

KY Series

- Newly innovative electrolyte is employed to minimize ESR
- Endurance with ripple current : 4,000 to 10,000 hours at 105°C
- Non solvent resistant type
- RoHS2 Compliant



◆ SPECIFICATIONS

Items	Characteristics										
Category	-40 to +105°C										
Temperature Range	-40 to +105°C										
Rated Voltage Range	6.3 to 100V _{dc}										
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)										
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 2 minutes)										
Dissipation Factor (tan δ)	Rated voltage (V _{dc})	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	tan δ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.08	
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)										
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V _{dc})	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2	2	
	Z(-40°C)/Z(+20°C)	8	6	4	3	3	3	3	3	3	
(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 (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105°C.										
	Time	6.3 to 10V _{dc}	φ 5 & 6.3 : 4,000hours		φ 8 & 10 : 6,000hours		φ 12.5 to 18 : 8,000hours				
		16 to 100V _{dc}	φ 5 & 6.3 : 5,000hours		φ 8 & 10 : 7,000hours		φ 12.5 to 18 : 10,000hours				
	Capacitance change	≤ ±25% of the initial value									
	D.F. (tan δ)	≤ 200% of the initial specified value									
Leakage current	≤ The initial specified value										
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.										
	Capacitance change	≤ ±25% of the initial value									
	D.F. (tan δ)	≤ 200% of the initial specified value									
	Leakage current	≤ The initial specified value									

◆ DIMENSIONS [mm]

● Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆ PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA _{rms} /105°C, 100kHz)	Part No.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA _{rms} /105°C, 100kHz)	Part No.
			20°C	-10°C						20°C	-10°C		
6.3	150	5×11	0.58	2.3	210	EKY-6R3E□□151ME11D	16	1,500	12.5×20	0.035	0.12	1,900	EKY-160E□□152MK20S
	330	6.3×11	0.22	0.87	340	EKY-6R3E□□331MF11D		1,500	16×15	0.042	0.12	1,940	EKY-160E□□152ML15S
	680	8×11.5	0.13	0.52	640	EKY-6R3E□□681MHB5D		2,200	12.5×25	0.027	0.089	2,230	EKY-160E□□222MK25S
	820	10×12.5	0.080	0.32	865	EKY-6R3E□□821MJC5S		2,200	18×15	0.043	0.11	2,210	EKY-160E□□222MM15S
	1,000	8×15	0.087	0.35	840	EKY-6R3E□□102MH15D		2,700	12.5×30	0.024	0.078	2,650	EKY-160E□□272MK30S
	1,200	8×20	0.069	0.27	1,050	EKY-6R3E□□122MH20D		2,700	16×20	0.027	0.078	2,530	EKY-160E□□272ML20S
	1,200	10×16	0.060	0.24	1,210	EKY-6R3E□□122MJ16S		3,300	12.5×35	0.020	0.065	2,880	EKY-160E□□332MK35S
	1,500	10×20	0.046	0.18	1,400	EKY-6R3E□□152MJ20S		3,900	12.5×40	0.017	0.056	3,350	EKY-160E□□392MK40S
	1,800	12.5×15	0.049	0.16	1,450	EKY-6R3E□□182MK15S		3,900	16×25	0.021	0.060	2,930	EKY-160E□□392ML25S
	2,200	10×25	0.042	0.17	1,650	EKY-6R3E□□222MJ25S		3,900	18×20	0.026	0.067	2,860	EKY-160E□□392MM20S
	2,700	10×30	0.031	0.12	1,910	EKY-6R3E□□272MJ30S		4,700	16×31.5	0.017	0.050	3,450	EKY-160E□□472MLN3S
	2,700	16×15	0.042	0.12	1,940	EKY-6R3E□□272ML15S		4,700	18×25	0.019	0.049	3,140	EKY-160E□□472MM25S
	3,300	12.5×20	0.035	0.12	1,900	EKY-6R3E□□332MK20S		5,600	16×35.5	0.015	0.044	3,610	EKY-160E□□562MLP1S
	3,900	12.5×25	0.027	0.089	2,230	EKY-6R3E□□392MK25S		5,600	18×31.5	0.015	0.040	4,170	EKY-160E□□562MMN3S
	3,900	18×15	0.043	0.11	2,210	EKY-6R3E□□392MM15S		6,800	16×40	0.013	0.038	4,080	EKY-160E□□682ML40S
	4,700	12.5×30	0.024	0.078	2,650	EKY-6R3E□□472MK30S		8,200	18×35.5	0.014	0.038	4,220	EKY-160E□□822MMP1S
	5,600	12.5×35	0.020	0.065	2,880	EKY-6R3E□□562MK35S		10,000	18×40	0.012	0.032	4,280	EKY-160E□□103MM40S
	5,600	16×20	0.027	0.078	2,530	EKY-6R3E□□562ML20S		47	5×11	0.58	2.3	210	EKY-250E□□470ME11D
6,800	12.5×40	0.017	0.056	3,350	EKY-6R3E□□682MK40S	100	6.3×11	0.22	0.87	340	EKY-250E□□101MF11D		
6,800	16×25	0.021	0.060	2,930	EKY-6R3E□□682ML25S	220	8×11.5	0.13	0.52	640	EKY-250E□□221MHB5D		
6,800	18×20	0.026	0.067	2,860	EKY-6R3E□□682MM20S	330	8×15	0.087	0.35	840	EKY-250E□□331MH15D		
8,200	16×31.5	0.017	0.050	3,450	EKY-6R3E□□822MLN3S	330	10×12.5	0.080	0.32	865	EKY-250E□□331MJC5S		
10,000	16×35.5	0.015	0.044	3,610	EKY-6R3E□□103MLP1S	470	8×20	0.069	0.27	1,050	EKY-250E□□471MH20D		
10,000	18×25	0.019	0.049	3,140	EKY-6R3E□□103MM25S	470	10×16	0.060	0.24	1,210	EKY-250E□□471MJ16S		
12,000	16×40	0.013	0.038	4,080	EKY-6R3E□□123ML40S	680	10×20	0.046	0.18	1,400	EKY-250E□□681MJ20S		
12,000	18×31.5	0.015	0.040	4,170	EKY-6R3E□□123MMN3S	680	12.5×15	0.049	0.16	1,450	EKY-250E□□681MJ15S		
15,000	18×35.5	0.014	0.038	4,220	EKY-6R3E□□153MMP1S	820	10×25	0.042	0.17	1,650	EKY-250E□□821MJ25S		
18,000	18×40	0.012	0.032	4,280	EKY-6R3E□□183MM40S	1,000	10×30	0.031	0.12	1,910	EKY-250E□□102MJ30S		
10	100	5×11	0.58	2.3	210	EKY-100E□□101ME11D	1,000	12.5×20	0.035	0.12	1,900	EKY-250E□□102MK20S	
	220	6.3×11	0.22	0.87	340	EKY-100E□□221MF11D	1,000	16×15	0.042	0.12	1,940	EKY-250E□□102ML15S	
	470	8×11.5	0.13	0.52	640	EKY-100E□□471MHB5D	1,200	18×15	0.043	0.11	2,210	EKY-250E□□122MM15S	
	680	8×15	0.087	0.35	840	EKY-100E□□681MH15D	1,500	12.5×25	0.027	0.089	2,230	EKY-250E□□152MK25S	
	680	10×12.5	0.080	0.32	865	EKY-100E□□681MJC5S	1,800	12.5×30	0.024	0.078	2,650	EKY-250E□□182MK30S	
	1,000	8×20	0.069	0.27	1,050	EKY-100E□□102MH20D	1,800	16×20	0.027	0.078	2,530	EKY-250E□□182ML20S	
	1,000	10×16	0.060	0.24	1,210	EKY-100E□□102MJ16S	2,200	12.5×35	0.020	0.065	2,880	EKY-250E□□222MK35S	
	1,200	10×20	0.046	0.18	1,400	EKY-100E□□122MJ20S	2,200	18×20	0.026	0.067	2,860	EKY-250E□□222MM20S	
	1,500	10×25	0.042	0.17	1,650	EKY-100E□□152MJ25S	2,700	12.5×40	0.017	0.056	3,350	EKY-250E□□272MK40S	
	1,500	12.5×15	0.049	0.16	1,450	EKY-100E□□152MK15S	2,700	16×25	0.021	0.060	2,930	EKY-250E□□272ML25S	
	2,200	10×30	0.031	0.12	1,910	EKY-100E□□222MJ30S	3,300	16×31.5	0.017	0.050	3,450	EKY-250E□□332MLN3S	
	2,200	12.5×20	0.035	0.12	1,900	EKY-100E□□222MK20S	3,300	18×25	0.019	0.049	3,140	EKY-250E□□332MM25S	
	2,200	16×15	0.042	0.12	1,940	EKY-100E□□222ML15S	3,900	16×35.5	0.015	0.044	3,610	EKY-250E□□392MLP1S	
	2,700	18×15	0.043	0.11	2,210	EKY-100E□□272MM15S	3,900	18×31.5	0.015	0.040	4,170	EKY-250E□□392MMN3S	
	3,300	12.5×25	0.027	0.089	2,230	EKY-100E□□332MK25S	4,700	16×40	0.013	0.038	4,080	EKY-250E□□472ML40S	
	3,900	12.5×30	0.024	0.078	2,650	EKY-100E□□392MK30S	4,700	18×35.5	0.014	0.038	4,220	EKY-250E□□472MMP1S	
	3,900	16×20	0.027	0.078	2,530	EKY-100E□□392ML20S	5,600	18×40	0.012	0.032	4,280	EKY-250E□□562MM40S	
	4,700	12.5×35	0.020	0.065	2,880	EKY-100E□□472MK35S	33	5×11	0.58	2.3	210	EKY-350E□□330ME11D	
5,600	12.5×40	0.017	0.056	3,350	EKY-100E□□562MK40S	56	6.3×11	0.22	0.87	340	EKY-350E□□560MF11D		
5,600	16×25	0.021	0.060	2,930	EKY-100E□□562ML25S	150	8×11.5	0.13	0.52	640	EKY-350E□□151MHB5D		
5,600	18×20	0.026	0.067	2,860	EKY-100E□□562MM20S	220	8×15	0.087	0.35	840	EKY-350E□□221MH15D		
6,800	16×31.5	0.017	0.050	3,450	EKY-100E□□682MLN3S	220	10×12.5	0.080	0.32	865	EKY-350E□□221MJC5S		
6,800	18×25	0.019	0.049	3,140	EKY-100E□□682MM25S	270	8×20	0.069	0.27	1,050	EKY-350E□□271MH20D		
8,200	16×35.5	0.015	0.044	3,610	EKY-100E□□822MLP1S	330	10×16	0.060	0.24	1,210	EKY-350E□□331MJ16S		
8,200	18×31.5	0.015	0.040	4,170	EKY-100E□□822MMN3S	470	10×20	0.046	0.18	1,400	EKY-350E□□471MJ20S		
10,000	16×40	0.013	0.038	4,080	EKY-100E□□103ML40S	470	12.5×15	0.049	0.16	1,450	EKY-350E□□471MK15S		
10,000	18×35.5	0.014	0.038	4,220	EKY-100E□□103MMP1S	560	10×25	0.042	0.17	1,650	EKY-350E□□561MJ25S		
12,000	18×40	0.012	0.032	4,280	EKY-100E□□123MM40S	680	10×30	0.031	0.12	1,910	EKY-350E□□681MJ30S		
16	56	5×11	0.58	2.3	210	EKY-160E□□560ME11D	680	12.5×20	0.035	0.12	1,900	EKY-350E□□681MK20S	
	120	6.3×11	0.22	0.87	340	EKY-160E□□121MF11D	680	16×15	0.042	0.12	1,940	EKY-350E□□681ML15S	
	330	8×11.5	0.13	0.52	640	EKY-160E□□331MHB5D	1,000	12.5×25	0.027	0.089	2,230	EKY-350E□□102MK25S	
	470	8×15	0.087	0.35	840	EKY-160E□□471MH15D	1,000	18×15	0.043	0.11	2,210	EKY-350E□□102MM15S	
	470	10×12.5	0.080	0.32	865	EKY-160E□□471MJC5S	1,200	12.5×30	0.024	0.078	2,650	EKY-350E□□122MK30S	
	680	8×20	0.069	0.27	1,050	EKY-160E□□681MH20D	1,200	16×20	0.027	0.078	2,530	EKY-350E□□122ML20S	
	680	10×16	0.060	0.24	1,210	EKY-160E□□681MJ16S	1,500	12.5×35	0.020	0.065	2,880	EKY-350E□□152MK35S	
	1,000	10×20	0.046	0.18	1,400	EKY-160E□□102MJ20S	1,800	12.5×40	0.017	0.056	3,350	EKY-350E□□182MK40S	
	1,000	12.5×15	0.049	0.16	1,450	EKY-160E□□102MK15S	1,800	16×25	0.021	0.060	2,930	EKY-350E□□182ML25S	
	1,200	10×25	0.042	0.17	1,650	EKY-160E□□122MJ25S	1,800	18×20	0.026	0.067	2,860	EKY-350E□□182MM20S	
	1,500	10×30	0.031	0.12	1,910	EKY-160E□□152MJ30S	2,200	16×31.5	0.017	0.050	3,450	EKY-350E□□222MLN3S	

□□ : Enter the appropriate lead forming or taping code.



◆STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA _{rms} /105°C, 100kHz)	Part No.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA _{rms} /105°C, 100kHz)	Part No.	
			20°C	-10°C						20°C	-10°C			
35	2,200	18×25	0.019	0.049	3,140	EKY-350E□□222MM25S	63	680	16×25	0.025	0.075	2,600	EKY-630E□□681ML25S	
	2,700	16×35.5	0.015	0.044	3,610	EKY-350E□□272MLP1S		680	18×20	0.030	0.090	2,500	EKY-630E□□681MM20S	
	2,700	18×31.5	0.015	0.040	4,170	EKY-350E□□272MMN3S		820	16×31.5	0.021	0.063	2,850	EKY-630E□□821MLN3S	
	3,300	16×40	0.013	0.038	4,080	EKY-350E□□332ML40S		820	18×25	0.024	0.072	2,800	EKY-630E□□821MM25S	
	3,300	18×35.5	0.014	0.038	4,220	EKY-350E□□332MMP1S		1,000	16×35.5	0.019	0.057	2,900	EKY-630E□□102MLP1S	
	3,900	18×40	0.012	0.032	4,280	EKY-350E□□392MM40S		1,200	16×40	0.018	0.054	3,400	EKY-630E□□122ML40S	
50	1.0	5×11	4.0	16.0	30	EKY-500E□□1R0ME11D	80	68	10×12.5	0.17	0.66	480	EKY-800E□□680MJC5S	
	2.2	5×11	2.5	10.0	43	EKY-500E□□2R2ME11D		100	10×16	0.11	0.47	600	EKY-800E□□101MJ16S	
	3.3	5×11	2.2	8.8	53	EKY-500E□□3R3ME11D		120	10×20	0.084	0.34	800	EKY-800E□□121MJ20S	
	4.7	5×11	1.9	7.6	88	EKY-500E□□4R7ME11D		150	10×25	0.069	0.28	900	EKY-800E□□151MJ25S	
	10	5×11	1.5	6.0	100	EKY-500E□□100ME11D		150	12.5×16	0.11	0.34	750	EKY-800E□□151MK16S	
	22	5×11	0.70	2.8	180	EKY-500E□□220ME11D		220	12.5×20	0.062	0.18	1,100	EKY-800E□□101MK20S	
	56	6.3×11	0.30	1.2	295	EKY-500E□□560MF11D		330	12.5×25	0.047	0.14	1,250	EKY-800E□□331MK25S	
	100	8×11.5	0.17	0.68	555	EKY-500E□□101MHB5D		330	16×20	0.048	0.15	1,350	EKY-800E□□331ML20S	
	120	8×15	0.12	0.48	730	EKY-500E□□121MH15D		390	12.5×30	0.042	0.13	1,500	EKY-800E□□391MK30S	
	150	10×12.5	0.12	0.48	760	EKY-500E□□151MJC5S		470	12.5×35	0.036	0.11	1,650	EKY-800E□□471MK35S	
	180	8×20	0.091	0.36	910	EKY-500E□□181MH20D		470	16×25	0.038	0.12	1,700	EKY-800E□□471ML25S	
	220	10×16	0.084	0.34	1,050	EKY-500E□□221MJ16S		470	18×20	0.045	0.14	1,500	EKY-800E□□471MM20S	
	270	10×20	0.060	0.24	1,220	EKY-500E□□271MJ20S		560	12.5×40	0.032	0.095	1,800	EKY-800E□□561MK40S	
	270	12.5×15	0.061	0.20	1,260	EKY-500E□□271MK15S		680	16×31.5	0.032	0.095	1,850	EKY-800E□□681MLN3S	
	330	10×25	0.055	0.22	1,440	EKY-500E□□331MJ25S		680	18×25	0.036	0.11	1,750	EKY-800E□□681MM25S	
	470	10×30	0.043	0.17	1,690	EKY-500E□□471MJ30S		820	16×35.5	0.029	0.086	2,000	EKY-800E□□821MLP1S	
	470	12.5×20	0.045	0.15	1,660	EKY-500E□□471MK20S		820	18×31.5	0.030	0.090	1,900	EKY-800E□□821MMN3S	
	560	12.5×25	0.034	0.11	1,950	EKY-500E□□561MK25S		1,000	16×40	0.027	0.081	2,200	EKY-800E□□102ML40S	
	560	18×15	0.054	0.15	1,930	EKY-500E□□561MM15S		1,000	18×35.5	0.027	0.081	2,200	EKY-800E□□102MMP1S	
	680	12.5×30	0.030	0.10	2,310	EKY-500E□□681MK30S		1,200	18×40	0.026	0.077	2,700	EKY-800E□□122MM40S	
	820	12.5×35	0.025	0.083	2,510	EKY-500E□□821MK35S		6.8	5×11	1.4	5.6	125	EKY-101E□□6R8ME11D	
	820	16×20	0.034	0.10	2,210	EKY-500E□□821ML20S		15	6.3×11	0.57	2.3	205	EKY-101E□□150MF11D	
1,000	12.5×40	0.021	0.069	2,920	EKY-500E□□102MK40S	27	8×11.5	0.36	1.4	355	EKY-101E□□270MHB5D			
1,000	16×25	0.025	0.075	2,555	EKY-500E□□102ML25S	39	8×15	0.25	1.0	450	EKY-101E□□390MH15D			
1,000	18×20	0.036	0.097	2,490	EKY-500E□□102MM20S	47	10×12.5	0.17	0.66	480	EKY-101E□□470MJC5S			
1,200	16×31.5	0.022	0.066	3,010	EKY-500E□□122MLN3S	56	8×20	0.19	0.76	565	EKY-101E□□560MH20D			
1,200	18×25	0.026	0.070	2,740	EKY-500E□□122MM25S	68	10×16	0.11	0.47	600	EKY-101E□□680MJ16S			
1,500	16×35.5	0.019	0.057	3,150	EKY-500E□□152MLP1S	82	10×20	0.084	0.34	800	EKY-101E□□820MJ20S			
1,800	16×40	0.016	0.048	3,710	EKY-500E□□182ML40S	100	12.5×16	0.11	0.34	750	EKY-101E□□101MK16S			
1,800	18×31.5	0.021	0.057	3,635	EKY-500E□□182MMN3S	120	10×25	0.069	0.28	900	EKY-101E□□121MJ25S			
2,200	18×35.5	0.017	0.046	3,680	EKY-500E□□222MMP1S	150	12.5×20	0.062	0.18	1,100	EKY-101E□□151MK20S			
2,700	18×40	0.014	0.038	3,800	EKY-500E□□272MM40S	220	12.5×25	0.047	0.14	1,250	EKY-101E□□221MK25S			
63	15	5×11	0.88	3.5	165	EKY-630E□□150ME11D	100	220	16×20	0.048	0.15	1,350	EKY-101E□□221ML20S	
	33	6.3×11	0.35	1.4	265	EKY-630E□□330MF11D		270	12.5×30	0.042	0.13	1,500	EKY-101E□□271MK30S	
	56	8×11.5	0.22	0.88	500	EKY-630E□□560MHB5D		330	12.5×35	0.036	0.11	1,650	EKY-101E□□331MK35S	
	82	8×15	0.16	0.64	665	EKY-630E□□820MH15D		330	16×25	0.038	0.12	1,700	EKY-101E□□331ML25S	
	82	10×12.5	0.11	0.44	690	EKY-630E□□820MJC5S		330	18×20	0.045	0.14	1,500	EKY-101E□□331MM20S	
	120	8×20	0.12	0.48	820	EKY-630E□□121MH20D		390	12.5×40	0.032	0.095	1,800	EKY-101E□□391MK40S	
	120	10×16	0.076	0.31	950	EKY-630E□□121MJ16S		470	16×31.5	0.032	0.095	1,850	EKY-101E□□471MLN3S	
	180	10×20	0.056	0.23	1,150	EKY-630E□□181MJ20S		470	18×25	0.036	0.11	1,750	EKY-101E□□471MM25S	
	180	12.5×16	0.072	0.29	1,150	EKY-630E□□181MK16S		560	16×35.5	0.029	0.086	2,000	EKY-101E□□561MLP1S	
	220	10×25	0.046	0.19	1,350	EKY-630E□□221MJ25S		560	18×31.5	0.030	0.090	1,900	EKY-101E□□561MMN3S	
	270	12.5×20	0.041	0.13	1,500	EKY-630E□□271MK20S		680	16×40	0.027	0.081	2,200	EKY-101E□□681ML40S	
	390	12.5×25	0.031	0.093	1,900	EKY-630E□□391MK25S		680	18×35.5	0.027	0.081	2,200	EKY-101E□□681MMP1S	
	470	12.5×30	0.028	0.084	2,300	EKY-630E□□471MK30S		820	18×40	0.026	0.077	2,700	EKY-101E□□821MM40S	
	470	16×20	0.032	0.096	2,000	EKY-630E□□471ML20S								
	560	12.5×35	0.024	0.072	2,500	EKY-630E□□561MK35S								
	680	12.5×40	0.021	0.063	2,800	EKY-630E□□681MK40S								

□ □ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

⊙ Frequency Multipliers

Capacitance(μF)	Frequency(Hz)			
	120	1k	10k	100k
1.0 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise.

When long life performance is required in actual use, the rms ripple current has to be reduced.