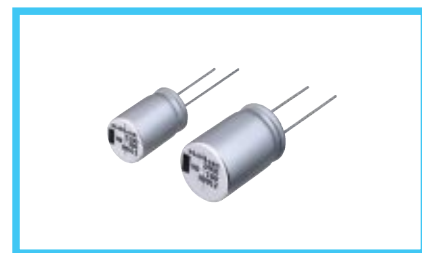


HD High Ripple Low Impedance series



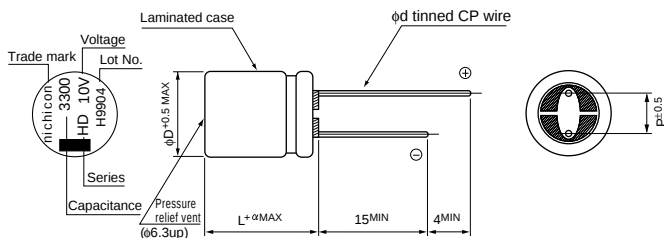
- Laminated case series.
- Lower impedance at high frequency range.
- Smaller case size and high ripple current.



Specifications

Item	Performance Characteristics								
Category Temperature Range	— 40 ~ + 105°C								
Rated Voltage Range	6.3 ~ 50V								
Rated Capacitance Range	22 ~ 6800μF								
Capacitance Tolerance	±20% at 120Hz, 20°C								
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3(μ A), whichever is greater.								
tan δ	Rated voltage (V)		6.3	10	16	25	35	50	120Hz 20°C
	tanδ (MAX.)		0.22	0.19	0.16	0.14	0.12	0.10	
	For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.								
Stability at Low Temperature	Rated voltage (V)		6.3	10	16	25	35	50	120Hz
	Impedance ratio ZT/Z20(MAX.)	Z— 25°C/Z + 20°C	2	2	2	2	2	2	
		Z— 40°C/Z + 20°C	3	3	3	3	3	3	
Endurance	After an application of D.C. bias voltage plus the rated ripple current for 5000 hours (φD ≤ 6.3 : 2000 hours, φD=8 : 3000 hours, φD=10 : 4000 hours) at 105°C the peak voltage shall not exceed the rated D.C. voltage, capacitors meet the characteristics requirements listed below.								
	Capacitance change		Within ±25% of initial value						
	tanδ		200% or less of initial specified value						
	Leakage current		Initial specified value or less						
Marking	Black print on the case top.								

Radial Lead Type

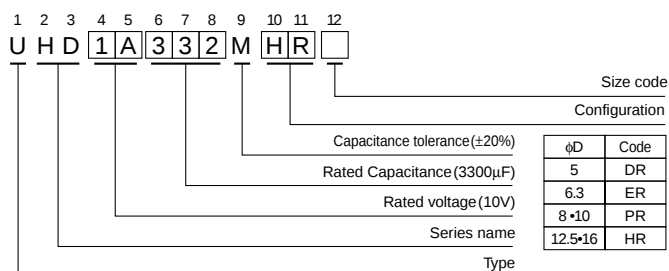


α	(L < 20)	1.5
	(L ≥ 20)	2.0

	φD	5	6.3	8	10	12.5	16
P		2.0	2.5	3.5	5.0	5.0	7.5
φd		0.5	0.5	0.6	0.6	0.6	0.8

※ In case L > 25 for the φ12.5 dia.unit, lead dia.φd=0.8mm

Type numbering system (Example : 10V 3300μF)



φD	Code
5	DR
6.3	ER
8~10	PR
12.5~16	HR

Please refer to page 18, 19, 20 about the formed or taped product spec.
Please refer to page 3 for the minimum order quantity.

■ Dimension table in next pages.

■ Standard ratings

V(Code) Cap.(μF) Item Code		6.3(0J)				10(1A)			
		Case size φD × L (mm)	Impedance(ΩMAX.)		Rated ripple (mA rms) 105°C/100kHz	Case size φD × L (mm)	Impedance(ΩMAX.)		Rated ripple (mA rms) 105°C/100kHz
			20°C/100kHz	— 10°C/100kHz			20°C/100kHz	— 10°C/100kHz	
100	101					5 × 11	0.30	1.0	250
150	151	5 × 11	0.30	1.0	250				
220	221					6.3 × 11	0.13	0.41	405
330	331	6.3 × 11	0.13	0.41	405				
470	471					8 × 11.5	0.072	0.22	760
560	561	8 × 11.5	0.072	0.22	760				
680	681					8 × 15	0.056	0.17	995
820	821	8 × 15	0.056	0.17	995	▲ 10 × 12.5	0.053	0.16	1030
1000	102	10 × 12.5	0.053	0.16	1030				
1200	122	8 × 20	0.041	0.13	1250	8 × 20	0.041	0.13	1250
1500	152	▲ 10 × 16	0.038	0.12	1430	▲ 10 × 16	0.038	0.12	1430
2200	222	10 × 20	0.023	0.069	1820	10 × 20	0.023	0.069	1820
3300	332	10 × 25	0.022	0.066	2150	10 × 25	0.022	0.066	2150
3900	392	12.5 × 20	0.021	0.053	2360	12.5 × 20	0.021	0.053	2360
4700	472	12.5 × 25	0.018	0.045	2770	12.5 × 25	0.018	0.045	2770
5600	562	12.5 × 31.5	0.016	0.041	3290	12.5 × 31.5	0.016	0.041	3290
6800	682	▲ 16 × 20	0.018	0.045	3140	▲ 16 × 20	0.018	0.045	3140
		12.5 × 35.5	0.015	0.039	3400	12.5 × 35.5	0.015	0.039	3400
		▲ 16 × 20	0.018	0.045	3140	16 × 25	0.016	0.043	3460
		16 × 25	0.016	0.043	3460				

V(Code) Cap.(μF) Item Code		16(1C)				25(1E)			
		Case size φD × L (mm)	Impedance(ΩMAX.)		Rated ripple (mA rms) 105°C/100kHz	Case size φD × L (mm)	Impedance(ΩMAX.)		Rated ripple (mA rms) 105°C/100kHz
			20°C/100kHz	— 10°C/100kHz			20°C/100kHz	— 10°C/100kHz	
47	470					5 × 11	0.30	1.0	250
56	560	5 × 11	0.30	1.0	250				
100	101					6.3 × 11	0.13	0.41	405
120	121	6.3 × 11	0.13	0.41	405				
220	221					8 × 11.5	0.072	0.22	760
330	331	8 × 11.5	0.072	0.22	760	8 × 15	0.056	0.17	995
470	471	▲ 10 × 12.5	0.053	0.16	1030	▲ 10 × 12.5	0.053	0.16	1030
680	681	8 × 15	0.056	0.17	995	8 × 20	0.041	0.13	1250
820	821	▲ 10 × 16	0.038	0.12	1430	▲ 10 × 16	0.038	0.12	1430
1000	102	10 × 20	0.023	0.069	1820	10 × 20	0.023	0.069	1820
1200	122	10 × 25	0.022	0.066	2150	10 × 25	0.022	0.066	2150
1500	152	12.5 × 20	0.021	0.053	2360	12.5 × 20	0.021	0.053	2360
1800	182	12.5 × 25	0.018	0.045	2770	12.5 × 25	0.018	0.045	2770
2200	222	12.5 × 31.5	0.016	0.041	3290	12.5 × 31.5	0.016	0.041	3290
2700	272	▲ 16 × 20	0.018	0.045	3140	▲ 16 × 20	0.018	0.045	3140
3300	332	12.5 × 35.5	0.015	0.039	3400	12.5 × 35.5	0.015	0.039	3400
3900	392	16 × 25	0.016	0.043	3460	16 × 25	0.016	0.043	3460

▲ : In this case, [6] will be put at 12th digit of type numbering system.

■ Standard ratings

Cap.(μF)		V(Code)		35(1V)			50(1H)		
		Item	Code	Case size φD × L (mm)	Impedance(ΩMAX.)		Case size φD × L (mm)	Impedance(ΩMAX.)	
					20°C/100kHz	— 10°C/100kHz		20°C/100kHz	— 10°C/100kHz
22	220						5 × 11	0.34	1.18
33	330			5 × 11	0.30	1.0			
56	560			6.3 × 11	0.13	0.41	6.3 × 11	0.14	0.50
100	101						8 × 11.5	0.074	0.22
120	121						8 × 15	0.061	0.18
150	151			8 × 11.5	0.072	0.22	10 × 12.5	0.061	0.18
180	181						8 × 20	0.046	0.14
220	221			8 × 15 ▲ 10 × 12.5	0.056 0.053	0.17 0.16	10 × 16	0.042	0.12
270	271			8 × 20	0.041	0.13	10 × 20	0.030	0.090
330	331			10 × 16	0.038	0.12	10 × 25	0.028	0.085
470	471			10 × 20	0.023	0.069	12.5 × 20	0.027	0.068
560	561			10 × 25	0.022	0.066	12.5 × 25	0.023	0.059
680	681			12.5 × 20	0.021	0.053	12.5 × 31.5	0.021	0.052
820	821						12.5 × 35.5 ▲ 16 × 20	0.019 0.023	0.051 0.059
1000	102			12.5 × 25	0.018	0.045	16 × 25	0.021	0.056
1200	122			12.5 × 31.5 ▲ 16 × 20	0.016 0.018	0.041 0.045			
1500	152			12.5 × 35.5	0.015	0.039			
1800	182			16 × 25	0.016	0.043			

▲ : In this case, [6] will be put at 12th digit of type numbering system.

■ Frequency coefficient of rated ripple current

Cap.(μF)	Frequency				
22 ~ 33	50Hz	120Hz	1kHz	10kHz	100kHz
39 ~ 330	0.45	0.55	0.75	0.90	1.00
390 ~ 1000	0.60	0.70	0.85	0.95	1.00
1200 ~ 6800	0.65	0.75	0.90	0.98	1.00
	0.75	0.80	0.95	1.00	1.00