specesoring them for applied to the capa 48 hours before the	500 ho	ours at +8 s for a min	35°C with imum of 3	out vo	ltage app	olied. The r	ated vo	ltage sh	all be
	Capacitance change ESR change Leakage current	:≤2	20% from 200% of ir nitial spec	itial spec	ified li					
Vibration Rating	10-55Hz, 10g sinus	soidal	in three a	kes, 2 hou	ırs pei	axis.				
Maximum Tightening Torque									1	
	Terminal Code		HP		HL	CD	CP	CH	CA	CS
	Thread Size	al	10-32 NF		M5x0.	8-6H	1/ <sub>4</sub> - 28 N			k1-6H
	3 Threads Engage 6 Threads Engage			N·m (18.0					35.0 in∙lb 55.0 in∙lb	,
	o mieaus Liigage	u	2.0	11111 (23.0	111110)		0	.2 14*111 (	33.0 III*IL	')
Typical Inductance (nH)						T	>1-			
at 1MHz	Case Diameter (mm)	HP	Н	ı	CD	Terminal C	CH		CA	CS
	Ø50.8				NA	NA NA	NA NA		NA	NA
	Ø63.5			_	_	_			_	_
	Ø76.2	30	3		25	20	25		20	25
	Ø89.0	30	3	0	25	20	25		20	25
Custom Designs	Custom CV values Contact appropria							ole upor	n reques	t.



### **U37X Useful Life**

### Useful Life: 20,000 Hours at +85°C

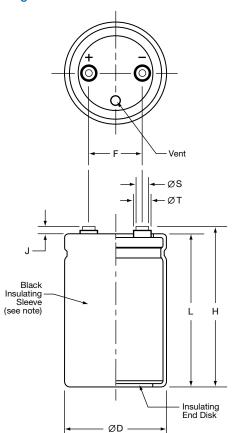
The life expectancy of a capacitor is shown as a function of ambient temperature and ripple current load.



### **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	76.2 (3.000)	92 (3.625) 105 (4.125) 117 (4.625) 143 (5.625)	31.8 (1.250)	16
EJ1 EM9		181 (7.125) 219 (8.625)		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

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	Av	ailable Case Diameter	Thread	Minimum		ш	øs	øΤ
Code	øD Code	ØD mm (inches)	Size	Thread Depth	± 0.5 (0.020)	± 2.0 (0.080)		± 0.25 (0.010)
HP	С	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	С	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/ <sub>4</sub> - 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/ <sub>4</sub> - 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)	_

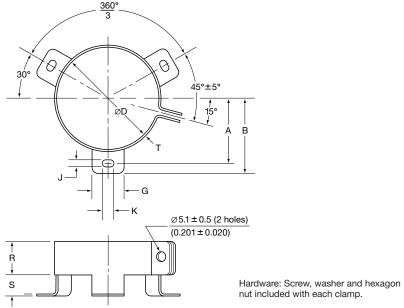
Mounting Hardware is optional. Refer to hardware specifications on the following page.



### **Mounting Hardware - Screw Terminals**

**Type C: Three-Footed Clamp** 

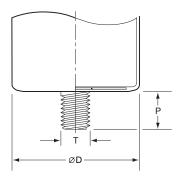
Unit: mm (inches)

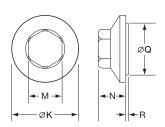


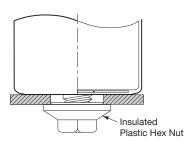
Type C: Clamp Dimensions

ounting 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)
С	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)
С	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)
С	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** 







Mounting Nut - Order Separately

The insulated plastic mounting nut is not included with stud mount capacitor orders. It must be ordered separately. See available part numbers below.

**Type S: Stud Dimensions** 

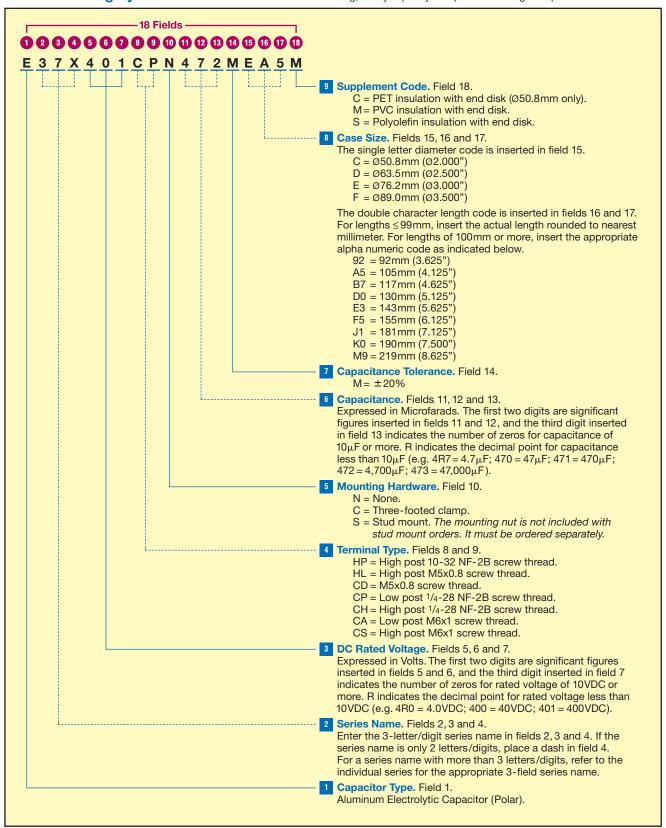
Mounting	P	T
Code	±1.0 (0.040)	Thread Size
S	16.0 (0.630)	M12

### **Mounting Nut Dimensions**

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



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





### **Standard Voltage Ratings - Screw Terminals**

Rated Voltage	Capacitance (µF)	Global Part Number†	Nominal Case Size*	Case Size	Maximum ESR (mΩ) at			
(WVDC)	(pi )	T di t i di li d	D×L (mm)	Code	+25°C,120Hz	120Hz	300Hz	>3kHz
	2,700	E37X351HPN272MCB7M	50 × 117	CB7	35	9.6	11.5	13.4
	3,300	E37X351HPN332MCD0M	50 × 130	CD0	31	10.6		14.9
	2,700	E37X351CPN272MD92M	63.5 × 92	D92	37	9.7		13.5
	3,300	E37X351CPN332MDA5M	63.5 × 105	DA5	31	11.1		15.5
	3,900	E37X351CPN392MDB7M	63.5 × 117	DB7	26	12.4		17.4
	4,700	E37X351CPN472MDD0M	63.5 × 130	DD0	23	13.8		19.3
	4,700	E37X351CPN472MDE3M	63.5 × 143	DE3	21	15.1	18.1	21.2
	3,900	E37X351CPN392ME92M	76.2 × 92	E92	26	12.7	15.2	17.8
	4,700	E37X351CPN472MEA5M	76.2 × 105	EA5	22	14.5	17.4	20.3
350 Volts	5,600	E37X351CPN562MEB7M	76.2 × 117	EB7	19	16.3	19.5	22.8
400 Volts Surge	8,200	E37X351CPN822MEE3M	76.2 × 143	EE3	15	19.8	23.7	27.7
•	10,000	E37X351CPN103MEJ1M	76.2 × 181	EJ1	11	25.0	30.0	35.0
	12,000	E37X351CPN123MEM9M	76.2 × 219	EM9	9	30.1	36.1	42.2
	5,600	E37X351CPN562MF92M	89 × 92	F92	19	16.2	19.4	22.7
	6,800	E37X351CPN682MFA5M	89 × 105	FA5	16	18.5	22.2	25.9
	8,200	E37X351CPN822MFB7M	89 × 117	FB7	14	20.7	24.9	29.0
	12,000	E37X351CPN123MFE3M	89 × 143	FE3	11	25.2	30.2	35.2
	12,000	E37X351CPN123MFF5M	89 × 155	FF5	10	27.3	32.8	38.2
	15,000	E37X351CPN153MFK0M	89 × 190	FK0	8	33.3	6 11.5 6 12.8 7 11.6 1 13.3 4 14.9 8 16.5 1 18.1 7 15.2 5 17.4 3 19.5 8 23.7 0 30.0 1 36.1 2 19.4 5 22.2 7 24.9 2 30.2 3 32.8 3 40.0 2 45.8 9 10.7 9 11.9 0 10.8 3 12.3 6 13.9 8 15.4 1 16.9 8 14.2 1 16.9 8 15.4 1 16.9 8 15.4 1 16.9 8 14.2 1 16.2 2 18.2 4 22.1 3 27.9 0 33.6 1 18.1 2 20.6 3 23.2 4 28.1 4 30.5 6 10.3 8 11.3 6 10.3 8 11.3 6 10.3 8 11.3 6 10.2 6 42.7	46.6
	18,000	E37X351CPN183MFM9M	89 × 219	FM9	6	38.2		53.5
	•				•			
	2,700	E37X401HPN272MCB7M	50 × 117	CB7	41	8.9	10.7	12.5
	2,700	E37X401HPN272MCD0M	50 × 130	CD0	35	9.9	11.9	13.9
	2,700	E37X401CPN272MD92M	63.5 × 92	D92	43	9.0		12.6
	2,700	E37X401CPN272MDA5M	63.5 × 105	DA5	36	10.3		14.4
	3,300	E37X401CPN332MDB7M	63.5 × 117	DB7	31	11.6	13.9	16.2
	3,900	E37X401CPN392MDD0M	63.5 × 130	DD0	27	12.8	15.4	18.0
	3,900	E37X401CPN392MDE3M	63.5 × 143	DE3	24	14.1	16.9	19.7
	3,900	E37X401CPN392ME92M	76.2 × 92	E92	30	11.8	14.2	16.5
	4,700	E37X401CPN472MEA5M	76.2 × 105	EA5	25	13.5	16.2	18.9
400 Volts	5,600	E37X401CPN562MEB7M	76.2 × 117	EB7	22	15.2		21.2
450 Volts Surge	6,800	E37X401CPN682MEE3M	76.2 × 143	EE3	17	18.4		25.8
	8,200	E37X401CPN822MEJ1M	76.2 × 181	EJ1	13	23.3		32.6
	12,000	E37X401CPN123MEM9M	76.2 × 219	EM9	10	28.0		39.3
	5,600	E37X401CPN562MF92M	89 × 92	F92	22	15.1	18.1	21.1
	6,800	E37X401CPN682MFA5M	89 × 105	FA5	19	17.2		24.1
	6,800	E37X401CPN682MFB7M	89 × 117	FB7	16	19.3		27.0
	10,000	E37X401CPN103MFE3M	89 × 143	FE3	12	23.4		32.8
	10,000	E37X401CPN103MFF5M	89 × 155	FF5	11	25.4		35.6
	12,000	E37X401CPN123MFK0M	89 × 190	FK0	9	31.0	37.2	43.4
	15,000	E37X401CPN153MFM9M	89 × 219	FM9	7	35.6	11.5 12.8 11.6 13.3 14.9 16.5 18.1 15.2 17.4 19.5 23.7 30.0 36.1 19.4 22.2 24.9 30.2 32.8 40.0 45.8  10.7 11.9 10.8 12.3 13.9 15.4 16.9 14.2 16.2 18.2 22.1 27.9 33.6 18.1 20.6 23.2 28.1 30.5 37.2 42.7	49.8
	2,200	E37X421HPN222MCB7M	50 × 117	CB7	44	8.5	10.2	11.9
	2,700	E37X421HPN272MCD0M	50 × 130	CD0	39	9.4		13.2
	2,200	E37X421CPN222MD92M	63.5 × 92	D92	47	8.6		12.0
	2,700	E37X421CPN272MDA5M	63.5 × 105	DA5	39	9.8		13.8
	3,300	E37X421CPN332MDB7M	63.5 × 117	DB7	33	11.0		15.5
420 Volts 470 Volts Surge	3,900	E37X421CPN392MDD0M	63.5 × 130	DD0	29	12.2		17.1
	3,900	E37X421CPN392MDE3M	63.5 × 143	DE3	26	13.4		18.8
	3,300	E37X421CPN332ME92M	76.2 × 92	E92	33	11.3		15.8
	3,900	E37X421CPN392MEA5M	76.2 × 105	EA5	28	12.9		18.0
	4,700	E37X421CPN472MEB7M	76.2 × 117	EB7	24	14.5		20.3
	5,600	E37X421CPN562MEE3M	76.2 × 143	EE3	19	17.6		24.6
	8,200	E37X421CPN822MEJ1M	76.2 × 181	EJ1	14	22.2		31.1
	10,000	E37X421CPN103MEM9M	76.2 × 219	EM9	11	26.8		37.5
	4,700	E37X421CPN472MF92M	89 × 92	F92	25	14.4		20.2
	5,600	E37X421CPN562MFA5M	89 × 105	FA5	21	16.4		23.0

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

<sup>\*</sup> Refer to diagram of dimensions for detailed case size specifications.



### **Standard Voltage Ratings - Screw Terminals**

Rated Voltage	Capacitance (µF)	Global Part Number†	Nominal Case Size*	Case Size	Maximum ESR (m $\Omega$ ) at		d Ripple C rms) at +8	
(WVDC)	(рі )	r art Number	D×L (mm)	Code	+25°C, 120Hz	120Hz	300Hz	>3kHz
	6,800	E37X421CPN682MFB7M	alber†         Case Size* D×L (mm)         Size Code         (mΩ) at +25°C, 120Hz         (A rms) 120Hz         30           82MFB7M         89 × 117         FB7         18         18.4         2           22MFE3M         89 × 143         FE3         14         22.4         2           23MFK0M         89 × 190         FK0         10         29.6         3           53MFM9M         89 × 219         FM9         8         34.0         4           82MCB7M         50 × 117         CB7         51         8.0         4           82MCB7M         50 × 117         CB7         51         8.0         4           82MCB7M         50 × 130         CD0         44         8.9         1           22MDA5M         63.5 × 92         D92         53         8.1         2           22MDA5M         63.5 × 105         DA5         44         9.2         1           32MDDOM         63.5 × 130         DD0         33         11.5         1           32ME92M         76.2 × 92         E92         38         10.6         1           32ME92M         76.2 × 117         EB7         27         13.6         1	22.1	25.8			
400 Valla	8,200	E37X421CPN822MFE3M	89 × 143	FE3	14	22.4	26.8	31.3
420 Volts	10,000	E37X421CPN103MFF5M	89 × 155	FF5	12	24.3	29.1	34.0
470 Volts Surge	12,000	E37X421CPN123MFK0M	89 × 190	FK0	10	29.6	35.5	41.4
	15,000	E37X421CPN153MFM9M	89 × 219	FM9	8	34.0	40.7	47.5
	1,800	E37X451HPN182MCB7M		_			9.6	11.2
	2,200	E37X451HPN222MCD0M		_			10.6	12.4
	2,200	E37X451CPN222MD92M	63.5 × 92				9.7	11.3
	2,200	E37X451CPN222MDA5M		_			11.1	12.9
	2,700	E37X451CPN272MDB7M	63.5 × 117	DB7	38	10.4	12.4	14.5
	3,300	E37X451CPN332MDD0M	63.5 × 130	DD0	33	11.5	13.8	16.1
	3,900	E37X451CPN392MDE3M	63.5 × 143	DE3	30	12.6	15.1	17.6
	3,300	E37X451CPN332ME92M	76.2 × 92	E92	38	10.6	12.7	14.8
	3,900	E37X451CPN392MEA5M	76.2 × 105	EA5	32	12.1	14.5	16.9
450 Volts	3,900	E37X451CPN392MEB7M	76.2 × 117	EB7	27	13.6	16.3	19.0
500 Volts Surge	5,600	E37X451CPN562MEE3M	76.2 × 143	EE3	21	16.5	19.8	23.1
	6,800	E37X451CPN682MEJ1M	76.2 × 181	EJ1	16	20.8	25.0	29.2
	8,200	E37X451CPN822MEM9M	76.2 × 219	EM9	13	25.1	30.1	35.2
	3,900	E37X451CPN392MF92M	89 × 92	F92	28	13.5	16.2	18.9
	4,700	E37X451CPN472MFA5M	89 × 105	FA5	23	15.4	18.5	21.6
	5,600	E37X451CPN562MFB7M	89 × 117	FB7	20	17.3	20.7	24.2
	8,200	E37X451CPN822MFE3M	89 × 143	FE3	16	21.0	25.2	29.4
	8,200	E37X451CPN822MFF5M	89 × 155	FF5	14	22.8	27.3	31.9
	10,000	E37X451CPN103MFK0M	89 × 190	FK0	11	27.8	33.3	38.9
	12,000	E37X451CPN123MFM9M	89 × 219	FM9	9	32.2	38.6	45.0
			•					
	1,200	E37X501HPN122MCB7M	50 × 117	CB7	78	6.4	7.7	9.0
	1,500	E37X501HPN152MCD0M	50 × 130	CD0	68	7.2	8.6	10.0
	1,500	E37X501CPN152MD92M	63.5 × 92	D92	67	7.2	8.6	10.1
	1,800	E37X501CPN182MDA5M	63.5 × 105	DA5	56	8.2	9.9	11.5
	2,200	E37X501CPN222MDB7M	63.5 × 117	DB7	48	9.3	11.1	13.0
	2,700	E37X501CPN272MDD0M	63.5 × 130	DD0	42	10.3	12.3	14.4
	2,700	E37X501CPN272MDE3M	63.5 × 143	DE3	37	11.3	13.5	15.8
	2,200	E37X501CPN222ME92M	76.2 × 92	E92	48	9.5	11.3	13.2
	2,700	E37X501CPN272MEA5M		EA5	40	10.8	13.0	15.1
500 Volts	3,300	E37X501CPN332MEB7M					14.6	17.0
550 Volts Surge	3,900	E37X501CPN392MEE3M		_			17.7	20.7
	5,600	E37X501CPN562MEJ1M		_			22.3	26.1
	6,800	E37X501CPN682MEM9M					26.9	31.4
	3,300	E37X501CPN332MF92M					14.5	16.9
	3,900	E37X501CPN392MFA5M					16.5	19.3
	4,700	E37X501CPN472MFB7M		_			18.5	21.6
	5,600	E37X501CPN562MFE3M		_			22.5	26.3
	6,800	E37X501CPN682MFF5M		_			24.4	28.5
	8,200	E37X501CPN822MFK0M		_			29.8	34.8
		LUI AUU I UI INOZZIVII RUIVI	1 00 100	1 1 1 ( )	1 14	4.0		. 04.0

<sup>†</sup>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.