

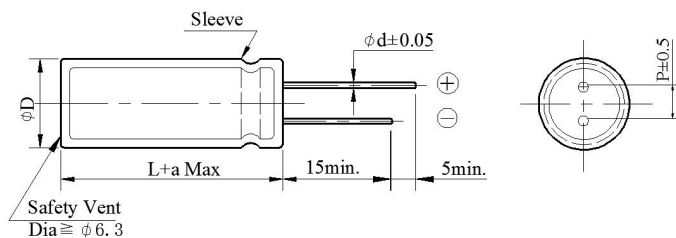
HX Series

- High-temperature 135°C, high reliability.
- Load life 2,000~3,000 hours at 135°C.
- For automotive electronics and lighting equipment and other high temperature applications.

◆ SPECIFICATIONS

Item	Performance Characteristics						
Category Temperature Range	-40~ +135℃						
Working Voltage Range	10~50Vdc						
Capacitance Range	22~3900 μF						
Capacitance Tolerance	±20% (at 20℃ and 120Hz)						
Dissipation actor (tan δ) (at 20℃, 120Hz)	Rated Voltage (V)	10	16	25	35	50	
	tan δ (Max)	0.20	0.16	0.14	0.12	0.10	
	The above values should be increased by 0.02 for every additional 1000μF						
Leakage Current	I≤0.01CV or 3μA whichever is greater I : Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V) Apply rated voltage the rated voltage for 2 minutes.						
Low Temperature Characteristics Impedance Ratio(MAX)	Rated Voltage (V)	10	16	25	35	50	(at 120Hz)
	Z(-25℃)/Z(+20℃)	3	2	2	2	2	
	Z(-40℃)/Z(+20℃)	6	4	4	4	4	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000~3,000 hours at 135℃.						
	Capacitance change		≒ ±25% of the initial value			Case Size	Life time (hours)
	Dissipation factor(tan δ)		≒ 200% of the specified value			ΦD ≒ 8	2,000
	Leakage current		≒ specified value			ΦD ≧ 10	3,000
						ΦD ≧ 12.5	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 135℃ without voltage applied. After test : UR to be applied for 30 minutes, 24 to 48 hours before measurement.						
	Capacitance change		≒ ±25% of the initial value				
	Dissipation factor(tan δ)		≒ 200% of the specified value				
	Leakage current		≒ 200% of the specified value				
Others	Conforms to JIS-C-5101-4 (1998) and IEC 60384-4						

◆ DIMENSIONS(mm)



ΦD	6.3	8	10	12.5/13	16
ΦD	$\Phi D \pm 0.5$ Max				
Φd	0.5	0.5/0.6	0.6	0.6	0.8
F	2.5	3.5	5.0	5.0	7.5
a	$< 20 L \pm 1.5$ Max $\geq 20 L \pm 2.0$ Max				

◆ PART NUMBER SYSTEM(Example : 35V 1800 μ F)

E	H	X	0	3	5	M	1	8	2	I	2	5	L	O	5	0	A	A
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Special Request																		
Lead size																		
Lead type																		
Height code (L: 25mm)																		
Diameter code (I: $\Phi 12.5$)																		
Capacitance code (1800 μF)																		
Capacitance tolerance code (M: $\pm 20\%$)																		
Voltage code (35V)																		
Series code (HX)																		
Category code																		

HX Series

- Case size & Permissible rated ripple current: (mA rms) at 135°C / 100KHz.

WV(V)	Nominal capacitance (uF)	Case Size ΦD×L (mm)	Max. Rated ripple current @135°C/100KHz (mA rms)	WV(V)	Nominal capacitance (uF)	Case Size ΦD×L (mm)	Max. Rated ripple current @135°C/100KHz (mA rms)
10	47	5×11	180	16	33	5×11	140
	100	6.3×11	290		47	5×11	150
	220	8×12	350		100	6.3×11	170
	330	8×12	390		220	8×12	390
	470	8×12	420		330	8×12	430
	1000	10×16	680		470	10×13	650
25				35	1000	10×20	950
	22	5×11	130		100	10×13	480
	33	6.3×11	180		220	10×16	640
	47	6.3×11	220		330	10×20	870
	100	8×12	420		470	10×20	950
	220	10×13	600		1000	16×26	1650
	330	10×13	780		1800	12.5×35	1690
	470	10×20	900		2200	18×26	2000
	1000	13×20	1220				
	1800	13×30	1450				
50	2200	16×26	1650				
	3300	16×32	2300				
	22	8×12	210				
	33	8×12	260				
	47	8×12	310				
	100	10×13	530				
	220	10×20	880				
	330	12.5×20	1000				
	470	12.5×25	1200				
	1000	16×26	1600				
	1800	16×25	1900				
	2200	18×40	2700				

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Vdc	Cap(uF)	Frequency (Hz)			
		120	1K	10K	100K
10 ~ 50	<100	0.40	0.75	0.90	1.00
	100 ~ 470	0.50	0.85	0.94	1.00
	>470	0.60	0.87	0.95	1.00