

U767D Series

U767D SERIES
Engineering Bulletin Mar 07



U767D
LARGE TUBULARS 125°C

- Large Tubulars
- High +125°C Temperature
- Designed For Automotive 36V and 42V Systems
- Vibration Resistant
- Optional Low Profile Mounting



The U767D series, the industry's standard 125°C aluminum electrolytic, offers a wide voltage range, long life, high capacitance and high ripple current capability. These U767D series capacitors allow the designer to reduce the size, weight and cost of high performance automotive 36V and 42V systems. These capacitors maintain a continuous 3,000 hour, 125°C load life (12,000 hours at 105°C with the 125°C rated ripple current applied) and are high vibration resistant. The U767D capacitors are available in either the standard three lead (keyed polarity) radial vertical mounting or the optional low profile three formed lead horizontal mounting style. Custom designs are available upon request.

The U767D capacitors are *not* solvent proof. Refer to guidelines and precautions on the website for usage and installation conditions recommended for United Chemi-Con products.

Summary of Specifications

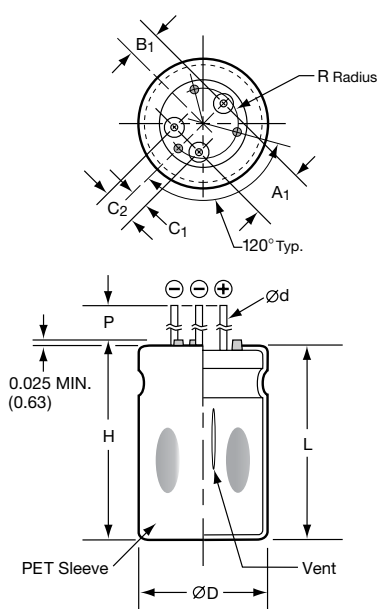
- 3 radial leads for vertical mount; optional 3 formed leads for horizontal mount.
- Capacitance range: 47 to 56,000µF.
- Voltage range: 6.3 to 250VDC.
- Category temperature range: -55°C to +125°C.
- Leakage current in µA: $I = K\sqrt{CV}$: K = 0.5 at +25°C, 4.0 at +125°C after 5 minutes.
- Standard capacitance tolerance: ±20%
- Nominal case size (D × L): 19 × 29mm to 25 × 92mm.
- Rated lifetime: 3,000 hours at +125°C with rated ripple current applied and 12,000 hours at +105°C with +125°C rated ripple current applied.

U767D Specifications - Large Tubulars

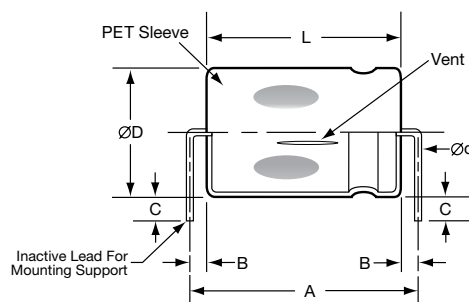
Item	Characteristics												
Category Temperature Range	– 55 to +125°C												
Rated Voltage Range	6.3 to 250VDC												
Capacitance Range	47 to 56,000μF at +25°C, 120Hz												
Capacitance Tolerance	±20% (M) at +25°C, 120Hz												
Vibration Rating	10-1,000Hz, 20g, sinusoidal (10-2,000Hz, 40g, sinusoidal available upon request)												
Leakage Current	$I = K\sqrt{CV}$: K = 0.5 at +25°C, 4.0 at +125°C after 5 minutes. Where I = Max. leakage current (μA), C = Nominal capacitance (μF) and V = Rated voltage (V)												
Rated Ripple Current Multipliers	Ambient Temperature (°C) <table><tr><td>+85°C</td><td>+105°C</td><td>+125°C</td></tr><tr><td>1.00</td><td>0.80</td><td>0.40</td></tr></table> Frequency (Hz) <table><tr><td>300Hz</td><td>1kHz</td><td>20k-100kHz</td></tr><tr><td>0.75</td><td>0.82</td><td>1.00</td></tr></table>	+85°C	+105°C	+125°C	1.00	0.80	0.40	300Hz	1kHz	20k-100kHz	0.75	0.82	1.00
+85°C	+105°C	+125°C											
1.00	0.80	0.40											
300Hz	1kHz	20k-100kHz											
0.75	0.82	1.00											
Endurance (Load Life)	The following specifications shall be satisfied when the capacitors are restored to +25°C after subjecting them to the DC rated voltage for 3,000 hours at +125°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: ≤ 15% from initial measurement ESR change : ≤ 200% of initial specified limit Impedance change : ≤ 200% of initial specified limit Leakage current : ≤ initial specified limit												
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to +25°C after exposing them for 1,000 hours at +125°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: ≤ 10% from initial measurement ESR change : ≤ 150% of initial specified limit Leakage current : ≤ initial specified limit												

Diagram of Dimensions - Large Tubulars

VGS Vertical Mount for 3 Lead Keyed Polarity Radial (Standard)

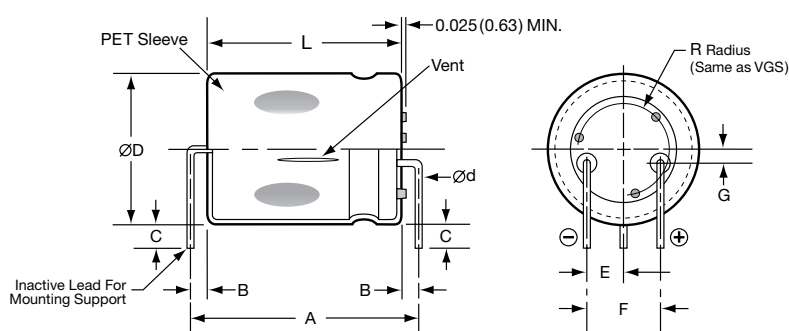


VTX Horizontal Mount for Ø0.750 (Ø19.0)



Unit: inches (mm)

VTX Horizontal Mount for Ø0.875 and Ø1.000 (Ø22.2 and Ø25.4)



VGS Lead Spacing in Inches

ØD Diameter	A1 ±0.015	B1 ±0.020	C1 ±0.015	C2 ±0.020	P ±0.015	R ±0.004
0.750	0.300	0.167	0.100	0.200	0.250	0.203
0.875	0.400	0.228	0.150	0.300	0.250	0.265
1.000	0.400	0.228	0.150	0.300	0.250	0.328

VGS Lead Spacing in Millimeters

ØD Diameter	A1 ±0.40	B1 ±0.50	C1 ±0.40	C2 ±0.50	P ±0.40	R ±0.10
19.0	7.6	4.2	2.5	5.1	6.3	5.2
22.2	10.2	5.8	3.8	7.6	6.3	6.7
25.4	10.2	5.8	3.8	7.6	6.3	8.3

VTX Lead Spacing in Inches

ØD Diameter	A ±0.040	B ±0.020	C ±0.020	E ±0.020	F ±0.020	G ±0.020
0.750	L+0.255	0.100	0.138	0.125	0.250	—
0.875	L+0.255	0.100	0.138	0.213	0.425	0.080
1.000	L+0.255	0.100	0.138	0.213	0.425	0.080

VTX Lead Spacing in Millimeters

ØD Diameter	A ±1.00	B ±0.50	C ±0.50	E ±0.50	F ±0.50	G ±0.50
19.0	L+6.5	2.5	3.5	3.2	6.4	—
22.2	L+6.5	2.5	3.5	5.4	10.8	2.0
25.4	L+6.5	2.5	3.5	5.4	10.8	2.0

VGS and VTX Dimensions in Inches

Case Size Code	ØD ±0.040 With Sleeve	L +0.080 With Sleeve	H +0.080 With Standoffs	Ød ±0.004 Terminal Diameter	Typical Weight (ounces)
T29	0.750	1.125	1.165	0.040	0.458
T35		1.375	1.415		0.635
T41		1.625	1.665		0.811
T54		2.125	2.165		0.988
T67		2.625	2.665		1.164
T79		3.125	3.165		1.340
P29	0.875	1.125	1.165	0.040	0.635
P35		1.375	1.415		0.881
P41		1.625	1.665		1.093
P54		2.125	2.165		1.340
P67		2.625	2.665		1.587
P79		3.125	3.165		1.834
Q29	1.000	1.125	1.165	0.040	0.811
Q35		1.375	1.415		0.988
Q41		1.625	1.665		1.129
Q54		2.125	2.165		1.446
Q67		2.625	2.665		1.764
Q79		3.125	3.165		2.081
Q92		3.625	3.665		2.399

VGS and VTX Dimensions in Millimeters

Case Size Code	ØD ±1.00 With Sleeve	L +2.00 With Sleeve	H +2.00 With Standoffs	Ød ±0.10 Terminal Diameter	Typical Weight (grams)
T29	19.0	29.0	30.0	1.00	13
T35		35.0	36.0		18
T41		41.0	42.0		23
T54		54.0	55.0		28
T67		67.0	68.0		33
T79		79.0	80.0		38
P29	22.2	29.0	30.0	1.00	18
P35		35.0	36.0		25
P41		41.0	42.0		31
P54		54.0	55.0		38
P67		67.0	68.0		45
P79		79.0	80.0		52
Q29	25.4	29.0	30.0	1.00	23
Q35		35.0	36.0		28
Q41		41.0	42.0		32
Q54		54.0	55.0		41
Q67		67.0	68.0		50
Q79		79.0	80.0		59
Q92		92.0	93.0		68

Part Numbering System for U767D Series

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



9 Supplement Code. Field 18.

C = PET sleeve, SnPb terminal plating.

8 Case Size. Fields 15, 16 and 17.

The single letter diameter code is inserted in field 15.

T = Ø0.750" (Ø19mm)

P = Ø0.875" (Ø22mm)

Q = Ø1.000" (Ø25.4mm)

The double digit length code is inserted in fields 16 and 17.

29 = 1.125" (29mm)

35 = 1.375" (35mm)

41 = 1.625" (41mm)

54 = 2.125" (54mm)

67 = 2.625" (67mm)

79 = 3.125" (79mm)

92 = 3.625" (92mm)

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. 3R3 = 3.3µF; 330 = 33µF; 331 = 330µF; 332 = 3,300µF; 333 = 33,000µF).

5 Lead Cut/Forming. Field 10.

S = 3 straight leads, 0.250" (6.3mm) in length.

X = 3 formed leads, 2 radial and 3rd lead axial.

4 Terminal Type. Fields 8 and 9.

VG = 3 lead keyed polarity radial, vertical mount.

VT = 3 formed lead axial, horizontal mount.

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. 3R5 = 3.5VDC; 350 = 35VDC; 351 = 350VDC).

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).

Standard Voltage Ratings - Large Tubulars

Rated Voltage (WVDC)	Capacitance (μF)	Global Part Number†	Nominal Case Size* D × L (inches)	Case Size Code	Maximum ESR (mΩ) at +25°C 20k-100kHz	Maximum Impedance (mΩ) at +25°C, 100kHz	Rated Ripple Current (A rms) at +85°C, 20kHz
6.3 Volts 8 Volts Surge	3,900	E7676R3VGS392MT29C	0.750 × 1.125	T29	32.0	39.0	7.0
	6,800	E7676R3VGS682MT35C	0.750 × 1.375	T35	27.5	32.5	8.5
	10,000	E7676R3VGS103MT41C	0.750 × 1.625	T41	23.0	26.0	10.0
	15,000	E7676R3VGS153MT54C	0.750 × 2.125	T54	16.0	19.0	12.0
	18,000	E7676R3VGS183MT67C	0.750 × 2.625	T67	13.0	16.0	15.0
	22,000	E7676R3VGS223MT79C	0.750 × 3.125	T79	10.0	13.0	18.0
	5,600	E7676R3VGS562MP29C	0.875 × 1.125	P29	25.0	27.0	10.5
	10,000	E7676R3VGS103MP35C	0.875 × 1.375	P35	20.0	22.0	12.0
	12,000	E7676R3VGS123MP41C	0.875 × 1.625	P41	15.0	17.0	13.5
	18,000	E7676R3VGS183MP54C	0.875 × 2.125	P54	11.0	12.0	16.5
	27,000	E7676R3VGS273MP67C	0.875 × 2.625	P67	8.5	10.0	20.0
	33,000	E7676R3VGS333MP79C	0.875 × 3.125	P79	7.5	9.0	23.0
	8,200	E7676R3VGS822MQ29C	1.000 × 1.125	Q29	17.0	21.0	13.5
	15,000	E7676R3VGS153MQ35C	1.000 × 1.375	Q35	14.0	17.5	15.0
	18,000	E7676R3VGS183MQ41C	1.000 × 1.625	Q41	11.0	14.0	16.5
	27,000	E7676R3VGS273MQ54C	1.000 × 2.125	Q54	8.5	11.0	20.0
	39,000	E7676R3VGS393MQ67C	1.000 × 2.625	Q67	7.0	9.0	23.0
	47,000	E7676R3VGS473MQ79C	1.000 × 3.125	Q79	6.0	8.0	27.0
	56,000	E7676R3VGS563MQ92C	1.000 × 3.625	Q92	5.0	8.0	32.0
10 Volts 13 Volts Surge	3,300	E767100VGS332MT29C	0.750 × 1.125	T29	32.0	39.0	7.0
	5,600	E767100VGS562MT35C	0.750 × 1.375	T35	27.5	32.5	8.5
	6,800	E767100VGS682MT41C	0.750 × 1.625	T41	23.0	26.0	10.0
	10,000	E767100VGS103MT54C	0.750 × 2.125	T54	16.0	19.0	12.0
	15,000	E767100VGS153MT67C	0.750 × 2.625	T67	13.0	16.0	15.0
	18,000	E767100VGS183MT79C	0.750 × 3.125	T79	10.0	13.0	18.0
	4,700	E767100VGS472MP29C	0.875 × 1.125	P29	25.0	27.0	10.5
	6,800	E767100VGS682MP35C	0.875 × 1.375	P35	20.0	22.0	12.0
	10,000	E767100VGS103MP41C	0.875 × 1.625	P41	15.0	17.0	13.5
	15,000	E767100VGS153MP54C	0.875 × 2.125	P54	11.0	12.0	16.5
	18,000	E767100VGS183MP67C	0.875 × 2.625	P67	8.5	10.0	20.0
	27,000	E767100VGS273MP79C	0.875 × 3.125	P79	7.5	9.0	23.0
	6,800	E767100VGS681MQ29C	1.000 × 1.125	Q29	17.0	21.0	13.5
	10,000	E767100VGS103MQ35C	1.000 × 1.375	Q35	14.0	17.5	15.0
	15,000	E767100VGS153MQ41C	1.000 × 1.625	Q41	11.0	14.0	16.5
	22,000	E767100VGS223MQ54C	1.000 × 2.125	Q54	8.5	11.0	20.0
	27,000	E767100VGS273MQ67C	1.000 × 2.625	Q67	7.0	9.0	23.0
	39,000	E767100VGS393MQ79C	1.000 × 3.125	Q79	6.0	8.0	27.0
	47,000	E767100VGS473MQ92C	1.000 × 3.625	Q92	5.0	8.0	32.0
16 Volts 20 Volts Surge	2,200	E767160VGS222MT29C	0.750 × 1.125	T29	32.0	39.0	7.0
	3,900	E767160VGS392MT35C	0.750 × 1.375	T35	27.5	32.5	8.5
	5,600	E767160VGS562MT41C	0.750 × 1.625	T41	23.0	26.0	10.0
	8,200	E767160VGS822MT54C	0.750 × 2.125	T54	16.0	19.0	12.0
	10,000	E767160VGS103MT67C	0.750 × 2.625	T67	13.0	16.0	15.0
	15,000	E767160VGS153MT79C	0.750 × 3.125	T79	10.0	13.0	18.0
	3,300	E767160VGS332MP29C	0.875 × 1.125	P29	25.0	27.0	10.5
	5,600	E767160VGS562MP35C	0.875 × 1.375	P35	20.0	22.0	12.0
	8,200	E767160VGS822MP41C	0.875 × 1.625	P41	15.0	17.0	13.5
	12,000	E767160VGS123MP54C	0.875 × 2.125	P54	11.0	12.0	16.5
	15,000	E767160VGS153MP67C	0.875 × 2.625	P67	8.5	10.0	20.0
	18,000	E767160VGS183MP79C	0.875 × 3.125	P79	7.5	9.0	23.0
	5,600	E767160VGS562MQ29C	1.000 × 1.125	Q29	17.0	21.0	13.5
	8,200	E767160VGS822MQ35C	1.000 × 1.375	Q35	14.0	17.5	15.0
	12,000	E767160VGS123MQ41C	1.000 × 1.625	Q41	11.0	14.0	16.5
	18,000	E767160VGS183MQ54C	1.000 × 2.125	Q54	8.5	11.0	20.0
	22,000	E767160VGS223MQ67C	1.000 × 2.625	Q67	7.0	9.0	23.0
	27,000	E767160VGS273MQ79C	1.000 × 3.125	Q79	6.0	8.0	27.0
	33,000	E767160VGS333MQ92C	1.000 × 3.625	Q92	5.0	8.0	32.0

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

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

Standard Voltage Ratings - Large Tubulars

Rated Voltage (WVDC)	Capacitance (μF)	Global Part Number†	Nominal Case Size* D × L (inches)	Case Size Code	Maximum ESR (mΩ) at +25°C 20k-100kHz	Maximum Impedance (mΩ) at +25°C, 100kHz	Rated Ripple Current (A rms) at +85°C, 20kHz
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25 Volts 32 Volts Surge	1,500	E767250VGS152MT29C	0.750 × 1.125	T29	32.0	39.0	7.0
	2,700	E767250VGS272MT35C	0.750 × 1.375	T35	27.5	32.5	8.5
	3,300	E767250VGS332MT41C	0.750 × 1.625	T41	23.0	26.0	10.0
	4,700	E767250VGS472MT54C	0.750 × 2.125	T54	16.0	19.0	12.0
	6,800	E767250VGS682MT67C	0.750 × 2.625	T67	13.0	16.0	15.0
	8,200	E767250VGS822MT79C	0.750 × 3.125	T79	10.0	13.0	18.0
	2,200	E767250VGS222MP29C	0.875 × 1.125	P29	25.0	27.0	10.5
	3,300	E767250VGS332MP35C	0.875 × 1.375	P35	20.0	22.0	12.0
	4,700	E767250VGS472MP41C	0.875 × 1.625	P41	15.0	17.0	13.5
	6,800	E767250VGS682MP54C	0.875 × 2.125	P54	11.0	12.0	16.5
	10,000	E767250VGS103MP67C	0.875 × 2.625	P67	8.5	10.0	20.0
	12,000	E767250VGS123MP79C	0.875 × 3.125	P79	7.5	9.0	23.0
	3,300	E767250VGS332MQ29C	1.000 × 1.125	Q29	17.0	21.0	13.5
	5,600	E767250VGS562MQ35C	1.000 × 1.375	Q35	14.0	17.5	15.0
	6,800	E767250VGS682MQ41C	1.000 × 1.625	Q41	11.0	14.0	16.5
	10,000	E767250VGS103MQ54C	1.000 × 2.125	Q54	8.5	11.0	20.0
	15,000	E767250VGS153MQ67C	1.000 × 2.625	Q67	7.0	9.0	23.0
	18,000	E767250VGS183MQ79C	1.000 × 3.125	Q79	6.0	8.0	27.0
	22,000	E767250VGS223MQ92C	1.000 × 3.625	Q92	5.0	8.0	32.0

35 Volts 44 Volts Surge	1,000	E767350VGS102MT29C	0.750 × 1.125	T29	32.0	39.0	7.0
	1,800	E767350VGS182MT35C	0.750 × 1.375	T35	27.5	32.5	8.5
	2,200	E767350VGS222MT41C	0.750 × 1.625	T41	23.0	26.0	10.0
	3,300	E767350VGS332MT54C	0.750 × 2.125	T54	16.0	19.0	12.0
	4,700	E767350VGS472MT67C	0.750 × 2.625	T67	13.0	16.0	15.0
	5,600	E767350VGS562MT79C	0.750 × 3.125	T79	10.0	13.0	18.0
	1,500	E767350VGS152MP29C	0.875 × 1.125	P29	25.0	27.0	10.5
	2,200	E767350VGS222MP35C	0.875 × 1.375	P35	20.0	22.0	12.0
	3,300	E767350VGS332MP41C	0.875 × 1.625	P41	15.0	17.0	13.5
	4,700	E767350VGS472MP54C	0.875 × 2.125	P54	11.0	12.0	16.5
	6,800	E767350VGS682MP67C	0.875 × 2.625	P67	8.5	10.0	20.0
	8,200	E767350VGS822MP79C	0.875 × 3.125	P79	7.5	9.0	23.0
	2,200	E767350VGS222MQ29C	1.000 × 1.125	Q29	17.0	21.0	13.5
	3,300	E767350VGS332MQ35C	1.000 × 1.375	Q35	14.0	17.5	15.0
	4,700	E767350VGS472MQ41C	1.000 × 1.625	Q41	11.0	14.0	16.5
	6,800	E767350VGS682MQ54C	1.000 × 2.125	Q54	8.5	11.0	20.0
	10,000	E767350VGS103MQ67C	1.000 × 2.625	Q67	7.0	9.0	23.0
	12,000	E767350VGS123MQ79C	1.000 × 3.125	Q79	6.0	8.0	27.0
	15,000	E767350VGS153MQ92C	1.000 × 3.625	Q92	5.0	8.0	32.0

50 Volts 63 Volts Surge	680	E767500VGS681MT29C	0.750 × 1.125	T29	94.5	118.1	5.6
	1,200	E767500VGS122MT35C	0.750 × 1.375	T35	78.8	98.5	6.4
	1,500	E767500VGS152MT41C	0.750 × 1.625	T41	63.1	78.9	7.4
	2,200	E767500VGS222MT54C	0.750 × 2.125	T54	46.7	58.4	9.7
	2,700	E767500VGS272MT67C	0.750 × 2.625	T67	29.0	36.3	12.5
	3,900	E767500VGS392MT79C	0.750 × 3.125	T79	22.4	28.0	14.5
	1,000	E767500VGS102MP29C	0.875 × 1.125	P29	62.1	77.6	7.2
	1,500	E767500VGS152MP35C	0.875 × 1.375	P35	47.5	59.4	8.7
	2,200	E767500VGS222MP41C	0.875 × 1.625	P41	32.8	41.0	10.7
	3,900	E767500VGS392MP54C	0.875 × 2.125	P54	25.2	31.5	13.2
	4,700	E767500VGS472MP67C	0.875 × 2.625	P67	18.3	22.9	16.3
	5,600	E767500VGS562MP79C	0.875 × 3.125	P79	14.1	17.6	19.6
	1,500	E767500VGS152MQ29C	1.000 × 1.125	Q29	47.8	59.8	8.5
	2,200	E767500VGS222MQ35C	1.000 × 1.375	Q35	37.0	46.3	10.2
	3,300	E767500VGS332MQ41C	1.000 × 1.625	Q41	26.0	32.5	12.6
	4,700	E767500VGS472MQ54C	1.000 × 2.125	Q54	20.2	25.3	15.4
	6,800	E767500VGS682MQ67C	1.000 × 2.625	Q67	16.1	20.1	18.2
	8,200	E767500VGS822MQ79C	1.000 × 3.125	Q79	12.6	15.8	21.0
	10,000	E767500VGS103MQ92C	1.000 × 3.625	Q92	10.6	13.3	24.6

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

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

Standard Voltage Ratings - Large Tubulars

Rated Voltage (WVDC)	Capacitance (μF)	Global Part Number†	Nominal Case Size* D × L (inches)	Case Size Code	Maximum ESR (mΩ) at +25°C 20k-100kHz	Maximum Impedance (mΩ) at +25°C, 100kHz	Rated Ripple Current (A rms) at +85°C, 20kHz
63 Volts 79 Volts Surge	470	E767630VGS471MT29C	0.750 × 1.125	T29	94.5	118.1	5.6
	820	E767630VGS821MT35C	0.750 × 1.375	T35	78.8	98.5	6.4
	1,000	E767630VGS102MT41C	0.750 × 1.625	T41	63.1	78.9	7.4
	1,500	E767630VGS152MT54C	0.750 × 2.125	T54	46.7	58.4	9.7
	2,200	E767630VGS222MT67C	0.750 × 2.625	T67	29.0	36.3	12.5
	2,700	E767630VGS272MT79C	0.750 × 3.125	T79	22.4	28.0	14.5
	680	E767630VGS681MP29C	0.875 × 1.125	P29	62.1	77.6	7.2
	1,000	E767630VGS102MP35C	0.875 × 1.375	P35	47.5	59.4	8.7
	1,500	E767630VGS152MP41C	0.875 × 1.625	P41	32.8	41.0	10.7
	2,200	E767630VGS222MP54C	0.875 × 2.125	P54	25.2	31.5	13.2
	2,700	E767630VGS272MP67C	0.875 × 2.625	P67	18.3	22.9	16.3
	3,900	E767630VGS392MP79C	0.875 × 3.125	P79	14.1	17.6	19.6
	1,000	E767630VGS102MQ29C	1.000 × 1.125	Q29	47.8	59.8	8.5
	1,500	E767630VGS152MQ35C	1.000 × 1.375	Q35	37.0	46.3	10.2
	2,200	E767630VGS222MQ41C	1.000 × 1.625	Q41	26.0	32.5	12.6
	3,300	E767630VGS332MQ54C	1.000 × 2.125	Q54	20.2	25.3	15.4
	4,700	E767630VGS472MQ67C	1.000 × 2.625	Q67	16.1	20.1	18.2
	5,600	E767630VGS562MQ79C	1.000 × 3.125	Q79	12.6	15.8	21.0
	6,800	E767630VGS682MQ92C	1.000 × 3.625	Q92	10.6	13.3	24.6
80 Volts 100 Volts Surge	330	E767800VGS331MT29C	0.750 × 1.125	T29	94.5	118.1	5.6
	560	E767800VGS561MT35C	0.750 × 1.375	T35	78.8	98.5	6.4
	680	E767800VGS681MT41C	0.750 × 1.625	T41	63.1	78.9	7.4
	1,000	E767800VGS102MT54C	0.750 × 2.125	T54	46.7	58.4	9.7
	1,500	E767800VGS152MT67C	0.750 × 2.625	T67	29.0	36.3	12.5
	1,800	E767800VGS182MT79C	0.750 × 3.125	T79	22.4	28.0	14.5
	560	E767800VGS561MP29C	0.875 × 1.125	P29	62.1	77.6	7.2
	680	E767800VGS681MP35C	0.875 × 1.375	P35	47.5	59.4	8.7
	1,000	E767800VGS102MP41C	0.875 × 1.625	P41	32.8	41.0	10.7
	1,500	E767800VGS152MP54C	0.875 × 2.125	P54	25.2	31.5	13.2
	2,200	E767800VGS222MP67C	0.875 × 2.625	P67	18.3	22.9	16.3
	2,700	E767800VGS272MP79C	0.875 × 3.125	P79	14.1	17.6	19.6
	820	E767800VGS821MQ29C	1.000 × 1.125	Q29	47.8	59.8	8.5
	1,000	E767800VGS102MQ35C	1.000 × 1.375	Q35	37.0	46.3	10.2
	1,500	E767800VGS152MQ41C	1.000 × 1.625	Q41	26.0	32.5	12.6
	2,200	E767800VGS222MQ54C	1.000 × 2.125	Q54	20.2	25.3	15.4
	3,300	E767800VGS332MQ67C	1.000 × 2.625	Q67	16.1	20.1	18.2
	3,900	E767800VGS392MQ79C	1.000 × 3.125	Q79	12.6	15.8	21.0
	4,700	E767800VGS472MQ92C	1.000 × 3.625	Q92	10.6	13.3	24.6
100 Volts 125 Volts Surge	220	E767101VGS221MT29C	0.750 × 1.125	T29	283.9	327.4	4.4
	330	E767101VGS331MT35C	0.750 × 1.375	T35	236.8	273.0	5.1
	470	E767101VGS471MT41C	0.750 × 1.625	T41	189.6	218.6	5.9
	680	E767101VGS681MT54C	0.750 × 2.125	T54	140.3	161.8	7.7
	1,000	E767101VGS102MT67C	0.750 × 2.625	T67	87.1	100.5	9.9
	1,200	E767101VGS122MT79C	0.750 × 3.125	T79	67.3	77.6	11.5
	330	E767101VGS331MP29C	0.875 × 1.125	P29	186.6	215.2	5.7
	470	E767101VGS471MP35C	0.875 × 1.375	P35	142.7	164.6	6.9
	680	E767101VGS681MP41C	0.875 × 1.625	P41	98.6	113.7	8.5
	1,000	E767101VGS102MP54C	0.875 × 2.125	P54	75.7	87.3	10.5
	1,200	E767101VGS122MP67C	0.875 × 2.625	P67	55.0	63.4	13.0
	1,800	E767101VGS182MP79C	0.875 × 3.125	P79	42.4	48.9	15.6
	470	E767101VGS471MQ29C	1.000 × 1.125	Q29	143.6	165.6	6.8
	680	E767101VGS681MQ35C	1.000 × 1.375	Q35	110.9	127.9	8.1
	1,000	E767101VGS102MQ41C	1.000 × 1.625	Q41	78.1	90.1	10.0
	1,500	E767101VGS152MQ54C	1.000 × 2.125	Q54	60.7	70.0	12.3
	1,800	E767101VGS182MQ67C	1.000 × 2.625	Q67	48.4	55.8	14.5
	2,200	E767101VGS222MQ79C	1.000 × 3.125	Q79	37.9	43.7	16.8
	2,700	E767101VGS272MQ92C	1.000 × 3.625	Q92	31.9	36.7	19.6

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

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

Standard Voltage Ratings - Large Tubulars

Rated Voltage (WVDC)	Capacitance (μF)	Global Part Number†	Nominal Case Size* D × L (inches)	Case Size Code	Maximum ESR (mΩ) at +25°C 20k-100kHz	Maximum Impedance (mΩ) at +25°C, 100kHz	Rated Ripple Current (A rms) at +85°C, 20kHz
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160 Volts 200 Volts Surge	120	E767161VGS121MT29C	0.750 × 1.125	T29	283.9	327.4	4.4
	180	E767161VGS181MT35C	0.750 × 1.375	T35	236.8	273.0	5.1
	220	E767161VGS221MT41C	0.750 × 1.625	T41	189.6	218.6	5.9
	390	E767161VGS391MT54C	0.750 × 2.125	T54	140.3	161.8	7.7
	470	E767161VGS471MT67C	0.750 × 2.625	T67	87.1	100.5	9.9
	680	E767161VGS681MT79C	0.750 × 3.125	T79	67.3	77.6	11.5
	150	E767161VGS151MP29C	0.875 × 1.125	P29	186.6	215.2	5.7
	270	E767161VGS271MP35C	0.875 × 1.375	P35	142.7	164.6	6.9
	330	E767161VGS331MP41C	0.875 × 1.625	P41	98.6	113.7	8.5
	560	E767161VGS561MP54C	0.875 × 2.125	P54	75.7	87.3	10.5
	680	E767161VGS681MP67C	0.875 × 2.625	P67	55.0	63.4	13.0
	820	E767161VGS821MP79C	0.875 × 3.125	P79	42.4	48.9	15.6
	220	E767161VGS221MQ29C	1.000 × 1.125	Q29	143.6	165.6	6.8
	391	E767161VGS391MQ35C	1.000 × 1.375	Q35	110.9	127.9	8.1
	560	E767161VGS561MQ41C	1.000 × 1.625	Q41	78.1	90.1	10.0
	820	E767161VGS821MQ54C	1.000 × 2.125	Q54	60.7	70.0	12.3
	1,000	E767161VGS102MQ67C	1.000 × 2.625	Q67	48.4	55.8	14.5
	1,200	E767161VGS122MQ79C	1.000 × 3.125	Q79	37.9	43.7	16.8
	1,500	E767161VGS152MQ92C	1.000 × 3.625	Q92	31.9	36.7	19.6

200 Volts 250 Volts Surge	68	E767201VGS680MT29C	0.750 × 1.125	T29	792.4	871.6	2.7
	120	E767201VGS121MT35C	0.750 × 1.375	T35	660.7	726.8	3.1
	150	E767201VGS151MT41C	0.750 × 1.625	T41	529.1	582.0	3.6
	220	E767201VGS221MT54C	0.750 × 2.125	T54	391.6	430.7	4.7
	330	E767201VGS331MT67C	0.750 × 2.625	T67	243.2	267.5	6.1
	390	E767201VGS391MT79C	0.750 × 3.125	T79	187.8	206.6	7.1
	100	E767201VGS101MP29C	0.875 × 1.125	P29	520.7	572.8	3.5
	180	E767201VGS181MP35C	0.875 × 1.375	P35	398.3	438.1	4.2
	220	E767201VGS221MP41C	0.875 × 1.625	P41	275.0	302.5	5.2
	330	E767201VGS331MP54C	0.875 × 2.125	P54	211.3	232.4	6.4
	470	E767201VGS471MP67C	0.875 × 2.625	P67	153.4	168.8	8.0
	560	E767201VGS561MP79C	0.875 × 3.125	P79	118.2	130.0	9.6
	150	E767201VGS151MQ29C	1.000 × 1.125	Q29	400.8	440.9	4.2
	270	E767201VGS271MQ35C	1.000 × 1.375	Q35	309.4	340.3	5.0
	330	E767201VGS331MQ41C	1.000 × 1.625	Q41	218.0	239.8	6.1
	470	E767201VGS471MQ54C	1.000 × 2.125	Q54	169.4	186.3	7.5
	680	E767201VGS681MQ67C	1.000 × 2.625	Q67	135.0	148.5	8.9
	820	E767201VGS821MQ79C	1.000 × 3.125	Q79	105.6	116.2	10.3
	1,000	E767201VGS102MQ92C	1.000 × 3.625	Q92	88.9	97.8	12.0

250 Volts 300 Volts Surge	47	E767251VGS470MT29C	0.750 × 1.125	T29	792.4	871.6	2.7
	68	E767251VGS680MT35C	0.750 × 1.375	T35	660.7	726.8	3.1
	100	E767251VGS101MT41C	0.750 × 1.625	T41	529.1	582.0	3.6
	150	E767251VGS151MT54C	0.750 × 2.125	T54	391.6	430.7	4.7
	180	E767251VGS181MT67C	0.750 × 2.625	T67	243.2	267.5	6.1
	270	E767251VGS271MT79C	0.750 × 3.125	T79	187.8	206.6	7.1
	68	E767251VGS680MP29C	0.875 × 1.125	P29	520.7	572.8	3.5
	120	E767251VGS121MP35C	0.875 × 1.375	P35	398.3	438.1	4.2
	150	E767251VGS151MP41C	0.875 × 1.625	P41	275.0	302.5	5.2
	220	E767251VGS221MP54C	0.875 × 2.125	P54	211.3	232.4	6.4
	330	E767251VGS331MP67C	0.875 × 2.625	P67	153.4	168.8	8.0
	390	E767251VGS391MP79C	0.875 × 3.125	P79	118.2	130.0	9.6
	100	E767251VGS101MQ29C	1.000 × 1.125	Q29	400.8	440.9	4.2
	150	E767251VGS151MQ35C	1.000 × 1.375	Q35	309.4	340.3	5.0
	220	E767251VGS221MQ41C	1.000 × 1.625	Q41	218.0	239.8	6.1
	330	E767251VGS331MQ54C	1.000 × 2.125	Q54	169.4	186.3	7.5
	390	E767251VGS391MQ67C	1.000 × 2.625	Q67	135.0	148.5	8.9
	560	E767251VGS561MQ79C	1.000 × 3.125	Q79	105.6	116.2	10.3
	680	E767251VGS681MQ92C	1.000 × 3.625	Q92	88.9	97.8	12.0

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

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