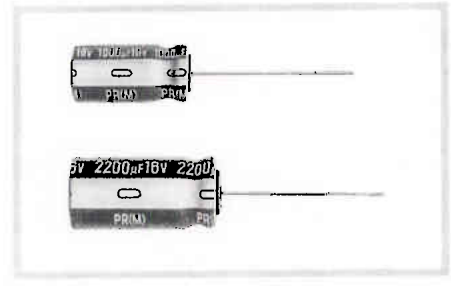
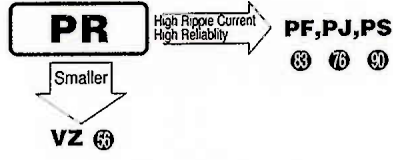




Standard, For Switching Power Supplies
series



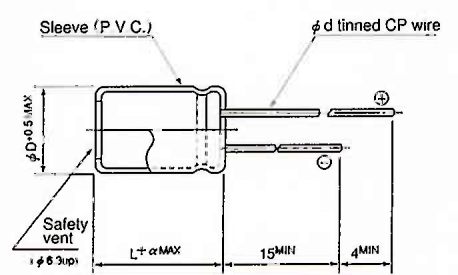
- Same case sizes as VX series, but operating at higher temperature range up to +105 C.
- Designed specifically for use in switching power supplies.



Specifications

Item	Performance Characteristics	
Operating Temperature Range	-55~+105 C (6.3~100V), -40~+105 C (160~400V), -25 ~+105 C (450V)	
Voltage Range	6.3~450V	
Capacitance Range	0.47~22000 μF	
Capacitance Tolerance	±20% at 120Hz, 20 C	
Leakage Current	Rated voltage (V)	6.3~100 160~450
	Leakage current	After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 (μA), whichever is greater. After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3 (μA), whichever is greater.
tan δ	For capacitance of more than 1000 μF, add 0.02 for every increase of 1000 μF. Measurement frequency: 120Hz, Temperature: 20 C	
	Rated voltage (V)	6.3 10 16 25 35 50 63 100 160~250 315~350 400 450
Stability at Low Temperature	Measurement frequency: 120Hz	
	Impedance ratio	Z-25 C / Z+20 C
	ZT/Z20 (MAX)	Z-40 C / Z+20 C
Load Life	After an application of D.C. bias voltage plus the rated ripple current for 2000 hours (1000 hours for D=8 or less) at 105 C the peak voltage shall not exceed the rated D.C. voltage, the capacitors meet the characteristic requirements shown on the right.	
	Capacitance change	tan δ
Shelf Life	After leaving capacitors under no load at 105 C for 1000 hours, they meet the specified value for load life characteristics listed above.	
	Leakage current	
Marking	Printed with white color letter on dark brown sleeve.	
Applicable Standards	JIS C 5141 and JIS C 5102.	

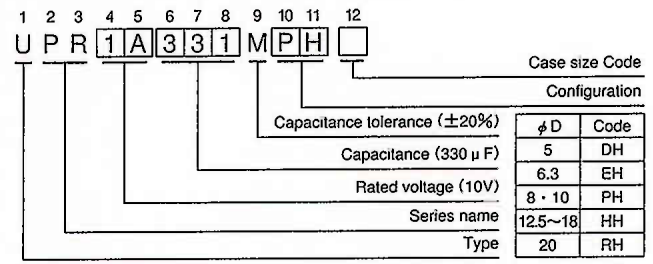
Radial Lead Type



φ D	5	6.3	8	10	12.5	16	18	20
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0
φ d	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0

α (L < 20) 1.5 (L ≥ 20) 2.0

Type numbering system (Example : 10V 330 μ F)



Please refer to page 17, 18, 19 about the formed or taped product spec.
Please refer to page 3 for the minimum order quantity.

• Dimension table in next page

PR series

■ Standard ratings

V(Code)		6.3 (0J)			10 (1A)			16 (1C)			25 (1E)			
Cap (μF)	Code	Item	Case size	Impedance	Allowable ripple	Case size	Impedance	Allowable ripple	Case size	Impedance	Allowable ripple	Case size	Impedance	Allowable ripple
4.7	4R7											5X11	5.00	24
10	100								5X11	2.80	35	5X11	2.80	39
22	220	5X11	2.40	34	5X11	2.40	45	5X11	2.40	55	5X11	2.40	60	
33	330	5X11	2.30	50	5X11	2.30	60	5X11	2.30	70	5X11	2.20	75	
47	470	5X11	2.10	65	5X11	2.10	75	5X11	1.80	85	5X11	1.60	90	
100	101	5X11	1.90	100	5X11	1.80	110	6.3X11	0.80	135	6.3X11	0.62	145	
220	221	6.3X11	0.67	165	6.3X11	0.58	180	8X11.5	0.36	235	8X11.5	0.35	250	
330	331	6.3X11	0.48	200	8X11.5	0.36	255	8X11.5	0.32	285	10X12.5	0.22	355	
470	471	8X11.5	0.31	280	8X11.5	0.26	305	10X12.5	0.20	395	10X16	0.16	470	
1000	102	10X12.5	0.22	470	10X16	0.14	570	10X20	0.12	700	12.5X20	0.10	855	
2200	222	12.5X20	0.096	930	12.5X20	0.090	1010	12.5X25	0.067	1150	16X25	0.053	1230	
3300	332	12.5X20	0.090	1100	12.5X25	0.074	1220	16X25	0.052	1350	16X31.5	0.045	1450	
4700	472	16X25	0.061	1320	16X25	0.054	1410	16X31.5	0.045	1560	•18X35.5	0.040	1660	
6800	682	16X25	0.056	1490	16X31.5	0.046	1610	•18X35.5	0.040	1750	20X40	0.030	2070	
10000	103	16X31.5	0.051	1830	•18X35.5	0.038	1980	△18X40	0.035	2170				
15000	153	•18X35.5	0.039	2280	△18X40	0.033	2470							
22000	223	20X40	0.030	2860										

V(Code)		35 (1V)			50 (1H)			63 (1J)			100 (2A)			
Cap (μF)	Code	Item	Case size	Impedance	Allowable ripple	Case size	Impedance	Allowable ripple	Case size	Impedance	Allowable ripple	Case size	Impedance	Allowable ripple
0.47	R47					5X11	47.0	7				5X11	43.0	10
1	010					5X11	22.0	12				5X11	20.0	15
2.2	2R2					5X11	10.0	18				5X11	9.80	22
3.3	3R3					5X11	6.70	25				5X11	6.60	29
4.7	4R7	5X11	5.00	27	5X11	4.70	30	5X11	4.70	34	5X11	4.60	37	
10	100	5X11	2.80	44	5X11	2.20	50	5X11	2.10	55	6.3X11	1.80	65	
22	220	5X11	2.30	65	5X11	1.90	75	6.3X11	0.98	90	8X11.5	0.68	115	
33	330	5X11	1.90	85	6.3X11	0.84	105	6.3X11	0.71	110	10X12.5	0.46	160	
47	470	6.3X11	1.00	115	6.3X11	0.80	125	8X11.5	0.65	155	10X16	0.37	210	
100	101	8X11.5	0.50	190	8X11.5	0.45	210	10X12.5	0.31	260	12.5X20	0.18	385	
220	221	10X12.5	0.24	325	10X16	0.21	400	10X20	0.20	465	16X25	0.10	590	
330	331	10X16	0.20	440	10X20	0.19	535	12.5X20	0.12	650	16X25	0.090	720	
470	471	10X20	0.12	580	12.5X20	0.10	730	12.5X25	0.081	800	16X31.5	0.076	875	
1000	102	12.5X25	0.067	995	16X25	0.053	1110	16X31.5	0.049	1200	△18X40	0.047	1320	
2200	222	16X31.5	0.044	1450	•18X35.5	0.037	1530	△18X40	0.032	1840				
3300	332	•18X35.5	0.038	1660	20X40	0.028	1950							
4700	472	△18X40	0.033	2030										

Case size : DXL (mm) MAX. Impedance : (Ω) at 20°C 100kHz Allowable ripple : (mA) at 105°C 120Hz

V		160		200		250		315		350		400		450	
Cap (μF)	Code	2 C	2 D	2 E	2 F	2 V	2 G	2 W							
0.47	R47	6.3X11	12	6.3X11	12	6.3X11	12	8X11.5	11	8X11.5	11				
1	010	6.3X11	17	6.3X11	17	6.3X11	17	8X11.5	16	10X12.5	17	10X12.5	16	10X12.5	18
2.2	2R2	6.3X11	25	6.3X11	25	8X11.5	29	10X12.5	28	10X16	31	10X16	27	10X20	29
3.3	3R3	8X11.5	36	8X11.5	36	10X12.5	42	10X12.5	34	10X16	38	10X20	36	12.5X20	41
4.7	4R7	8X11.5	43	10X12.5	50	10X12.5	50	10X16	45	10X20	49	10X20	43	12.5X20	49
10	100	10X12.5	70	10X16	80	10X20	88	10X20	72	12.5X20	82	12.5X25	72	16X25	75
22	220	10X20	130	10X20	140	12.5X25	155	12.5X25	120	16X25	130	16X25	110	16X31.5	115
33	330	12.5X20	180	12.5X25	190	12.5X25	190	16X25	155	16X31.5	160	16X31.5	140	•18X35.5	145
47	470	12.5X25	220	12.5X25	220	16X25	230	16X35.5	190	•18X35.5	200	•18X35.5	170	20X40	175
100	101	16X25	330	16X31.5	335	•18X35.5	340	△18X40	285	20X40	290				
220	221	•18X35.5	500	△18X40	515	20X40	525								

Allowable Ripple (mA rms) at 105°C 120Hz

Size 20X31 is available for capacitors marked. "•"
 Size 20X35 is available for capacitors marked. "△"
 In this case, 16 will be put at 12th digit of type numbering system.

● Frequency coefficient of allowable ripple current

V	Cap (μF)	Frequency				
		50Hz	120Hz	300Hz	1kHz	10kHz~
6.3~100	~47	0.75	1.00	1.35	1.57	2.00
	100~470	0.80	1.00	1.23	1.34	1.50
	1000~22000	0.85	1.00	1.10	1.13	1.15
160~450	0.47~220	0.80	1.00	1.25	1.40	1.60