



High Temperature Range, For +150°C Use

series



Long Life



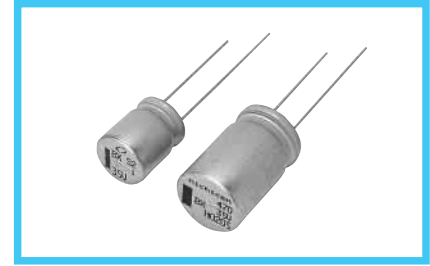
Anti-Solvent
Feature



- Laminated case series.
- Suited for automobile electronics where heavy duty services are indispensable.
- Adapted to the RoHS directive (2002/95/EC).



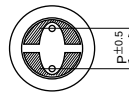
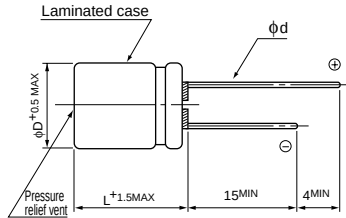
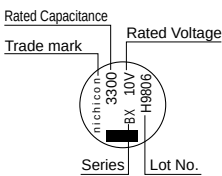
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Specifications

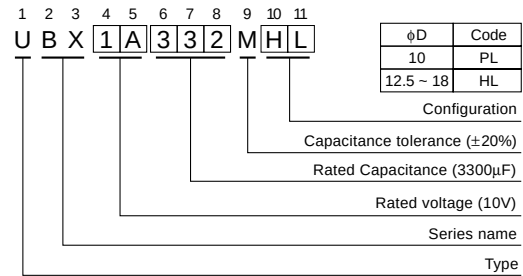
Item	Performance Characteristics													
Category Temperature Range	-55 ~ +150°C (10 ~ 100V), -40 ~ +150°C (160 · 200V), -25 ~ +150°C (350 · 400V),													
Rated Voltage Range	10 ~ 400V													
Rated Capacitance Range	1 ~ 4700μF													
Capacitance Tolerance	±20% at 120Hz, 20°C													
Leakage Current	After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 (μA), whichever is greater.													
tan δ	For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.													
	Rated voltage (V)	10	16	25	35	50	63	80	100	160·200	350·400	Measurement frequency : 120Hz Temperature : 20°C		
	tan δ (MAX.)	0.20	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.20	0.24			
Stability at Low Temperature	Measurement frequency : 120Hz													
	Rated voltage (V)			10	16	25	35	50	63	80	100	160·200	350·400	Measurement frequency : 120Hz
	Impedance ratio	Z-25°C / Z+20°C			3	2	2	2	2	2	2	3	6	
	ZT / Z20 (MAX.)	Z-40°C / Z+20°C			4	4	4	4	4	4	4	6	-	
Endurance	After an application of D.C. bias voltage plus the rated ripple current for 2000 hours (1000 hours for φD =10 and 12.5) at 150°C the peak voltage shall not exceed the rated D.C. voltage, capacitors meet the characteristics requirements listed at right.									Capacitance change		Within ±30% of initial value (10 ~ 100V) Within ±20% of initial value (160 ~ 400V)		
										Dissipation Factor		300% or less of initial specified value (10 ~ 100V) 200% or less of initial specified value(160 ~ 400V)		
										Leakage current		Initial specified value or less		
Marking	Black print on the case top.													

Radial Lead Type



	(mm)			
φD	10	12.5	16	18
P	5.0	5.0	7.5	7.5
φd	0.6	0.6	0.8	0.8

Type numbering system (Example : 10V 3300μF)



φD	Code
10	PL
12.5 ~ 18	HL

Configuration

Capacitance tolerance (±20%)

Rated Capacitance (3300μF)

Rated voltage (10V)

Series name

Type

Please refer to page 21, 22, 23 about the formed or taped product spec.
Please refer to page 3 for the minimum order quantity.

● Dimension table in next page.

■ Dimensions

φD×L (mm)

Cap. (μF)	V (Code) Code	10		16		25		35	
		1A		1C		1E		1V	
1	010							10×12.5	35
2.2	2R2							10×12.5	50
3.3	3R3							10×12.5	60
4.7	4R7							10×12.5	85
10	100							10×12.5	175
22	220							10×12.5	200
33	330							10×12.5	225
47	470							10×12.5	250
100	101					10×12.5	250	10×20	400
220	221			10×16	300	12.5×20	500	12.5×25	600
330	331	10×16	300	10×20	400	12.5×25	600	16×25	800
470	471	10×20	400	12.5×20	600	16×25	800	16×31.5	1000
1000	102	12.5×25	600	16×25	800	16×31.5	1000	18×40	1300
2200	222	16×31.5	1000	18×35.5	1200				
3300	332	18×35.5	1200	18×40	1300				
4700	472	18×40	1300					Cace Size	Rated Ripple

Cap. (μF)	V (Code) Code	50		63		80		100	
		1H		1J		1K		2A	
22	220							10×12.5	390
33	330					10×12.5	420	10×16	510
47	470					10×16	550	10×20	640
56	560			10×12.5	430	10×20	690	10×20	640
68	680			10×16	560	10×20	690	12.5×20	760
100	101	10×12.5	380	10×20	710	12.5×20	820	12.5×25	950
220	221	10×20	640	12.5×25	1040	16×25	1250	16×31.5	1380
330	331	12.5×20	770	12.5×31.5	1170	16×31.5	1480	18×31.5	1430
470	471	12.5×25	960	16×25	1280	18×31.5	1530		
560	561	12.5×31.5	1080	16×31.5	1520				
680	681	16×25	1190	16×35.5	1520				
1000	102	16×31.5	1420					Cace Size	Rated Ripple

● Frequency coefficient of rated ripple current

Rated Ripple (mA rms) at 150°C 100kHz

V	CV	Frequency	120Hz	300Hz	1kHz	10kHz ~
10 ~ 100		1000 > CV	0.50	0.64	0.83	1.00
		1000 ≤ CV	0.67	0.79	0.91	1.00

φD×L (mm)

Cap. (μF)	V (Code) Code	160		200		350		400	
		2C		2D		2V		2G	
4.7	4R7					10×16	77	10×20	83
6.8	6R8			10×12.5	83	10×20	110	12.5×20	88
10	100	10×12.5	110	10×12.5	83	12.5×20	120	12.5×25	105
15	150	10×12.5	110	10×16	130	12.5×25	130	12.5×25	105
22	220	10×16	160	10×20	170				
33	330	12.5×20	230	12.5×20	210				
47	470	12.5×20	250	12.5×25	250				
56	560	12.5×25	270	16×20	270				
68	680	16×20	290	16×25	290				
100	101	16×25	300					Cace Size	Rated Ripple

Rated Ripple (mA rms) at 150°C 120Hz

● Frequency coefficient of rated ripple current

V	Cap. (μF)	Frequency	50Hz	120Hz	300Hz	1kHz	10kHz	100kHz
160 ~ 450		4.7 ~ 33	0.75	1.00	1.25	1.50	1.75	1.80
		47 ~ 100	0.80	1.00	1.15	1.30	1.40	1.50