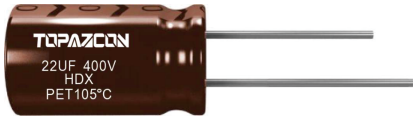
HDX Series

- **Miniaturized, designed for fast charging**
- **Load life 2,000～3,000 hours at 105℃**
- **Low impedance and high ripple current**
- **RoHS Compliant**



◆ SPECIFICATIONS

Item	Performance Characteristics
Category Temperature Range	-40 ~ +105℃
Working Voltage Range	400 ~ 500Vdc
Capacitance Range	4.7 ~ 100μF
Capacitance Tolerance	±20% (at 20℃ and 120Hz)

Dissipation Factor (tanδ) (at 20℃, 120Hz)

Rated Voltage (V)	400	420	450	500
tanδ(Max)	0.15	0.15	0.20	0.20

Leakage Current

400~500Vdc
I≤0.015CV+ 10μA (2minutes)

I: Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V)

Low Temperature Characteristics Impedance Ratio(MAX)

Rated Voltage (V)	400	420	450	500
Z(-25℃)/Z(+20℃)	4	4	5	6
Z(-40℃)/Z(+20℃)	7	7	9	9

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied for 2,000 to 3,000 hours at 105°C.

Capacitance change	≦ ±20% of the initial value
Dissipation factor(tanδ)	≦ 200% of the specified value
Leakage current	≦ specified value

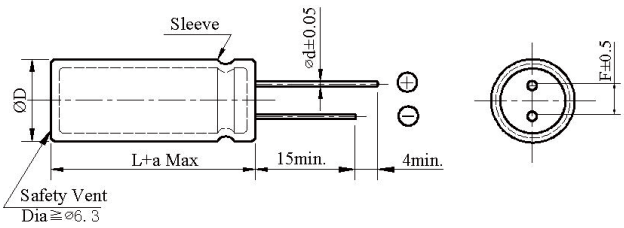
Size	Life time (hours)
≤8 Φ	2,000
≥10 Φ	3,000

Shelf Life

The following requirements shall be satisfied when the capacitor are restored to 20℃ after the rated voltage applied for 1,000 hours at 105℃ without voltage applied.

Capacitance change	≦ ±20% of the initial value
Dissipation factor(tanδ)	≦ 200% of the specified value
Leakage current	≦ 200% of the specified value

◆ DIMENSIONS (mm)



ΦD	6.3	8	10	12.5	16	18
Φd	0.5	0.5/0.6	0.6	0.6	0.8	0.8
F	2.5	3.5	5.0	5.0	7.5	7.5
a	L≥20mm +2.0Max L<20mm +1.0Max					

◆ PART NUMBER SYSTEM(Example : 400V 22μF)

E	H	X	2	G	2	2	0	M	1	0	1	4	0	0	C

Sleeve code(Brown)
Lead length code
Lead forming Type code
Size code(1014 : 10×14)
Capacitance tolerance code(M:±20%)
Capacitance code (22μF)
Voltage code(400V)
Series code(HDX)
Category code(E)

HDX Series

◆ **Case size & Permissible rated ripple current: (mA rms) at 105℃ / 100KHz; Impedance：(Ω) at 20℃ / 100KHz**

Vdc / μF	400			420		
	ΦD × L	Z	RC	ΦD × L	Z	RC
4.7	6.3×12	9.60	125	6.3×12	9.40	123
6.8	6.3×13	8.40	135	6.3×16	8.20	135
8.2	6.3×15	7.50	190	8×12	7.30	188
10	8×11	5.40	200	8×12	5.20	198
12	8×13	4.20	245	8×14	4.10	243
15	8×15	4.00	270	10×13	4.00	268
18	8×17	3.20	305	10×14	3.10	303
22	10×14	3.10	325	10×16	3.00	323
27	10×16	3.00	390	10×20	2.98	388
33	10×18	2.50	460	10×20	2.48	458
47	13×19	1.98	630	13×20	1.95	628
68	16×19	1.40	1020	16×23	1.35	1018
82	16×23	1.08	1200	16×25	1.05	1198
100	18×23	0.90	1330	18×25	0.90	1310

Vdc / μF	450			500		
	ΦD × L	Z	RC	ΦD × L	Z	RC
4.7	6.3×16	15.70	120	6.3×17	17.50	90
6.8	10×11	12.80	135	10×12	15.30	95
8.2	8×13	9.27	170	10×13	11.13	120
10	8×15	8.21	200	10×14	9.85	155
12	10×13	6.38	240	10×15	7.66	220
15	10×14	6.08	265	10×16	7.30	240
18	10×15	5.78	305	10×20	6.78	255
22	10×18	5.48	320	12.5×17	5.65	330
27	10×20	4.56	390	10×25	5.47	360
33	10×35	3.26	460	12.5×25	4.28	420
47	10×45	2.71	630	16×20	3.25	580
68	10×50	1.64	1040	18×20	2.30	815
82	16×26	1.37	1205	18×26	1.97	980
100	18×25	1.08	1280			

◆ **RIPPLE CURRENT MULTIPLIERS**

Frequency Multipliers

Cap(μF)	Frequency (Hz)				
	50	120	1K	10K	100K
4.7 ~ 8.2	0.26	0.40	0.70	0.90	1.00
10 ~ 82	0.41	0.55	0.83	0.94	1.00
≥100	0.54	0.67	0.87	0.96	1.00