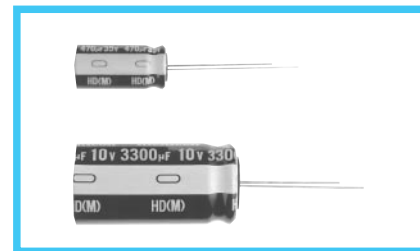


HD series High Ripple Low Impedance



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

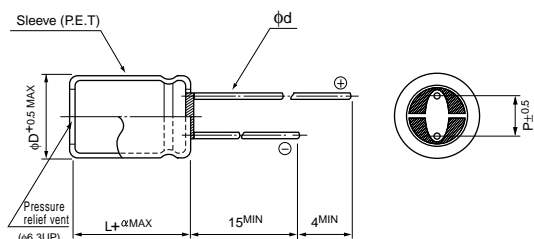


Specifications

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 (μA), whichever is greater.							
tan δ	Rated voltage (V)	6.3	10	16	25	35	50	120Hz 20°C
	tan δ (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	
		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 characteristic requirements listed below.							
	Capacitance change	Within ±25% of initial value						
	tan δ	200% or less of initial specified value						
	Leakage current	Initial specified value or less						
Marking	Printed with white color letter on black sleeve.							

Radial Lead Type

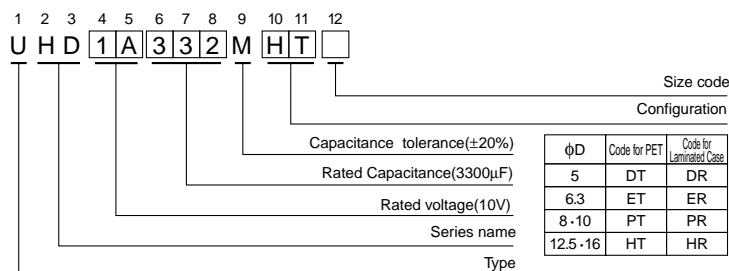
Type numbering system (Example : 10V 3300μF)



α	(L < 20) 1.5
	(L ≥ 20) 2.0

	(mm)					
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.



The laminated case is also available upon request.
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 (Ω MAX.)		Rated ripple (mA rms) 105°C / 100kHz	Case size φD×L (mm)	Impedance (Ω MAX.)		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	8×15	0.056	0.17	995
		▲10×12.5	0.053	0.16	1030	▲10×12.5	0.053	0.16	1030
820	821	8×15	0.056	0.17	995				
1000	102	10×12.5	0.053	0.16	1030	8×20	0.041	0.13	1250
		▲10×16	0.038	0.12	1430	▲10×16	0.038	0.12	1430
1200	122	8×20	0.041	0.13	1250	10×20	0.023	0.069	1820
		▲10×16	0.038	0.12	1430				
1500	152	10×20	0.023	0.069	1820	10×25	0.022	0.066	2150
2200	222	10×25	0.022	0.066	2150	12.5×20	0.021	0.053	2360
3300	332	12.5×20	0.021	0.053	2360	12.5×25	0.018	0.045	2770
3900	392	12.5×25	0.018	0.045	2770	12.5×31.5	0.016	0.041	3290
						▲16×20	0.018	0.045	3140
4700	472	12.5×31.5	0.016	0.041	3290	12.5×35.5	0.015	0.039	3400
5600	562	12.5×35.5	0.015	0.039	3400	16×25	0.016	0.043	3460
		▲16×20	0.018	0.045	3140				
6800	682	16×25	0.016	0.043	3460				

V(Code) Cap. (μF) / Item Code		16 (1C)				25 (1E)			
		Case size φD×L (mm)	Impedance (Ω MAX.)		Rated ripple (mA rms) 105°C / 100kHz	Case size φD×L (mm)	Impedance (Ω MAX.)		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
		▲10×12.5	0.053	0.16	1030	▲10×12.5	0.053	0.16	1030
470	471	8×15	0.056	0.17	995	8×20	0.041	0.13	1250
		▲10×12.5	0.053	0.16	1030	▲10×16	0.038	0.12	1430
680	681	8×20	0.041	0.13	1250	10×20	0.023	0.069	1820
		▲10×16	0.038	0.12	1430				
820	821				10×25	0.022	0.066	2150	
1000	102	10×20	0.023	0.069	1820	12.5×20	0.021	0.053	2360
1200	122	10×25	0.022	0.066	2150				
1500	152	12.5×20	0.021	0.053	2360	12.5×25	0.018	0.045	2770
1800	182	12.5×25	0.018	0.045	2770	12.5×31.5	0.016	0.041	3290
						▲16×20	0.018	0.045	3140
2200	222	12.5×25	0.018	0.045	2770	12.5×35.5	0.015	0.039	3400
2700	272	12.5×31.5	0.016	0.041	3290	16×25	0.016	0.043	3460
		▲16×20	0.018	0.045	3140				
3300	332	12.5×35.5	0.015	0.039	3400				
3900	392	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) Item Code	35 (1V)				50 (1H)			
		Case size φD×L (mm)	Impedance (Ω MAX.)		Rated ripple (mA rms) 105°C / 100kHz	Case size φD×L (mm)	Impedance (Ω MAX.)		Rated ripple (mA rms) 105°C / 100kHz
			20°C / 100kHz	-10°C / 100kHz			20°C / 100kHz	-10°C / 100kHz	
22	220					5×11	0.34	1.18	238
33	330	5×11	0.30	1.0	250				
56	560	6.3×11	0.13	0.41	405	6.3×11	0.14	0.50	385
100	101					8×11.5	0.074	0.22	724
120	121					8×15	0.061	0.18	950
150	151	8×11.5	0.072	0.22	760	10×12.5	0.061	0.18	979
180	181					8×20	0.046	0.14	1190
220	221	8×15	0.056	0.17	995	10×16	0.042	0.12	1370
		▲10×12.5	0.053	0.16	1030				
270	271	8×20	0.041	0.13	1250	10×20	0.030	0.090	1580
330	331	10×16	0.038	0.12	1430	10×25	0.028	0.085	1870
470	471	10×20	0.023	0.069	1820	12.5×20	0.027	0.068	2050
560	561	10×25	0.022	0.066	2150	12.5×25	0.023	0.059	2410
680	681	12.5×20	0.021	0.053	2360	12.5×31.5	0.021	0.052	2860
820	821					12.5×35.5	0.019	0.051	2960
						▲16×20	0.023	0.059	2730
1000	102	12.5×25	0.018	0.045	2770	16×25	0.021	0.056	3010
1200	122	12.5×31.5	0.016	0.041	3290				
		▲16×20	0.018	0.045	3140				
1500	152	12.5×35.5	0.015	0.039	3400				
1800	182	16×25	0.016	0.043	3460				

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

■ Frequency coefficient of rated ripple current

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