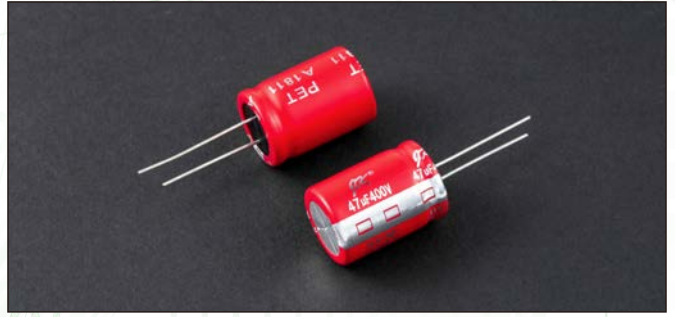


HX SERIES

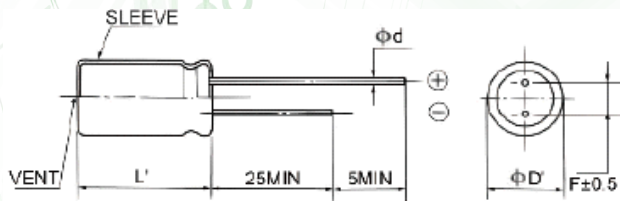
- For automobile modules and other high temperature application.
- Endurance: 125°C 3000 hours.
- Down size, long life, Low Impedance and better low temperature characteristics.
- Rohs compliance.



◆ SPECIFICATIONS

Item	Characteristics															
Temperature Range	-40 to +125°C								-20 to +125°C							
Rated Voltage Range	6.3 to 100 WV.DC								160 to 450 WV.DC							
Surge Voltage	W.V.	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	at 25°C
	S.V.	8	13	20	32	44	63	80	125	200	250	300	400	450	500	
Capacitance Tolerance	- 20%(M) ~ + 20% (at 25°C, 120Hz)															
Leakage Current	I = 0.01CV, whichever is greater. at 25°C After 1 minutes I: Max. Leakage Current (µA) C: Rated Capacitance (µF) V: Rated voltage (V)															
Dissipation Factor (tanδ)	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160~250	350~450	at 25°C, 120Hz				
	Tanδ(Max)	22	20	16	14	12	10	10	10	0.12	0.15					
Low Temperature Characteristics	Impedance ratio at 120Hz															
	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	400	450		
	Z-25°C/Z+20°C	2	2	2	2	2	2	2	2	3	3	3	6	6		
	Z-40°C/Z+20°C	3	3	3	3	3	3	3	3							
Endurance	The following specification shall be satisfied when the capacitors are restored to 20°C after subjected DC voltage with the rated ripple current is applied for 3000 hours at 125°C.															
	Capacitance Change	≦ ±20% of the initial value														
	Dissipation Factor	≦ 200% of the initial specified value														
	Leakage Current	≦ initial specified value														
Shelf Life	The following specification shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000hours(500 hours for 350 to 450WV) at 125°C without voltage applied.															
	Capacitance Change	≦ ±20% of the initial value														
	Dissipation Factor	≦ 200% of the initial specified value														
	Leakage Current	≦ 200% of the initial specified value														

◆ DRAWING



ψD	8	10~13	16~18	20~22
ψd	0.6		0.8	
F	3.5	5	7.5	10
ψD'	D + 0.5 max		D + 1.0 max	
L'	L + 1.5 max		L + 2.0 max	

◆ PART NUMBERING SYSTEM

HX

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□□

Series

Rated Cap.

Cap. Tolerance

Rated Voltage

Case Size D

Case Size L

HX Series

◆ FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

Frequency	uF	120Hz	1KHz	10KHz~	100KHz~
Coefficient	47~220	0.50	0.70	0.92	1.00
	330~680	0.55	0.77	0.94	1.00
	820~1800	0.60	0.80	0.96	1.00
	2200~6800	0.70	0.85	0.98	1.00

■ STANDARD RATINGS

WV uF	6.3			10			16		
	DxL	R.C.	E.S.R	DxL	R.C.	E.S.R	DxL	R.C.	E.S.R
330	6.3 X 11	340		8 X 11	360	0.22	8 X 14	360	0.22
470	8 X 12	540	0.094	8 X 14	620	0.15	8 X 16	620	0.15
1000	10 X 13	1030	0.045	10 X 16	960	0.073	10 X 20	960	0.073
2200	10 X 25	2150	0.02	13 X 20	1430	0.04	13 X 25	1430	0.04
3300	13 X 20	2360	0.017	13 X 25	1900	0.038	13 X 35	2300	0.034
4700	13 X 30	3290	0.015	13 X 35	2300	0.034	16 X 30	2550	0.031
5600	13 X 35	3400	0.013	16 X 25					

WV uF	25			35			50		
	DxL	R.C.	E.S.R	DxL	R.C.	E.S.R	DxL	R.C.	E.S.R
47							8 X 12	300	0.28
100				8 x 11	360	0.22	8 x 14	520	0.18
220	8 x 14	360	0.22	8 x 16	620	0.15	10 x 16	890	0.082
330	8 x 14	620	0.15	10 x 16	800	0.1	10 x 20	1000	0.065
470	10 x 16	800	0.1	10 x 20	960	0.073	13 x 20	1200	0.051
1000	10 x 25	1100	0.055	13 x 25	1430	0.04	16 x 25	2180	0.037
2200	13 x 35	2300	0.034	16 x 25	2550	0.031	18 x 40	2800	0.029
3300	16 x 25	2550	0.031	16 x 30	2800	0.028			
4700	16 x 35	2800	0.028						

WV uF	63			100					
	DxL	R.C.	E.S.R	DxL	R.C.	E.S.R			
47	10 x 12.5	480	0.8	10 x 16	600	0.68			
100	10 x 16	650	0.58	13 x 20	870	0.32			
220	13 x 20	950	0.27	16 x 25	1320	0.14			
330	13 x 25	1240	0.18	16 x 31.5	1400	0.12			
470	13 x 30	1390	0.16	18 x 31.5	1800	0.1			
1000	16 x 31.5	1650	0.09						

R.C. : Rated ripple current (mA rms) at 125, impedance(E.S.R) at 20 , 100kHz)

HX Series

◆ FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

V	120Hz	1KHz	10KHZ	100KHz~
160~250	0.55	0.85	0.90	1.00
350~450	0.5	0.80	0.90	1.00

■ STANDARD RATINGS

WV uF	160		200		250	
	DxL	R.C.	DxL	R.C.	DxL	R.C.
22	10 X 20	115	10 X 25	126	12.5 X 20	128
33	10 X 25	154	12.5 X 20	157	12.5 X 25	171
47	12.5 X 20	187	12.5 X 25	204	16 X 25	225
56	12.5 X 20	200	12.5 X 25	211	16 X 25	256
68	12.5 X 25	245	12.5 X 35	250	16 X 32	292
82	12.5 82 X 35	305	12.5 X 35	308	16 X 35	318
100	16 X 25	330	16 X 25	329		
150	16 X 32	434	16 X 32	412		

WV uF	350		400		450	
	DxL	R.C.	DxL	R.C.	DxL	R.C.
4.7	10 X 20	53	10 X 20	53	10 X 25	58
6.8	10 X 20	66	10 X 20	66	10 X 25	70
10	10 X 25	85	10 X 25	86	12.5 X 20	89
22	12.5 X 25	139	12.5 X 25	142	12.5 X 32	154
33	16 X 25	189	16 X 25	189	16 X 32	203
47	16 X 32	243	16 X 32	243	18 X 32	266
68	16 X 36	285	16 X 36	285	18 X 36	305
100	18 X 36	485	18 X 36	485		

R.C. : Rated ripple current (mA rms) at 125, 100kHz)