

# Type 300/301 –55 °C to 105 °C Long-Life, Switching Power Grade Radial

## High Capacitance and Ultra-Low ESR



The Types 300 and 301 are the wide-temperature, low-ESR capacitors for power-supply outputs and UPS battery stiffening. The exceptionally low ESRs enable high ripple-current capability. With series inductance of 12 to 16 nH and ripple currents to 16 amps one of these capacitors can save by replacing three or four of the 12.5 mm diameter capacitors routinely at the output of switching power supplies. Type 300 has three leads for rugged, reverse-proof mounting, and Type 301 has two leads. Types 300R and 301R deliver even lower ESR and higher ripple.

### Highlights

- 4000 hour load life
- Ripple Current to 16 amps
- ESRs to 6 mΩ
- > 90% capacitance at –40 °C
- Replaces multiple capacitors

[RoHS Certificate](#)

### Specifications

Temperature Range	–55 °C to +105 °C							
Rated Voltage Range	6.3 to 250 Vdc							
Capacitance Range	8.2 µF to 33,000 µF							
Capacitance Tolerance	6.3 to 100 Vdc; –10 + 75%, 160 to 250 Vdc; –10 +50%							
Leakage Current	≤0.5 $\sqrt{CV}$ µA, 4 mA max, 5 minutes							
Ripple Current Multipliers	Ambient Temperature							
	<b>45 °C</b>	<b>55 °C</b>	<b>65 °C</b>	<b>75 °C</b>	<b>85 °C</b>	<b>95 °C</b>	<b>105 °C</b>	
	1.66	1.52	1.37	1.20	1.00	0.75	0.36	
	Frequency							
		<b>50 Hz</b>	<b>60 Hz</b>	<b>120 Hz</b>	<b>360 Hz</b>	<b>1 kHz</b>	<b>5 kHz</b>	<b>10 kHz &amp; up</b>
	<b>Less than .77" Diameter</b>							
	6.3 & 7.5 V	0.76	0.81	1.00	1.23	1.35	1.41	1.43
	10 to 40 V	0.74	0.79	1.00	1.29	1.46	1.55	1.57
	50V	0.72	0.78	1.00	1.33	1.54	1.67	1.69
	63 & 75 V	0.71	0.76	1.00	1.38	1.64	1.82	1.86
100 to 250 V	0.68	0.74	1.00	1.51	2.00	2.51	2.67	
<b>.77" Diameter</b>								
6.3 & 7.5 V	0.82	0.86	1.00	1.15	1.21	1.24	1.25	
10 to 40 V	0.78	0.83	1.00	1.20	1.30	1.35	1.36	
50V	0.76	0.81	1.00	1.25	1.38	1.45	1.47	
63 & 75 V	0.74	0.80	1.00	1.28	1.43	1.52	1.54	
100 to 250 V	0.76	0.81	1.00	1.24	1.37	1.44	1.46	
<b>.895" Diameter</b>								
6.3 & 7.5 V	0.82	0.86	1.00	1.14	1.20	1.23	1.24	
10 to 40 V	0.80	0.84	1.00	1.17	1.25	1.29	1.30	
50V	0.75	0.80	1.00	1.27	1.42	1.50	1.52	
63 & 75 V	0.75	0.80	1.00	1.26	1.40	1.48	1.50	
100 to 250 V	0.76	0.81	1.00	1.25	1.38	1.46	1.48	
<b>1.02" Diameter</b>								
6.3 & 7.5 V	0.84	0.88	1.00	1.12	1.17	1.19	1.20	
10 to 40 V	0.81	0.86	1.00	1.15	1.22	1.25	1.26	
50V	0.76	0.81	1.00	1.23	1.35	1.42	1.44	
63 & 75 V	0.77	0.81	1.00	1.23	1.35	1.42	1.44	
100 to 250 V	0.76	0.81	1.00	1.24	1.37	1.44	1.46	

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## High Capacitance and Ultra-Low ESR

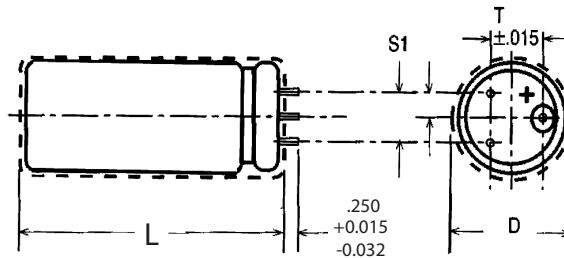
Load Life RoHS, ≥ .77" RoHS, < .77" Non-RoHS, < .77"	4000 h at full load at 85 °C 2000 h at full load at 85 °C 4000 h at full load at 85 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Shelf Life Test	500 h at 105 °C, capacitance, ESR and DCL, initial requirements
Vibration	10 to 55 Hz, 0.06" and 10 g max, 2 h each plane

### Part Numbering System

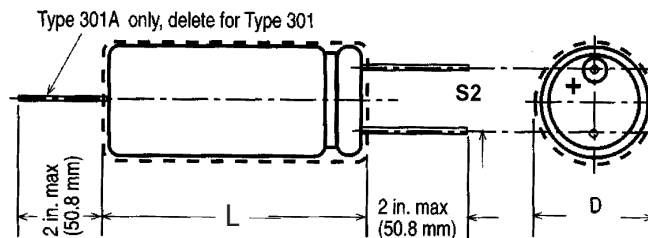
NR	301R	333	U	6R3	JS	2	E
RoHS	Type	Capacitance	Tolerance	Voltage	Case Code	Insulation	Epoxy
Blank = Compliant	300 - 3 leads 300R - 3 leads, low ESR 301 - 2 leads 301R - 2 leads, low ESR 301A - Laydown 3 leads	152 = 1500 μF 102 = 1000 μF	M = ±20 T = 10% +50% U = -10 +75%	6R3 = 6.3 V 063 = 63 Vdc 100 = 100 Vdc		0 = bare can 1 = Polyester 2 = PVC 8 = PVC w/standoffs* 9 = Polyester w/standoffs* *Not available in .77" diameter	E = epoxy Blank = no epoxy

### Outline Drawing

0.77", 0.895" and 1.02" Diameters



Type  
300/300R  
Three  
Leads



Type  
301/301R  
Two  
Leads

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## High Capacitance and Ultra-Low ESR

### Case Dimensions

Case Code	Insulated D ± 0.015 (0.4 mm) L ± 0.062 (1.6 mm) D x L	Epoxy endseal L Max	Bare Can D ± 0.015 (0.4 mm) L ± 0.030 (0.8 mm) D x L	Lead Spacing		Lead Diameter dia.	AWG
				Type 300 S1 ±0.020(0.5 mm)	Type 301 S2 ±0.020(0.5 mm)		
<b>Case Dimensions in Inches</b>							
GE	.765 x 1.150	1.212	0.750 x 1.125	0.200	0.300	0.040	18
GJ	.765 x 1.650	1.712	0.750 x 1.625	0.200	0.300	0.040	18
GL	.765 x 2.150	2.212	0.750 x 2.125	0.200	0.300	0.040	18
GP	.765 x 2.650	2.712	0.750 x 2.625	0.200	0.300	0.040	18
GS	.765 x 3.150	3.212	0.750 x 3.125	0.200	0.300	0.040	18
GT	.765 x 3.650	3.712	0.750 x 3.625	0.200	0.300	0.040	18
HE	.890 x 1.150	1.212	0.875 x 1.125	0.300	0.400	0.040	18
HJ	.890 x 1.650	1.712	0.875 x 1.625	0.300	0.400	0.040	18
HL	.890 x 2.150	2.212	0.875 x 2.125	0.300	0.400	0.040	18
HP	.890 x 2.650	2.712	0.875 x 2.625	0.300	0.400	0.040	18
HS	.890 x 3.150	3.212	0.875 x 3.125	0.300	0.400	0.040	18
HT	.890 x 3.650	3.712	0.875 x 3.625	0.300	0.400	0.040	18
JE	1.015 x 1.150	1.212	1.000 x 1.125	0.300	0.400	0.040	18
JJ	1.015 x 1.650	1.712	1.000 x 1.625	0.300	0.400	0.040	18
JL	1.015 x 2.150	2.212	1.000 x 2.125	0.300	0.400	0.040	18
JP	1.015 x 2.650	2.712	1.000 x 2.625	0.300	0.400	0.040	18
JS	1.015 x 3.150	3.212	1.000 x 3.125	0.300	0.400	0.040	18
JT	1.015 x 3.650	3.712	1.000 x 3.625	0.300	0.400	0.040	18
<b>Case Dimensions in Millimeters</b>							
EG	13.0 x 21.5	23	12.5 x 20.0	5.00	2.50	0.81	20
EK	13.0 x 26.5	29.0	12.5 x 25.0	5.00	2.50	0.81	20
EM	13.0 x 28.0	29.5	12.5 x 26.5	5.00	2.50	0.81	20
EN	13.0 x 35.0	36.0	12.5 x 33.5	5.00	2.50	0.81	20
ER	13.0 x 44.0	45.5	12.5 x 42.5	5.00	2.50	0.81	20
FK	16.5 x 26.5	27.9	16.0 x 25.0	7.50	3.75	0.81	20
FF	16.5 x 33.5	36.0	16.0 x 32.0	7.50	3.75	0.81	20
FQ	16.5 x 37.5	40.0	16.0 x 36.0	7.50	3.75	0.81	20
FV	16.5 x 41.5	42.4	16.0 x 40.0	7.50	3.75	0.81	20
LQ	18.5 x 37.5	40.0	18.0 x 36.0	7.50	3.75	0.81	20
LV	18.5 x 41.5	43.0	18.0 x 40.0	7.50	3.75	0.81	20
GE	19.4 x 29.2	30.8	19.1 x 28.6	5.08	7.62	1.02	18
GJ	19.4 x 41.9	43.5	19.1 x 41.3	5.08	7.62	1.02	18
GL	19.4 x 54.6	56.2	19.1 x 54.0	5.08	7.62	1.02	18
GP	19.4 x 67.3	68.9	19.1 x 66.7	5.08	7.62	1.02	18
GS	19.4 x 80.0	81.6	19.1 x 79.4	5.08	7.62	1.02	18
GT	19.4 x 92.7	94.3	19.1 x 92.1	5.08	7.62	1.02	18
HE	22.6 x 29.2	30.8	22.2 x 28.6	7.62	10.16	1.02	18
HJ	22.6 x 41.9	43.5	22.2 x 41.3	7.62	10.16	1.02	18
HL	22.6 x 54.6	56.2	22.2 x 54.0	7.62	10.16	1.02	18
HP	22.6 x 67.3	68.9	22.2 x 66.7	7.62	10.16	1.02	18
HS	22.6 x 80.0	81.6	22.2 x 79.4	7.62	10.16	1.02	18
HT	22.6 x 92.7	94.3	22.2 x 92.1	7.62	10.16	1.02	18
JE	25.8 x 29.2	30.8	25.4 x 28.6	7.62	10.16	1.02	18
JJ	25.8 x 41.9	43.5	25.4 x 41.3	7.62	10.16	1.02	18
HL	25.8 x 54.6	56.2	25.4 x 54.0	7.62	10.16	1.02	18
JP	25.8 x 67.3	68.9	25.4 x 66.7	7.62	10.16	1.02	18
JS	25.8 x 80.0	81.6	25.4 x 79.4	7.62	10.16	1.02	18
JT	25.8 x 92.7	94.3	25.4 x 92.1	7.62	10.16	1.02	18

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## High Capacitance and Ultra-Low ESR Ratings

Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C		Ripple MAX @ 85°C		Nom Size Insulated D x L (in)	Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C		Ripple MAX @ 85°C		Nom Size Insulated D x L (in)
		120 Hz	20 kHz (mΩ)	120 Hz	20 kHz (mΩ)				120 Hz	20 kHz (mΩ)	120 Hz	20 kHz (mΩ)	
<b>6.3 Vdc (9 Vdc Surge)</b>							<b>7.5 Vdc (10 Vdc Surge)</b>						
2700	301272U6R3GE2	143.0	81.5	1.71	2.13	.77 x 1.15	2200	301222U7R5GE2	147.0	80.8	1.69	2.14	.77 x 1.15
2700	301R272U6R3GE2	124.0	70.6	1.84	2.29	.77 x 1.15	2200	301R222U7R5GE2	127.0	70.0	1.81	2.30	.77 x 1.15
3900	301392U6R3HE2	100.0	61.1	2.24	2.71	.895 x 1.15	3900	301392U7R5HE2	103.0	61.6	2.21	2.69	.895 x 1.15
3900	301R392U6R3HE2	86.8	50.3	2.41	2.98	.895 x 1.15	3900	301R392U7R5HE2	88.9	48.9	2.38	3.02	.895 x 1.15
4700	301472U6R3GJ2	72.5	41.3	2.65	3.30	.77 x 1.65	4700	301472U7R5GJ2	74.5	41.0	2.61	3.32	.77 x 1.65
4700	301R472U6R3GJ2	62.8	35.8	2.84	3.55	.77 x 1.65	4700	301R472U7R5GJ2	64.5	35.5	2.80	3.56	.77 x 1.65
5600	301562U6R3JE2	83.8	57.0	2.56	2.92	1.02 x 1.15	5600	301562U7R5JE2	85.5	56.5	2.53	2.94	1.02 x 1.15
5600	301R562U6R3JE2	72.7	41.4	2.75	3.43	1.02 x 1.15	5600	301R562U7R5JE2	74.1	41.5	2.72	3.42	1.02 x 1.15
8200	301822U6R3GL2	49.2	28.1	4.02	5.02	.77 x 2.15	6800	301682U7R5GL2	50.6	27.8	3.97	5.05	.77 x 2.15
8200	301R822U6R3GL2	42.7	24.3	4.32	5.40	.77 x 2.15	6800	301R682U7R5GL2	43.8	24.1	4.26	5.42	.77 x 2.15
8200	301822U6R3HJ2	51.1	31.2	3.71	4.48	.895 x 1.65	6800	301682U7R5HJ2	52.4	31.4	3.67	4.46	.895 x 1.65
8200	301R822U6R3HJ2	44.3	25.7	3.99	4.93	.895 x 1.65	6800	301R682U7R5HJ2	45.4	25.0	3.94	5.01	.895 x 1.65
10000	301103U6R3GP2	37.8	21.5	5.12	6.39	.77 x 2.65	8200	301822U7R5GP2	38.7	21.3	5.05	6.42	.77 x 2.65
10000	301R103U6R3GP2	32.7	18.7	5.50	6.86	.77 x 2.65	8200	301R822U7R5GP2	33.6	18.5	5.43	6.90	.77 x 2.65
12000	301123U6R3GS2	31.0	17.7	6.17	7.70	.77 x 3.15	10000	301103U7R5HL2	35.8	21.5	5.14	6.25	.895 x 2.15
12000	301R123U6R3GS2	26.8	15.3	6.62	8.27	.77 x 3.15	10000	301R103U7R5HL2	26.2	14.4	6.01	7.64	.895 x 2.15
12000	301123U6R3HL2	35.0	21.3	5.20	6.27	.895 x 2.15	10000	301103U7R5JJ2	43.8	28.9	4.35	5.05	1.02 x 1.65
12000	301R123U6R3HL2	25.5	14.8	6.09	7.54	.895 x 2.15	10000	301R103U7R5JJ2	38.0	21.3	4.67	5.89	1.02 x 1.65
12000	301123U6R3JJ2	43.0	29.2	4.39	5.02	1.02 x 1.65	12000	301123U7R5GS2	31.8	17.5	6.09	7.74	.77 x 3.15
12000	301R123U6R3JJ2	37.2	21.2	4.72	5.89	1.02 x 1.65	12000	301R123U7R5GS2	27.5	15.1	6.54	8.31	.77 x 3.15
15000	301153U6R3GT2	26.6	15.1	7.10	8.86	.77 x 3.65	12000	301123U7R5GT2	27.2	15.0	7.01	8.91	.77 x 3.65
15000	301R153U6R3GT2	23.0	13.1	7.62	9.52	.77 x 3.65	12000	301R123U7R5GT2	23.6	13.0	7.53	9.57	.77 x 3.65
15000	301153U6R3HP2	27.1	16.5	6.57	7.93	.895 x 2.65	15000	301153U7R5HP2	27.7	16.6	6.50	7.91	.895 x 2.65
15000	301R153U6R3HP2	19.5	11.3	7.75	9.60	.895 x 2.65	15000	301R153U7R5HP2	20.0	11.0	7.65	9.73	.895 x 2.65
18000	301183U6R3JL2	29.6	20.1	6.08	6.95	1.02 x 2.15	15000	301153U7R5JL2	30.1	19.9	6.02	6.99	1.02 x 2.15
18000	301R183U6R3JL2	19.1	10.9	7.57	9.45	1.02 x 2.15	15000	301R153U7R5JL2	19.6	10.9	7.47	9.41	1.02 x 2.15
22000	301223U6R3HS2	22.4	13.7	7.88	9.51	.895 x 3.15	18000	301183U7R5HS2	22.9	13.8	7.79	9.48	.895 x 3.15
22000	301R223U6R3HS2	15.9	9.2	9.35	11.60	.895 x 3.15	18000	301R183U7R5HS2	16.3	9.0	9.23	11.70	.895 x 3.15
22000	301223U6R3JP2	23.0	15.6	7.66	8.75	1.02 x 2.65	22000	301223U7R5HT2	19.8	11.9	8.95	10.90	.895 x 3.65
22000	301R223U6R3JP2	14.7	8.4	9.59	12.00	1.02 x 2.65	22000	301R223U7R5HT2	13.9	7.7	10.70	13.60	.895 x 3.65
27000	301273U6R3HT2	19.4	11.9	9.04	10.90	.895 x 3.65	22000	301223U7R5JP2	23.4	15.5	7.59	8.80	1.02 x 2.65
27000	301R273U6R3HT2	13.6	7.9	10.80	13.40	.895 x 3.65	22000	301R223U7R5JP2	15.0	8.4	9.47	11.90	1.02 x 2.65
27000	301273U6R3JS2	19.2	13.0	9.11	10.40	1.02 x 3.15	27000	301273U7R5JS2	19.5	12.9	9.03	10.50	1.02 x 3.15
27000	301R273U6R3JS2	15.1	8.6	10.30	12.80	1.02 x 3.15	27000	301R273U7R5JS2	15.5	8.7	10.10	12.80	1.02 x 3.15
33000	301333U6R3JT2	16.7	11.4	10.50	12.00	1.02 x 3.65	33000	301333U7R5JT2	17.0	11.2	10.40	12.10	1.02 x 3.65
33000	301R333U6R3JT2	10.4	5.9	13.30	16.60	1.02 x 3.65	33000	301R333U7R5JT2	10.6	5.9	13.10	16.60	1.02 x 3.65

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Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C		Ripple MAX @ 85°C		Nom Size Insulated D x L (in)	Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C		Ripple MAX @ 85°C		Nom Size Insulated D x L (in)
		120 Hz 20 kHz (mΩ)		120 Hz 20 kHz (mΩ)					120 Hz 20 kHz (mΩ)		120 Hz 20 kHz (mΩ)		
<b>10 Vdc (15 Vdc Surge)</b>							<b>16 Vdc (25 Vdc Surge)</b>						
1800	301182U010GE2	153.0	81.2	1.65	2.14	.77 x 1.15	1500	301152U016GE2	159.0	80.9	1.62	2.14	.77 x 1.15
1800	301R182U010GE2	133.0	70.3	1.77	2.30	.77 x 1.15	1500	301R152U016GE2	138.0	70.1	1.74	2.30	.77 x 1.15
3300	301R332U010HE2	106.0	61.8	2.17	2.69	.895 x 1.15	2700	301272U016HE2	110.0	63.7	2.14	2.65	.895 x 1.15
3300	301332U010HE2	92.3	50.8	2.33	2.97	.895 x 1.15	2700	301R272U016HE2	95.2	52.4	2.30	2.92	.895 x 1.15
3900	301392U010GJ2	77.6	41.1	2.56	3.31	.77 x 1.65	3300	301332U016GJ2	80.4	41.0	2.51	3.32	.77 x 1.65
3900	301R392U010GJ2	67.3	35.7	2.75	3.56	.77 x 1.65	3300	301R332U016GJ2	69.7	35.5	2.70	3.56	.77 x 1.65
4700	301472U010JE2	88.3	56.5	2.49	2.94	1.02 x 1.15	3300	301332U016JE2	90.7	56.2	2.46	2.94	1.02 x 1.15
4700	301R472U010JE2	76.5	42.8	2.68	3.37	1.02 x 1.15	3300	301R332U016JE2	78.6	41.6	2.64	3.42	1.02 x 1.15
5600	301562U010GL2	52.7	27.9	3.89	5.04	.77 x 2.15	4700	301472U016GL2	54.5	27.8	3.82	5.05	.77 x 2.15
5600	301R562U010GL2	45.6	24.2	4.18	5.41	.77 x 2.15	4700	301R472U016GL2	47.2	24.1	4.11	5.42	.77 x 2.15
6800	301682U010HJ2	54.3	31.5	3.60	4.46	.895 x 1.65	4700	301472U016HJ2	56.0	32.5	3.55	4.39	.895 x 1.65
6800	301R682U010HJ2	47.1	25.9	3.87	4.92	.895 x 1.65	4700	301R472U016HJ2	48.5	26.7	3.81	4.84	.895 x 1.65
8200	301822U010GP2	40.3	21.4	4.95	6.41	.77 x 2.65	5600	301562U016GP2	41.7	21.3	4.87	6.43	.77 x 2.65
8200	301R822U010GP2	34.9	18.5	5.32	6.89	.77 x 2.65	5600	301R562U016GP2	36.1	18.4	5.23	6.90	.77 x 2.65
8200	301822U010JJ2	45.2	28.9	4.28	5.05	1.02 x 1.65	6800	301682U016HL2	38.2	22.2	4.97	6.15	.895 x 2.15
8200	301R822U010JJ2	39.2	21.9	4.60	5.80	1.02 x 1.65	6800	301R682U016HL2	28.3	15.6	5.78	7.35	.895 x 2.15
10000	301103U010GS2	33.0	17.5	5.97	7.73	.77 x 3.15	6800	301682U016JJ2	46.4	28.8	4.23	5.06	1.02 x 1.65
10000	301R103U010GS2	28.6	15.2	6.41	8.31	.77 x 3.15	6800	301R682U016JJ2	40.2	21.3	4.54	5.88	1.02 x 1.65
10000	301103U010HL2	37.1	21.5	5.05	6.25	.895 x 2.15	8200	301822U016GS2	34.1	17.4	5.87	7.75	.77 x 3.15
10000	301R103U010HL2	27.3	15.0	5.88	7.48	.895 x 2.15	8200	301R822U016GS2	29.6	15.1	6.31	8.33	.77 x 3.15
12000	301123U010GT2	28.3	15.0	6.88	8.91	.77 x 3.65	10000	301103U016GT2	29.2	14.9	6.77	8.94	.77 x 3.65
12000	301R123U010GT2	24.5	13.0	7.39	9.57	.77 x 3.65	10000	301R103U016GT2	25.3	12.9	7.27	9.60	.77 x 3.65
12000	301123U010HP2	28.7	16.6	6.39	7.91	.895 x 2.65	10000	301103U016HP2	29.5	17.1	6.30	7.79	.895 x 2.65
12000	301R123U010HP2	20.8	11.5	7.49	9.53	.895 x 2.65	10000	301R103U016HP2	21.6	11.9	7.36	9.36	.895 x 2.65
12000	301123U010JL2	31.0	19.9	5.93	6.99	1.02 x 2.15	10000	301103U016JL2	31.8	19.7	5.86	7.01	1.02 x 2.15
12000	301R123U010JL2	20.3	11.4	7.33	9.23	1.02 x 2.15	10000	301R103U016JL2	21.0	11.1	7.21	9.33	1.02 x 2.15
15000	301153U010HS2	23.7	13.7	7.66	9.49	.895 x 3.15	12000	301123U016HS2	24.4	14.1	7.55	9.35	.895 x 3.15
15000	301R153U010HS2	17.0	9.3	9.05	11.50	.895 x 3.15	12000	301R123U016HS2	17.6	9.7	8.89	11.30	.895 x 3.15
18000	301183U010HT2	20.5	11.9	8.81	10.90	.895 x 3.65	15000	301153U016HT2	21.1	12.2	8.69	10.80	.895 x 3.65
18000	301R183U010HT2	14.5	8.0	10.50	13.30	.895 x 3.65	15000	301R153U016HT2	15.0	8.2	10.30	13.10	.895 x 3.65
18000	301183U010JP2	24.1	15.4	7.48	8.81	1.02 x 2.65	15000	301153U016JP2	24.7	15.3	7.39	8.85	1.02 x 2.65
18000	301R183U010JP2	15.6	8.7	9.29	11.70	1.02 x 2.65	15000	301R153U016JP2	16.1	8.5	9.14	11.80	1.02 x 2.65
22000	301223U010JS2	20.1	12.8	8.90	10.50	1.02 x 3.15	18000	301183U016JS2	20.5	12.7	8.80	10.50	1.02 x 3.15
22000	301R223U010JS2	16.1	9.0	9.94	12.50	1.02 x 3.15	18000	301R183U016JS2	16.6	8.8	9.79	12.70	1.02 x 3.15
27000	301273U010JT2	17.5	11.2	10.30	12.10	1.02 x 3.65	22000	301223U016JT2	17.9	11.1	10.10	12.10	1.02 x 3.65
27000	301R273U010JT2	11.0	6.2	12.90	16.30	1.02 x 3.65	22000	301R223U016JT2	11.4	6.0	12.70	16.50	1.02 x 3.65

# Type 300/301 –55 °C to 105 °C Long-Life, Switching Power Grade Radial High Capacitance and Ultra-Low ESR

Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C		Ripple MAX @ 85°C		Nom Size Insulated D x L (in)	Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C		Ripple MAX @ 85°C		Nom Size Insulated D x L (in)
		120 Hz	20 kHz	120 Hz	20 kHz				120 Hz	20 kHz	120 Hz	20 kHz	
<b>20 Vdc (30 Vdc Surge)</b>							<b>25 Vdc (35 Vdc Surge)</b>						
1200	301122U020GE2	159.0	80.9	1.62	2.14	.77 x 1.15	1000	301102U025GE2	170.0	81.8	1.57	2.13	.77 x 1.15
1200	301R122U020GE2	138.0	70.1	1.74	2.30	.77 x 1.15	1000	301R102U025GE2	148.0	70.9	1.68	2.29	.77 x 1.15
2200	301222U020HE2	110.0	61.5	2.14	2.70	.895 x 1.15	1800	301182U025HE2	117.0	62.1	2.07	2.68	.895 x 1.15
2200	301R222U020HE2	95.2	53.3	2.30	2.90	.895 x 1.15	1800	301R182U025HE2	102.0	47.7	2.23	3.06	.895 x 1.15
2700	301272U020GJ2	80.4	41.0	2.51	3.32	.77 x 1.65	2200	301222U025GJ2	86.3	41.4	2.42	3.30	.77 x 1.65
2700	301R272U020GJ2	69.7	35.5	2.70	3.56	.77 x 1.65	2200	301R222U025GJ2	74.8	35.9	2.60	3.54	.77 x 1.65
2700	301272U020JE2	90.7	57.1	2.46	2.92	1.02 x 1.15	2700	301272U025JE2	95.8	57.5	2.39	2.91	1.02 x 1.15
2700	301R272U020JE2	78.6	49.5	2.64	3.14	1.02 x 1.15	2700	301R272U025JE2	83.0	41.5	2.57	3.42	1.02 x 1.15
3900	301392U020GL2	54.5	27.8	3.82	5.05	.77 x 2.15	3300	301332U025GL2	58.4	28.1	3.69	5.02	.77 x 2.15
3900	301R392U020GL2	47.2	24.1	4.11	5.42	.77 x 2.15	3300	301R332U025GL2	50.6	24.3	3.97	5.40	.77 x 2.15
3900	301392U020HJ2	56.0	31.4	3.55	4.47	.895 x 1.65	3300	301332U025HJ2	59.7	31.6	3.44	4.45	.895 x 1.65
3900	301R392U020HJ2	48.5	27.2	3.81	4.80	.895 x 1.65	3300	301R332U025HJ2	51.7	24.3	3.69	5.07	.895 x 1.65
4700	301472U020GP2	41.7	21.3	4.87	6.43	.77 x 2.65	4700	301472U025GP2	44.7	21.4	4.71	6.40	.77 x 2.65
4700	301R472U020GP2	36.1	18.4	5.23	6.90	.77 x 2.65	4700	301R472U025GP2	38.7	18.6	5.05	6.88	.77 x 2.65
5600	301562U020JJ2	46.4	29.2	4.23	5.02	1.02 x 1.65	4700	301472U025JJ2	48.9	29.4	4.12	5.01	1.02 x 1.65
5600	301R562U020JJ2	40.2	21.3	4.54	5.88	1.02 x 1.65	4700	301R472U025JJ2	42.4	21.2	4.42	5.90	1.02 x 1.65
6800	301682U020GS2	34.1	17.4	5.87	7.75	.77 x 3.15	5600	301562U025GS2	36.5	17.5	5.68	7.73	.77 x 3.15
6800	301R682U020GS2	29.6	15.1	6.31	8.33	.77 x 3.15	5600	301R562U025GS2	31.6	15.2	6.10	8.30	.77 x 3.15
6800	301682U020HL2	38.2	21.4	4.97	6.26	.895 x 2.15	5600	301562U025HL2	42.0	22.3	4.74	6.14	.895 x 2.15
6800	301R682U020HL2	28.3	15.8	5.78	7.28	.895 x 2.15	5600	301R562U025HL2	30.4	14.3	5.58	7.67	.895 x 2.15
8200	301822U020GT2	29.2	14.9	6.77	8.94	.77 x 3.65	6800	301682U025GT2	31.2	15.0	6.55	8.91	.77 x 3.65
8200	301R822U020GT2	25.3	12.9	7.27	9.60	.77 x 3.65	6800	301R682U025GT2	27.0	13.0	7.04	9.58	.77 x 3.65
8200	301822U020HP2	29.5	16.5	6.30	7.93	.895 x 2.65	6800	301682U025HP2	31.3	16.6	6.11	7.91	.895 x 2.65
8200	301R822U020HP2	21.6	12.1	7.36	9.28	.895 x 2.65	6800	301R682U025HP2	23.1	10.9	7.11	9.77	.895 x 2.65
8200	301822U020JL2	31.8	20.1	5.86	6.96	1.02 x 2.15	6800	301682U025JL2	33.5	20.1	5.71	6.94	1.02 x 2.15
8200	301R822U020JL2	21.0	11.1	7.21	9.33	1.02 x 2.15	6800	301R682U025JL2	22.5	11.3	6.96	9.29	1.02 x 2.15
10000	301103U020HS2	24.4	13.7	7.55	9.52	.895 x 3.15	8200	301822U025HS2	25.8	13.7	7.34	9.50	.895 x 3.15
10000	301R103U020HS2	17.6	9.8	8.89	11.20	.895 x 3.15	8200	301R822U025HS2	18.9	8.9	8.59	11.81	.895 x 3.15
12000	301123U020HT2	21.1	11.8	8.69	10.90	.895 x 3.65	10000	301103U025HT2	22.3	11.8	8.45	10.94	.895 x 3.65
12000	301R123U020HT2	15.0	8.4	10.30	13.00	.895 x 3.65	10000	301R103U025HT2	16.0	7.5	9.96	13.69	.895 x 3.65
12000	301123U020JP2	24.7	15.6	7.39	8.77	1.02 x 2.65	10000	301103U025JP2	26.0	15.6	7.20	8.77	1.02 x 2.65
12000	301R123U020JP2	16.1	8.5	9.14	11.80	1.02 x 2.65	10000	301R103U025JP2	17.2	8.6	8.84	11.80	1.02 x 2.65
15000	301153U020JS2	20.5	12.9	8.80	10.50	1.02 x 3.15	12000	301123U025JS2	21.6	12.9	8.59	10.50	1.02 x 3.15
15000	301R153U020JS2	13.2	7.0	11.00	14.20	1.02 x 3.15	12000	301R123U025JS2	14.1	7.1	10.60	14.10	1.02 x 3.15
18000	301183U020JT2	17.9	11.2	10.10	12.00	1.02 x 3.65	15000	301153U025JT2	18.7	11.2	9.90	12.10	1.02 x 3.65
18000	301R183U020JT2	11.4	6.0	12.70	16.50	1.02 x 3.65	15000	301R153U025JT2	12.1	6.0	12.30	16.40	1.02 x 3.65

# Type 300/301 –55 °C to 105 °C Long-Life, Switching Power Grade Radial

## High Capacitance and Ultra-Low ESR

Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C		Ripple MAX @ 85°C		Nom Size Insulated D x L (in)
		120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	
<b>40 Vdc (60 Vdc Surge)</b>						
1200	301122U040HE2	137.0	65.6	1.92	2.61	.895 x 1.15
1200	301R122U040HE2	118.0	52.1	2.06	2.93	.895 x 1.15
1500	301152U040JE2	109.0	60.2	2.24	2.84	1.02 x 1.15
1500	301R152U040JE2	94.8	43.6	2.40	3.34	1.02 x 1.15
2200	301222U040HJ2	69.4	33.3	3.18	4.33	.895 x 1.65
2200	301R222U040HJ2	60.2	26.5	3.42	4.86	.895 x 1.65
3300	301332U040HL2	47.2	22.6	4.48	6.09	.895 x 2.15
3300	301R332U040HL2	36.0	15.8	5.12	7.28	.895 x 2.15
3300	301332U040JJ2	55.8	30.7	3.86	4.90	1.02 x 1.65
3300	301R332U040JJ2	48.3	22.2	4.14	5.76	1.02 x 1.65
3900	301R392U040GS2	37.1	16.7	5.63	7.92	.77 x 3.15
4700	301472U040GT2	36.4	16.4	6.06	8.52	.77 x 3.65
4700	301R472U040GT2	31.6	14.2	6.51	9.15	.77 x 3.65
4700	301472U040HP2	36.2	17.4	5.68	7.73	.895 x 2.65
4700	301R472U040HP2	27.4	12.0	6.54	9.29	.895 x 2.65
4700	301472U040JL2	38.1	20.9	5.35	6.81	1.02 x 2.15
4700	301R472U040JL2	26.5	12.2	6.42	8.93	1.02 x 2.15
5600	301562U040HS2	29.7	14.3	6.84	9.31	.895 x 3.15
5600	301R562U040HS2	22.2	9.8	7.91	11.20	.895 x 3.15
6800	301682U040HT2	25.5	12.3	7.89	10.70	.895 x 3.65
6800	301R682U040HT2	18.9	8.3	9.18	13.10	.895 x 3.65
6800	301682U040JP2	29.4	16.2	6.77	8.61	1.02 x 2.65
6800	301R682U040JP2	20.2	9.3	8.17	11.40	1.02 x 2.65
8200	301822U040JS2	24.3	13.4	8.09	10.30	1.02 x 3.15
8200	301R822U040JS2	16.5	7.6	9.82	13.60	1.02 x 3.15
10000	301103U040JT2	21.0	11.5	9.35	11.90	1.02 x 3.65
10000	301R103U040JT2	14.1	6.5	11.40	15.90	1.02 x 3.65
<b>50 Vdc (75 Vdc Surge)</b>						
560	301R561U050GE2	216.0	88.6	1.39	2.05	.77 x 1.15
560	301561U050GE2	249.0	102.0	1.29	1.91	.77 x 1.15
1200	301R122U050GJ2	109.0	44.7	2.16	3.18	.77 x 1.65
1200	301122U050GJ2	126.0	51.6	2.01	2.96	.77 x 1.65
1200	301122U050JE2	130.0	62.4	2.05	2.79	1.02 x 1.15
1200	301R122U050JE2	113.0	43.9	2.21	3.33	1.02 x 1.15
1500	301R152U050GL2	73.4	30.1	3.29	4.85	.77 x 2.15
1500	301152U050GL2	84.7	34.7	3.07	4.52	.77 x 2.15
1800	301182U050HJ2	84.0	34.5	2.89	4.26	.895 x 1.65
Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C		Ripple MAX @ 85°C		Nom Size Insulated D x L (in)
		120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	
1800	301R182U050HJ2	72.8	26.2	3.11	4.89	.895 x 1.65
2200	301R222U050GP2	55.8	22.9	4.21	6.20	.77 x 2.65
2200	301222U050GP2	64.4	26.4	3.92	5.77	.77 x 2.65
2700	301R272U050GS2	45.3	18.6	5.10	7.51	.77 x 3.15
2700	301272U050GS2	52.3	21.4	4.75	6.99	.77 x 3.15
2700	301272U050HL2	56.9	23.3	4.07	6.00	.895 x 2.15
2700	301R272U050HL2	44.5	16.0	4.61	7.24	.895 x 2.15
2700	301272U050JJ2	66.0	31.7	3.54	4.82	1.02 x 1.65
2700	301R272U050JJ2	57.2	22.3	3.81	5.75	1.02 x 1.65
3300	301R332U050GT2	38.4	15.7	5.90	8.69	.77 x 3.65
3300	301332U050GT2	44.3	18.2	5.49	8.09	.77 x 3.65
3300	301332U050HP2	43.5	17.8	5.18	7.63	.895 x 2.65
3300	301R332U050HP2	33.7	12.1	5.89	9.26	.895 x 2.65
3900	301392U050JL2	44.9	21.6	4.93	6.71	1.02 x 2.15
3900	301R392U050JL2	32.4	12.6	5.81	8.77	1.02 x 2.15
4700	301472U050HS2	35.6	14.6	6.25	9.21	.895 x 3.15
4700	301R472U050HS2	27.3	9.8	7.14	11.20	.895 x 3.15
5600	301562U050HT2	30.4	12.5	7.23	10.60	.895 x 3.65
5600	301R562U050HT2	23.1	8.3	8.30	13.00	.895 x 3.65
5600	301562U050JP2	34.5	16.6	6.25	8.50	1.02 x 2.65
5600	301R562U050JP2	24.6	9.6	7.40	11.20	1.02 x 2.65
6800	301682U050JS2	28.4	13.6	7.48	10.20	1.02 x 3.15
6800	301R682U050JS2	20.0	7.8	8.91	13.40	1.02 x 3.15
8200	301822U050JT2	24.4	11.7	8.67	11.80	1.02 x 3.65
8200	301R822U050JT2	17.0	6.6	10.40	15.70	1.02 x 3.65
<b>63 Vdc (90 Vdc Surge)</b>						
390	301391U063GE2	281.0	92.7	1.22	2.00	.77 x 1.15
390	301R391U063GE2	243.0	80.3	1.31	2.15	.77 x 1.15
680	301681U063HE2	185.0	70.5	1.65	2.52	.895 x 1.15
680	301R681U063HE2	161.0	53.0	1.77	2.90	.895 x 1.15
820	301821U063GJ2	142.0	46.7	1.89	3.11	.77 x 1.65
820	301R821U063GJ2	123.0	40.5	2.03	3.34	.77 x 1.65
1000	301102U063JE2	144.0	63.2	1.95	2.78	1.02 x 1.15
1000	301R102U063JE2	124.0	43.5	2.10	3.34	1.02 x 1.15
1200	301122U063GL2	95.2	31.4	2.89	4.75	.77 x 2.15
1200	301R122U063GL2	82.5	27.2	3.11	5.10	.77 x 2.15
1200	301122U063HJ2	93.8	35.6	2.74	4.19	.895 x 1.65
1200	301R122U063HJ2	81.3	26.8	2.94	4.83	.895 x 1.65

# Type 300/301 –55 °C to 105 °C Long-Life, Switching Power Grade Radial High Capacitance and Ultra-Low ESR

Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C 120 Hz 20 kHz (mΩ)		Ripple MAX @ 85°C 120 Hz 20 kHz (mΩ)		Nom Size Insulated D x L (in)
<b>63 Vdc (90 Vdc Surge)</b>						
1500	301152U063GP2	72.3	23.8	3.70	6.07	.77 x 2.65
1500	301R152U063GP2	62.6	20.7	3.97	6.52	.77 x 2.65
1800	301182U063HL2	63.4	24.1	3.86	5.90	.895 x 2.15
1800	301R182U063HL2	50.1	16.5	4.34	7.13	.895 x 2.15
1800	301182U063JJ2	72.8	32.0	3.37	4.80	1.02 x 1.65
1800	301R182U063JJ2	63.1	22.1	3.62	5.78	1.02 x 1.65
2200	301222U063GS2	58.6	19.3	4.48	7.36	.77 x 3.15
2200	301R222U063GS2	50.8	16.8	4.82	7.90	.77 x 3.15
2200	301222U063GT2	49.6	16.4	5.19	8.53	.77 x 3.65
2200	301R222U063GT2	43.0	14.2	5.58	9.16	.77 x 3.65
2700	301272U063HP2	48.4	18.4	4.92	7.52	.895 x 2.65
2700	301R272U063HP2	37.9	12.5	5.55	9.11	.895 x 2.65
2700	301272U063JL2	49.5	21.8	4.70	6.68	1.02 x 2.15
2700	301R272U063JL2	36.3	12.7	5.48	8.74	1.02 x 2.15
3300	301332U063HS2	39.5	15.0	5.94	9.08	.895 x 3.15
3300	301R332U063HS2	30.7	10.1	6.73	11.10	.895 x 3.15
3900	301392U063HT2	33.7	12.8	6.87	10.50	.895 x 3.65
3900	301R392U063HT2	25.9	8.5	7.84	12.90	.895 x 3.65
3900	301392U063JP2	37.9	16.7	5.96	8.47	1.02 x 2.65
3900	301R392U063JP2	27.6	9.7	6.99	11.10	1.02 x 2.65
4700	301472U063JS2	31.1	13.7	7.15	10.20	1.02 x 3.15
4700	301R472U063JS2	22.4	7.8	8.42	13.40	1.02 x 3.15
5600	301562U063JT2	26.7	11.7	8.30	11.80	1.02 x 3.65
5600	301R562U063JT2	19.0	6.6	9.83	15.70	1.02 x 3.65
<b>75 Vdc (100 Vdc Surge)</b>						
330	301331U075GE2	360.0	155.0	1.08	1.55	.77 x 1.15
330	301R331U075GE2	312.0	134.0	1.16	1.66	.77 x 1.15
470	301471U075HE2	234.0	108.0	1.47	2.04	.895 x 1.15
470	301R471U075HE2	203.0	87.3	1.57	2.26	.895 x 1.15
560	301561U075GJ2	181.0	77.8	1.67	2.41	.77 x 1.65
560	301R561U075GJ2	157.0	67.4	1.80	2.59	.77 x 1.65
680	301681U075JE2	178.0	88.8	1.76	2.34	1.02 x 1.15
680	301R681U075JE2	154.0	67.7	1.89	2.68	1.02 x 1.15
1000	301102U075GL2	122.0	52.3	2.56	3.68	.77 x 2.15
1000	301R102U075GL2	105.0	45.3	2.75	3.95	.77 x 2.15
1000	301102U075HJ2	118.0	54.3	2.44	3.39	.895 x 1.65
1000	301R102U075HJ2	102.0	44.0	2.62	3.77	.895 x 1.65
<b>100 Vdc (140 Vdc Surge)</b>						
150	301151U100GE2	581.0	221.0	0.85	1.30	.77 x 1.15
150	301R151U100GE2	503.0	191.0	0.91	1.39	.77 x 1.15
220	301221U100HE2	371.0	141.0	1.16	1.78	.895 x 1.15
220	301R221U100HE2	321.0	122.0	1.25	1.91	.895 x 1.15
270	301271U100GJ2	291.0	111.0	1.32	2.02	.77 x 1.65
270	301R271U100GJ2	252.0	95.9	1.42	2.17	.77 x 1.65
330	301331U100JE2	273.0	109.0	1.42	2.11	1.02 x 1.15
330	301R331U100JE2	237.0	92.3	1.52	2.30	1.02 x 1.15
470	301471U100GL2	195.0	74.1	2.02	3.09	.77 x 2.15
470	301R471U100GL2	169.0	64.3	2.17	3.32	.77 x 2.15
470	301471U100HJ2	186.0	70.8	1.94	2.97	.895 x 1.65
470	301R471U100HJ2	162.0	61.4	2.09	3.19	.895 x 1.65
560	301561U100GP2	147.0	55.9	2.59	3.96	.77 x 2.65



# Type 300/301 –55 °C to 105 °C Long-Life, Switching Power Grade Radial High Capacitance and Ultra-Low ESR

Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C		Ripple MAX @ 85°C		Nom Size Insulated D x L (in)
		120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	
<b>100 Vdc (140 Vdc Surge)</b>						
560	301R561U100GP2	128.0	48.5	2.78	4.26	.77 x 2.65
680	301681U100GS2	119.0	45.0	3.15	4.82	.77 x 3.15
680	301R681U100GS2	103.0	39.0	3.39	5.18	.77 x 3.15
680	301681U100HL2	125.0	47.6	2.75	4.20	.895 x 2.15
680	301R681U100HL2	104.0	39.4	3.02	4.62	.895 x 2.15
680	301681U100JJ2	138.0	55.1	2.45	3.66	1.02 x 1.65
680	301R681U100JJ2	119.0	46.5	2.64	3.98	1.02 x 1.65
820	301821U100GT2	99.5	37.8	3.67	5.61	.77 x 3.65
820	301R821U100GT2	86.2	32.8	3.94	6.02	.77 x 3.65
1000	301102U100HP2	94.7	36.0	3.51	5.38	.895 x 2.65
1000	301R102U100HP2	78.1	29.7	3.87	5.92	.895 x 2.65
1000	301102U100JL2	92.7	37.1	3.43	5.12	1.02 x 2.15
1000	301R102U100JL2	73.8	28.8	3.85	5.81	1.02 x 2.15
1200	301122U100HS2	76.5	29.1	4.26	6.52	.895 x 3.15
1200	301R122U100HS2	62.8	23.9	4.71	7.20	.895 x 3.15
1200	301122U100HT2	64.5	24.5	4.96	7.59	.895 x 3.65
1200	301R122U100HT2	52.6	20.0	5.50	8.41	.895 x 3.65
1200	301122U100JP2	70.3	28.1	4.38	6.53	1.02 x 2.65
1200	301R122U100JP2	55.7	21.7	4.92	7.43	1.02 x 2.65
1500	301152U100JS2	57.0	22.8	5.28	7.87	1.02 x 3.15
1500	301R152U100JS2	44.9	17.5	5.95	8.99	1.02 x 3.15
2200	301222U100JT2	48.3	19.3	6.17	9.19	1.02 x 3.65
2200	301R222U100JT2	37.7	14.7	6.97	10.50	1.02 x 3.65
<b>160 Vdc (200 Vdc Surge)</b>						
56	301560T160GE2	1817.0	690.0	0.48	0.73	.77 x 1.15
82	301820T160HE2	1169.0	444.0	0.66	1.00	.895 x 1.15
100	301101T160GJ2	1019.0	387.0	0.71	1.08	.77 x 1.65
120	301121T160JE2	904.0	362.0	0.78	1.16	1.02 x 1.15
150	301151T160GL2	608.0	231.0	1.15	1.75	.77 x 2.15
180	301181T160HJ2	586.0	222.0	1.10	1.68	.895 x 1.65
220	301221T160GP2	457.0	174.0	1.47	2.25	.77 x 2.65
270	301271T160GS2	366.0	139.0	1.79	2.74	.77 x 3.15
270	301271T160HL2	391.0	149.0	1.55	2.38	.895 x 2.15
270	301271T160JJ2	415.0	166.0	1.41	2.11	1.02 x 1.65
330	301331T160GT2	306.0	116.0	2.09	3.20	.77 x 3.65
390	301391T160HP2	268.0	102.0	2.09	3.19	.895 x 2.65
390	301391T160JL2	278.0	111.0	1.98	2.95	1.02 x 2.15
470	301471T160HS2	226.0	85.7	2.48	3.80	.895 x 3.15
470	301471T160JP2	228.0	91.4	2.43	3.62	1.02 x 2.65

Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C		Ripple MAX @ 85°C		Nom Size Insulated D x L (in)
		120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	120 Hz 20 kHz (mΩ)	
560	301561T160HT2	189.0	71.8	2.90	4.44	.895 x 3.65
560	301561T160JS2	184.0	73.5	2.94	4.39	1.02 x 3.15
680	301681T160JT2	154.0	61.6	3.45	5.15	1.02 x 3.65
<b>200 Vdc (250 Vdc Surge)</b>						
56	301560T200GE2	2285.0	1051.0	0.43	0.59	.77 x 1.15
82	301820T200HE2	1423.0	655.0	0.59	0.83	.895 x 1.15
100	301101T200GJ2	1144.0	526.0	0.67	0.93	.77 x 1.65
120	301121T200JE2	1012.0	465.0	0.74	1.02	1.02 x 1.15
150	301151T200GL2	763.0	351.0	1.02	1.42	.77 x 2.15
180	301181T200HJ2	713.0	328.0	0.99	1.38	.895 x 1.65
220	301221T200GP2	574.0	264.0	1.31	1.82	.77 x 2.65
220	301221T200JJ2	507.0	233.0	1.28	1.78	1.02 x 1.65
270	301271T200GS2	460.0	212.0	1.60	2.22	.77 x 3.15
270	301271T200HL2	476.0	219.0	1.41	1.96	.895 x 2.15
330	301331T200GT2	384.0	177.0	1.87	2.59	.77 x 3.65
330	301331T200HP2	358.0	165.0	1.81	2.51	.895 x 2.65
390	301391T200HS2	288.0	132.0	2.20	3.06	.895 x 3.15
390	301391T200JL2	339.0	156.0	1.79	2.49	1.02 x 2.15
470	301471T200HT2	240.0	111.0	2.57	3.57	.895 x 3.65
470	301471T200JP2	255.0	117.0	2.30	3.19	1.02 x 2.65
560	301561T200JS2	205.0	94.4	2.78	3.87	1.02 x 3.15
680	301681T200JT2	172.0	79.1	3.27	4.54	1.02 x 3.65
<b>250 Vdc (300 Vdc Surge)</b>						
39	301390T250GE2	2708.0	1137.0	0.39	0.57	.77 x 1.15
68	301680T250HE2	1684.0	707.0	0.55	0.79	.895 x 1.15
82	301820T250GJ2	1355.0	569.0	0.61	0.89	.77 x 1.65
100	301101T250JE2	1194.0	502.0	0.68	0.99	1.02 x 1.15
120	301121T250GL2	905.0	380.0	0.94	1.37	.77 x 2.15
120	301121T250HJ2	843.0	354.0	0.91	1.33	.895 x 1.65
150	301151T250GP2	679.0	285.0	1.21	1.75	.77 x 2.65
180	301181T250JJ2	598.0	251.0	1.18	1.71	1.02 x 1.65
220	301221T250GS2	544.0	229.0	1.47	2.14	.77 x 3.15
220	301221T250HL2	563.0	237.0	1.30	1.88	.895 x 2.15
270	301271T250GT2	455.0	191.0	1.72	2.50	.77 x 3.65
270	301271T250HP2	423.0	178.0	1.66	2.42	.895 x 2.65
270	301271T250JL2	400.0	168.0	1.65	2.40	1.02 x 2.15
330	301331T250HS2	340.0	143.0	2.02	2.94	.895 x 3.15
390	301391T250HT2	284.0	119.0	2.37	3.44	.895 x 3.65
390	301391T250JP2	301.0	126.0	2.12	3.08	1.02 x 2.65
470	301471T250JS2	242.0	102.0	2.56	3.73	1.02 x 3.15
560	301561T250JT2	202.0	85.0	3.01	4.38	1.02 x 3.65

# Type 300/301 –55 °C to 105 °C Long-Life, Switching Power Grade Radial High Capacitance and Ultra-Low ESR

Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C 120 Hz 20 kHz (mΩ)		Ripple MAX @ 85°C 120 Hz 20 kHz (mΩ)		Nom Size Insulated D x L (in)	Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C 120 Hz 20 kHz (mΩ)		Ripple MAX @ 85°C 120 Hz 20 kHz (mΩ)		Nom Size Insulated D x L (in)
<b>6.3 Vdc (9 Vdc Surge)</b>							680	NR301681U020FF2	170.0	60.0	1.72	2.90	.65 x 1.32
680	NR301681U6R3EM2	231.0	150.0	1.16	1.44	.51 x 1.10	1000	NR301R102M020EN2	114.0	48.0	1.10	1.69	.51 x 1.38
1000	NR301102U6R3FK2	160.0	90.0	1.54	2.05	.65 x 1.04	1500	NR301R152M020ER2	85.0	33.0	2.23	3.58	.51 x 1.73
1200	NR301122U6R3ER2	134.0	70.0	1.78	2.46	.51 x 1.73	1500	NR301152U020LV2	90.0	50.0	2.42	3.25	.73 x 1.63
1500	NR301R152M6R3EG2	201.0	71.0	1.09	1.84	.51 x .85	2200	NR301R222M020FQ2	77.0	32.0	2.55	3.96	.65 x 1.48
1500	NR301152U6R3FN2	105.0	50.0	2.00	2.90	.65 x 1.32	3300	NR301R332M020LV2	62.0	26.0	3.19	4.92	.73 x 1.63
2200	NR301R222M6R3EM2	110.0	60.0	1.20	1.63	.51 x 1.10	<b>25 Vdc (35 Vdc Surge)</b>						
3300	NR301R332M6R3EN2	93.0	57.0	1.78	2.28	.51 x 1.38	330	NR301331U025EN2	290.0	120.0	1.13	1.75	.51 x 1.38
3300	NR301332U6R3LV2	76.0	45.0	2.61	3.39	.73 x 1.63	390	NR301R391M025EG2	267.0	92.0	0.89	1.52	.51 x .85
3900	NR301R392M6R3FK2	111.0	41.0	1.84	3.03	.65 x 1.04	470	NR301471U025ER2	220.0	80.0	1.42	2.35	.51 x 1.73
4700	NR301R472M6R3ER2	68.0	31.0	2.52	3.73	.51 x 1.73	560	NR301R561M025EK2	193.0	75.0	1.12	1.79	.51 x 1.04
5600	NR301R562M6R3FF2	78.0	37.0	2.43	3.53	.65 x 1.32	680	NR301R681M025EM2	160.0	67.0	1.40	2.17	.51 x 1.10
5600	NR301R682M6R3FQ2	71.0	34.0	2.53	3.65	.65 x 1.48	680	NR301681U025FQ2	190.0	75.0	1.53	2.44	.65 x 1.48
5600	NR301R822M6R3FV2	59.0	31.0	3.03	4.18	.65 x 1.65	1000	NR301R102M025EN2	152.0	56.0	1.62	2.67	.51 x 1.38
6800	NR301R822M6R3LQ2	67.0	29.0	2.97	4.51	.73 x 1.48	1200	NR301R122M025ER2	90.0	34.0	2.20	3.58	.51 x 1.73
8200	NR301R103M6R3LV2	54.0	24.0	3.47	5.21	.73 x 1.63	1200	NR301R122M025FK2	132.0	45.0	1.71	2.93	.65 x 1.04
<b>10 Vdc (15 Vdc Surge)</b>							1200	NR301122U025LV2	100.0	50.0	2.26	3.20	.73 x 1.63
1000	NR301R102M010EG2	216.0	77.0	1.07	1.80	.51 x .85	1500	NR301R152M025FF2	95.0	39.0	2.20	3.44	.65 x 1.32
1500	NR301R152M010EK2	200.0	64.0	1.07	1.90	.51 x 1.04	1800	NR301R182M025FQ2	75.0	32.0	2.59	3.97	.65 x 1.48
1800	NR301R182M010EM2	122.0	62.0	1.58	2.21	.51 x 1.10	2200	NR301R222M025FV2	73.0	31.0	2.69	4.13	.65 x 1.65
2700	NR301R272M010EN2	111.0	59.0	1.66	2.28	.51 x 1.38	2200	NR301R222M025LQ2	70.0	30.0	2.84	4.34	.73 x 1.48
2700	NR301R272M010FK2	116.0	42.0	2.04	3.39	.65 x 1.04	2700	NR301R272M025LV2	62.0	26.0	3.22	4.97	.73 x 1.63
3300	NR301R332M010ER2	75.0	32.0	2.41	3.69	.51 x 1.73	<b>40 Vdc (60 Vdc Surge)</b>						
4700	NR301R472M010FF2	87.0	38.0	2.29	3.47	.65 x 1.32	220	NR301221U040FK2	480.0	140.0	0.89	1.65	.65 x 1.04
5600	NR301R562M010FQ2	78.0	33.0	2.35	3.62	.65 x 1.48	330	NR301R331M040EM2	202.0	68.0	1.19	2.05	.51 x 1.10
6800	NR301R682M010LQ2	71.0	31.0	2.92	4.42	.73 x 1.48	330	NR301331U040FN2	330.0	120.0	1.35	2.24	.65 x 1.32
8200	NR301R882M010LV2	60.0	26.0	3.30	5.01	.73 x 1.63	390	NR301391U040ER2	270.0	150.0	1.42	1.90	.51 x 1.73
<b>16 Vdc (25 Vdc Surge)</b>							470	NR301R471M040FK2	133.0	46.0	1.66	2.82	.65 x 1.04
820	NR301R821M016EG2	216.0	85.0	1.12	1.78	.51 x .85	680	NR301R681M040ER2	95.0	35.0	2.07	3.41	.51 x 1.73
1200	NR301R122M016EM2	130.0	66.0	1.60	2.24	.51 x 1.10	820	NR301821U040LV2	160.0	75.0	1.78	2.60	.73 x 1.63
1800	NR301R182M016EN2	122.0	55.0	1.85	2.76	.51 x 1.38	1000	NR301R102M040FQ2	80.0	33.0	2.49	3.87	.65 x 1.48
2200	NR301R222M016FK2	120.0	42.0	1.79	3.02	.65 x 1.04	1500	NR301R152M040LV2	63.0	27.0	3.16	4.82	.73 x 1.63
2700	NR301R272M016ER2	82.0	32.0	1.66	2.65	.51 x 1.73	<b>50 Vdc (75 Vdc Surge)</b>						
3300	NR301R332M016FF2	78.0	32.0	2.42	3.78	.65 x 1.32	100	NR301101U050EN2	810.0	260.0	0.65	1.14	.51 x 1.38
3900	NR301R392M016FQ2	75.0	32.0	2.59	3.97	.65 x 1.48	120	NR301R121M050EG2	391.0	139.0	0.79	1.33	.51 x .85
4700	NR301R472M016LQ2	74.0	32.0	2.85	4.34	.73 x 1.48	150	NR301151U050FK2	550.0	220.0	0.82	1.30	.65 x 1.04
5600	NR301R562M016LV2	62.0	26.0	3.22	4.98	.73 x 1.63	180	NR301R181M050EK2	261.0	90.0	0.95	1.61	.51 x 1.04
<b>20 Vdc (30 Vdc Surge)</b>							180	NR301181U050ER2	500.0	180.0	0.93	1.55	.51 x 1.73
330	NR301331U020EM2	360.0	160.0	0.89	1.34	.51 x 1.10	220	NR301R221M050EM2	240.0	69.0	1.12	2.08	.51 x 1.04
470	NR301R471M020EG2	250.0	77.0	0.55	0.99	.51 x .85	220	NR301221U050FN2	420.0	150.0	1.09	1.83	.65 x 1.32
470	NR301471U020FK2	240.0	90.0	1.22	2.00	.65 x 1.04	330	NR301R331M050EN2	221.0	63.0	1.19	2.22	.51 x 1.38
560	NR301561U020ER2	220.0	80.0	1.41	2.34	.51 x 1.73	390	NR301R391M050FK2	150.0	48.0	1.60	2.82	.65 x 1.04
680	NR301R681M020EM2	140.0	67.0	1.46	2.11	.51 x 1.10	470	NR301R471M050ER2	111.0	36.0	1.97	3.46	.51 x 1.73

# Type 300/301 –55 °C to 105 °C Long-Life, Switching Power Grade Radial

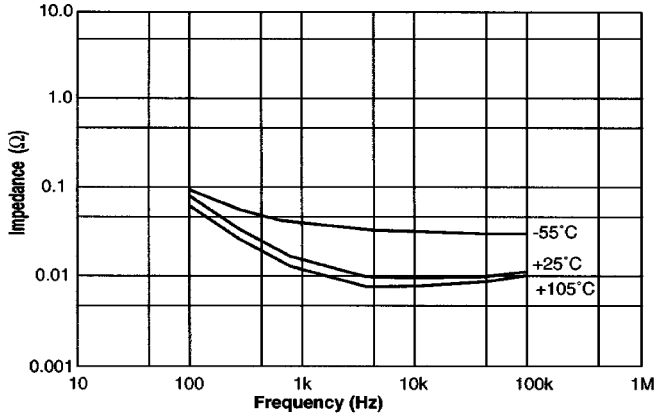
## High Capacitance and Ultra-Low ESR

Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C 120 Hz 20 kHz (mΩ)		Ripple MAX @ 85°C 120 Hz 20 kHz (mΩ)		Nom Size Insulated D x L (in)	Cap. (µF)	Catalog Part Number	ESR MAX @ 25°C 120 Hz 20 kHz (mΩ)		Ripple MAX @ 85°C 120 Hz 20 kHz (mΩ)		Nom Size Insulated D x L (in)
470	NR301471U050LV2	250.0	90.0	1.44	2.40	.73 x 1.63	<b>160 Vdc (200 Vdc Surge)</b>						
560	NR301R561M050FF2	118.0	41.0	1.98	3.36	.65 x 1.32	39	NR301390U160EN2	6210.0	600.0	0.23	0.74	.51 x 1.38
680	NR301R681M050FQ2	102.0	40.0	2.31	3.69	.65 x 1.48	47	NR301470U160FK2	6000.0	620.0	0.23	0.70	.65 x 1.04
820	NR301R821M050FV2	95.0	38.0	2.40	3.79	.65 x 1.63	56	NR301560U160ER2	5110.0	500.0	0.28	0.89	.51 x 1.73
820	NR301R821M050LQ2	89.0	36.0	2.59	4.07	.73 x 1.48	68	NR301680U160FF2	3500.0	350.0	0.36	1.15	.65 x 1.32
1000	NR301R102M050LV2	77.0	28.0	2.90	4.81	.73 x 1.63	82	NR301820U160FQ2	2950.0	320.0	0.50	1.53	.65 x 1.48
<b>63 Vdc (90 Vdc Surge)</b>							100	NR301101U160LQ2	2540.0	210.0	0.47	1.65	.73 x 1.48
120	NR301R121M063EG2	451.0	93.0	0.73	1.60	.51 x .85	120	NR301121U160LV2	2010.0	190.0	0.55	1.79	.73 x 1.63
180	NR301R181M063EK2	298.0	90.0	1.01	1.83	.51 x 1.04	<b>200 Vdc (250 Vdc Surge)</b>						
270	NR301R271M063EN2	160.0	55.0	1.44	2.46	.51 x 1.38	10	NR301100U200EG2	19900.0	1780.0	0.12	0.39	.51 x .85
330	NR301R331M063FK2	171.0	50.0	1.48	2.74	.65 x 1.04	15	NR301150U200EK2	15200.0	1270.0	0.14	0.49	.51 x 1.04
390	NR301R391M063ER2	130.0	38.0	1.83	3.38	.51 x 1.73	18	NR301180U200EM2	10600.0	960.0	0.19	0.63	.51 x 1.10
470	NR301R471M063FF2	142.0	43.0	1.80	3.27	.65 x 1.32	22	NR301220U200EN2	7010.0	580.0	0.22	0.75	.51 x 1.38
560	NR301R561M063FQ2	120.0	35.0	2.05	3.80	.65 x 1.48	27	NR301270U200FK2	6500.0	650.0	0.22	0.68	.65 x 1.04
680	NR301R681M063FV2	113.0	32.0	2.06	3.87	.65 x 1.65	33	NR301330U200ER2	5990.0	550.0	0.26	0.87	.51 x 1.73
680	NR301R681M063LQ2	103.0	29.0	2.21	4.17	.73 x 1.48	39	NR301390U200FF2	3910.0	340.0	0.34	1.15	.65 x 1.32
820	NR301R821M063LV2	90.0	29.0	2.69	4.74	.73 x 1.63	47	NR301470U200FQ2	3730.0	330.0	0.45	1.50	.65 x 1.48
<b>100 Vdc (140 Vdc Surge)</b>							56	NR301560U200FV2	3250.0	290.0	0.47	1.58	.65 x 1.65
47	NR301470U100EG2	1770.0	345.0	0.38	0.74	.51 x .85	68	NR301680U200LQ2	2840.0	260.0	0.53	1.74	.73 x 1.48
68	NR301680U100EM2	1160.0	183.0	0.42	1.10	.51 x 1.10	82	NR301820U200LV2	2310.0	180.0	0.53	1.89	.73 x 1.63
100	NR301101U100EN2	756.0	149.0	0.52	1.37	.51 x 1.38	<b>250 Vdc (300 Vdc Surge)</b>						
120	NR301121U100FK2	686.0	139.0	0.55	1.48	.65 x 1.04	8.2	NR30182U250EG2	29900.0	3050.0	0.07	0.23	.51 x .85
150	NR301151U100ER2	519.0	104.0	0.61	1.83	.51 x 1.73	12	NR301120U250EK2	23300.0	2500.0	0.09	0.27	.51 x 1.04
180	NR301181U100FF2	450.0	93.0	0.64	2.00	.65 x 1.32	15	NR301150U250EM2	15000.0	1900.0	0.14	0.38	.51 x 1.10
220	NR301221U100FQ2	365.0	76.0	0.69	2.31	.65 x 1.48	18	NR301180U250EN2	12100.0	1500.0	0.17	0.47	.51 x 1.38
270	NR301271U100FV2	298.0	63.0	0.75	2.64	.65 x 1.65	27	NR301270U250FK2	10800.0	1610.0	0.20	0.53	.65 x 1.04
330	NR301331U100LQ2	249.0	55.0	0.81	2.94	.73 x 1.48	27	NR301270U250ER2	7820.0	1390.0	0.28	0.67	.51 x 1.73
390	NR301391U100LV2	210.0	47.0	0.87	3.35	.73 x 1.63	33	NR301330U250FF2	5500.0	720.0	0.29	0.80	.65 x 1.32
<b>160 Vdc (200 Vdc Surge)</b>							39	NR301390U250FQ2	5260.0	700.0	0.32	0.89	.65 x 1.48
15	NR301150U160EG2	17500.0	1450.0	0.12	0.40	.51 x .85	47	NR301470U250FV2	4680.0	670.0	0.38	1.00	.65 x 1.65
22	NR301220U160EK2	12800.0	960.0	0.14	0.52	.51 x 1.04	56	NR301560U250LQ2	3750.0	550.0	0.42	1.10	.73 x 1.48
27	NR301270U160EM2	9700.0	720.0	0.18	0.66	.51 x 1.10	68	NR301680U250LV2	3110.0	360.0	0.44	1.29	.73 x 1.63

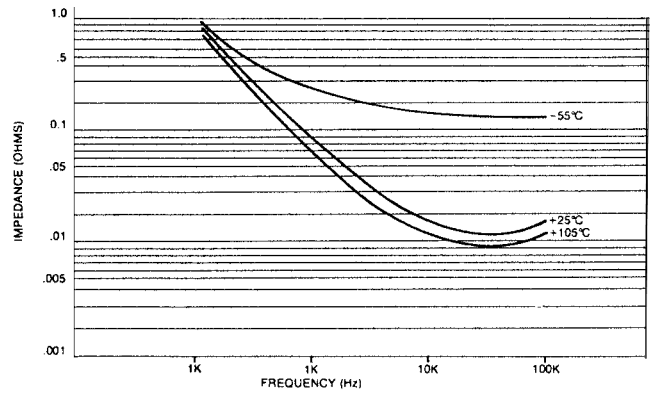
# Type 300/301 -55 °C to 105 °C Long-Life, Switching Power Grade Radial High Capacitance and Ultra-Low ESR

## Typical Performance Curves

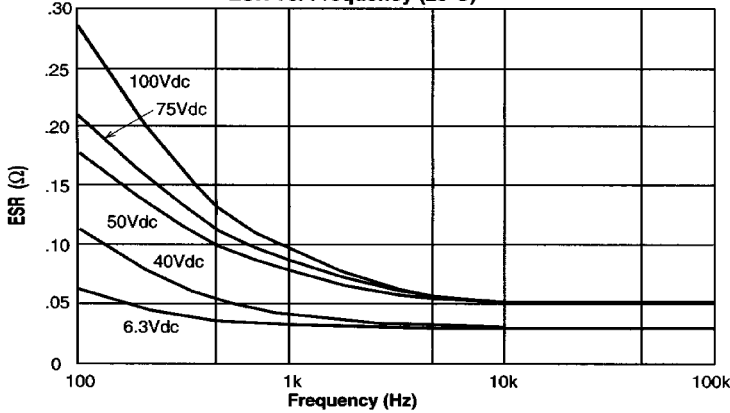
Type 301/301R Impedance vs Frequency  
18,000 $\mu$ F, 6.3V, 1x3 $\frac{5}{8}$ "



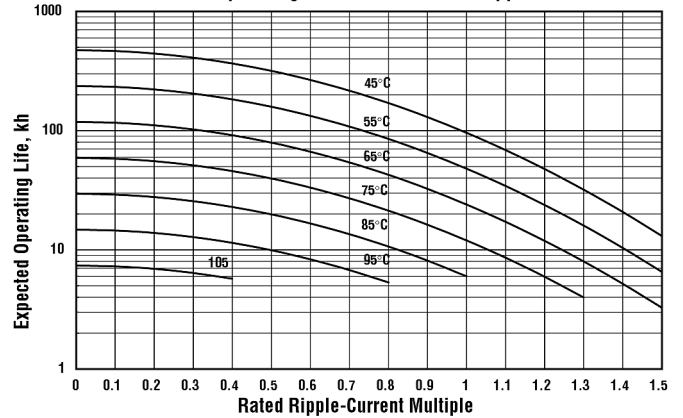
1500  $\mu$ F 75V, 1" x 3 $\frac{3}{8}$ "  
Impedance-Frequency Characteristics



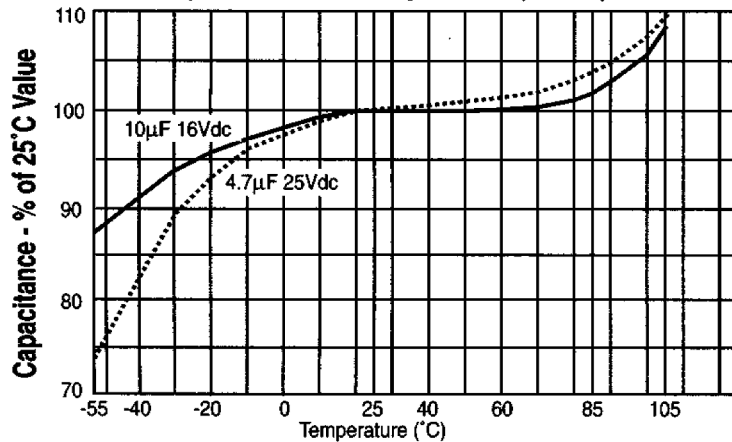
Type 301/301R ESR vs Frequency  
ESR vs. Frequency (25°C)



300/301 Operating Life in Kilohours vs Ripple Current



Capacitance vs. Temperature (120Hz)



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