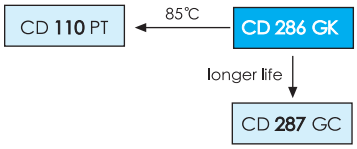
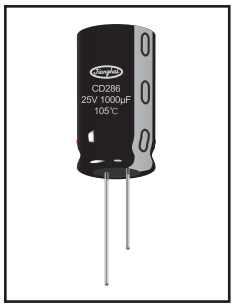
CD 286 GK SERIES

2000h at 105℃

- Low Impedance
- Suited for switching power supplies
- High ripple current capability





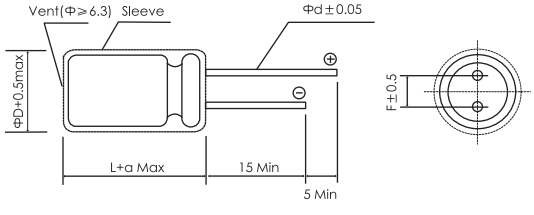
Items	Characteristics
Operating Temperature Range (℃)	-55 ~ +105
Voltage Range (V)	6.3 ~ 100
Capacitance Range (μF)	5.6 ~ 18000
Capacitance Tolerance (20℃, 120Hz)	± 20%
Leakage Current (μA)	After 2 minutes at 20℃ application of rated voltage, leakage current is not more than 0.02CV or 3, whichever is greater. C: Nominal Capacitance (μF) V: Rated Voltage (V)
Dissipation Factor (20℃, 120Hz)	See table below
Characteristics of Low Temperature	Impedance at -10℃, 100kHz < 200% of initial specified value at 20℃, 100kHz (Impedance ratio at 100kHz)

WV (V)	6.3	10	16	25	35	50	63	100
Tan δ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08

When nominal capacitance is over 1000μF tan δ shall be added 0.02 to the listed value with increase of every 1000μF

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	Φ ≤ 8 : 2000h Φ > 8 : 4000h	Φ > 8 : 200000h	Φ ≤ 8 : 1000h Φ > 8 : 2000h	Φ ≤ 8 : 1500h Φ > 8 : 3000h	1000h
Leakage Current	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value
Capacitance Change	Within ± 30% of initial value		Within ± 20% of initial value	Within ± 20% of initial value	Within ± 20% of initial value
Dissipation Factor	Not more than 300% of specified value		Not more than 200% of specified value	Not more than 200% of specified value	Not more than 200% of specified value
Condition: Applied Voltage Applied Current Applied Temperature	U_R I_R 105℃	U_R 1.4 x I_R 40℃	U_R I_R 105℃	U_R I_R = 0 105℃	U_R = 0 I_R = 0 105℃ After test: U_R to be applied for 30min >24h before measurement

Dimensions mm



ΦD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0		7.5	
Φd	0.5		0.6			0.8	
a	1.5		2.0				

Frequency Coefficient

Cap (μF) \ Frequency	120Hz	1kHz	10kHz	100kHz
5.6~180	0.40	0.75	0.90	1.00
220~560	0.50	0.85	0.94	1.00
680~1800	0.60	0.87	0.95	1.00
2200~3900	0.75	0.90	0.95	1.00
4700~18000	0.85	0.95	0.98	1.00

Temperature Coefficient

Temperature(℃)	+70	+85	+105
Coefficient	1.96	1.68	1.00

CD 286 GK SERIES

Ratings for CD **286** GK Series

U_R (Surge Voltage) Code	Rated Capa-citance	Max ESR 20℃, 120Hz	Max Imp 20℃, 100kHz	Max Imp -10℃, 100kHz	Rated Ripple Current 105℃, 100kHz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(Ω)	(Ω)	(mArms)	(mm)	-
6.3 (7.2) 0J	150	1.9	0.65	1.3	175	5×11.5	ECR0JGK151M□□050011
	330	0.89	0.30	0.6	290	6.3×11.5	ECR0JGK331M□□063011
	470	0.62	0.20	0.4	400	6.3×15	ECR0JGK471M□□063015
	680	0.43	0.17	0.34	555	8×11.5	ECR0JGK681M□□080011
	820	0.36	0.12	0.24	730	10×12.5	ECR0JGK821M□□100012
	1000	0.29	0.13	0.26	730	8×16	ECR0JGK102M□□080016
	1200	0.24	0.095	0.19	810	8×20	ECR0JGK122M□□080020
		0.24	0.095	0.19	910	10×16	ECR0JGK122M□□100016
	1500	0.20	0.065	0.13	1160	10×20	ECR0JGK152M□□100020
	2200	0.15	0.055	0.11	1360	10×25	ECR0JGK222M□□100025
	2700	0.12	0.045	0.09	1660	10×30	ECR0JGK272M□□100030
	3300	0.11	0.042	0.084	1610	12.5×20	ECR0JGK332M□□125020
	3900	0.088	0.038	0.076	1950	12.5×25	ECR0JGK392M□□125025
	4700	0.079	0.032	0.064	2240	12.5×30	ECR0JGK472M□□125030
	5600	0.071	0.028	0.056	1990	12.5×35	ECR0JGK562M□□125035
		0.071	0.034	0.068	2510	16×20	ECR0JGK562M□□160020
	6800	0.062	0.026	0.052	2750	12.5×40	ECR0JGK682M□□125040
		0.062	0.028	0.056	2380	16×25	ECR0JGK682M□□160025
		0.062	0.030	0.06	2185	18×20	ECR0JGK682M□□180020
	8200	0.058	0.025	0.05	2700	16×31.5	ECR0JGK822M□□160031
	10000	0.053	0.022	0.044	2530	16×35.5	ECR0JGK103M□□160035
		0.053	0.027	0.054	2930	18×25	ECR0JGK103M□□180025
	12000	0.049	0.020	0.04	2860	16×40	ECR0JGK123M□□160040
		0.049	0.023	0.046	3330	18×31.5	ECR0JGK123M□□180031
	15000	0.044	0.020	0.04	3180	18×35.5	ECR0JGK153M□□180035
	18000	0.041	0.019	0.038	3570	18×40	ECR0JGK183M□□180040
10 (13) 1A	100	2.5	0.65	1.3	175	5×11.5	ECR1AGK101M□□050011
	220	1.15	0.30	0.6	290	6.3×11.5	ECR1AGK221M□□063011
	330	0.76	0.20	0.4	400	6.3×15	ECR1AGK331M□□063015
	470	0.54	0.17	0.34	555	8×11.5	ECR1AGK471M□□080011
	680	0.37	0.13	0.26	730	8×16	ECR1AGK681M□□080016
		0.37	0.12	0.24	730	10×12.5	ECR1AGK681M□□100012
	1000	0.25	0.095	0.19	810	8×20	ECR1AGK102M□□080020
		0.25	0.095	0.19	910	10×16	ECR1AGK102M□□100016
	1200	0.21	0.065	0.13	1160	10×20	ECR1AGK122M□□100020
	1500	0.17	0.055	0.11	1360	10×25	ECR1AGK152M□□100025
	1800	0.14	0.045	0.09	1660	10×30	ECR1AGK182M□□100030
	2200	0.13	0.042	0.084	1610	12.5×20	ECR1AGK222M□□125020
	3300	0.092	0.038	0.076	1950	12.5×25	ECR1AGK332M□□125025
	3900	0.078	0.032	0.064	2240	12.5×30	ECR1AGK392M□□125030
		0.078	0.034	0.068	1990	16×20	ECR1AGK392M□□160020
	4700	0.071	0.028	0.056	2510	12.5×35	ECR1AGK472M□□125035
	5600	0.064	0.026	0.052	2750	12.5×40	ECR1AGK562M□□125040
		0.064	0.028	0.056	2380	16×25	ECR1AGK562M□□160025
		0.064	0.030	0.06	2185	18×20	ECR1AGK562M□□180020
	6800	0.057	0.025	0.05	2700	16×31.5	ECR1AGK682M□□160031
		0.057	0.027	0.054	2530	18×25	ECR1AGK682M□□180025
	8200	0.053	0.022	0.044	2930	16×35.5	ECR1AGK822M□□160035
		0.053	0.023	0.046	2860	18×31.5	ECR1AGK822M□□180031
	10000	0.049	0.020	0.04	3330	16×40	ECR1AGK103M□□160040
		0.049	0.019	0.038	3180	18×35.5	ECR1AGK103M□□180035
	12000	0.045	0.018	0.036	3570	18×40	ECR1AGK123M□□180040
16 (20) 1C	47	4.5	0.65	1.3	175	5×11.5	ECR1CGK470M□□050011
	100	2.1	0.30	0.6	290	6.3×11.5	ECR1CGK101M□□063011
	220	0.97	0.20	0.4	400	6.3×15	ECR1CGK221M□□063015
	330	0.64	0.17	0.34	555	8×11.5	ECR1CGK331M□□080011
	470	0.45	0.13	0.26	730	8×16	ECR1CGK471M□□080016
		0.45	0.12	0.24	730	10×12.5	ECR1CGK471M□□100012
	560	0.38	0.095	0.19	810	8×20	ECR1CGK561M□□080020
	680	0.31	0.095	0.19	910	10×16	ECR1CGK681M□□100016
	1000	0.21	0.065	0.13	1160	10×20	ECR1CGK102M□□100020
	1200	0.18	0.055	0.11	1360	10×25	ECR1CGK122M□□100025
	1500	0.14	0.045	0.09	1660	10×30	ECR1CGK152M□□100030
		0.14	0.042	0.084	1610	12.5×20	ECR1CGK152M□□125020
	2200	0.11	0.038	0.076	1950	12.5×25	ECR1CGK222M□□125025
	2700	0.088	0.032	0.064	2240	12.5×30	ECR1CGK272M□□125030
		0.088	0.034	0.068	1990	16×20	ECR1CGK272M□□160020
	3300	0.080	0.028	0.056	2510	12.5×35	ECR1CGK332M□□125035
	3900	0.068	0.026	0.052	2750	12.5×40	ECR1CGK392M□□125040
		0.068	0.028	0.056	2380	16×25	ECR1CGK392M□□160025
		0.068	0.030	0.06	2185	18×20	ECR1CGK392M□□180020

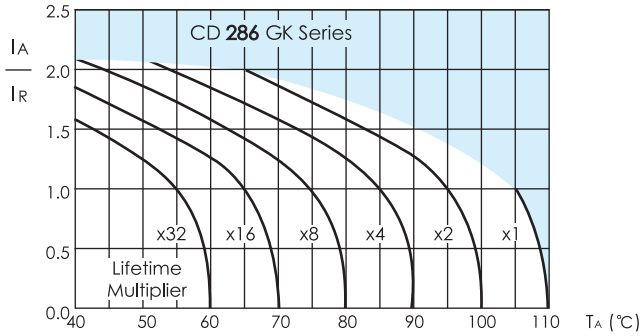
U_R (Surge Voltage) Code	Rated Capa-citance	Max ESR 20℃, 120Hz	Max Imp 20℃, 100kHz	Max Imp -10℃, 100kHz	Rated Ripple Current 105℃, 100kHz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(Ω)	(Ω)	(mArms)	(mm)	-
16 (20) 1C	4700	0.062	0.025	0.05	2700	16×31.5	ECR1CGK472M□□160031
		0.062	0.027	0.054	2530	18×25	ECR1CGK472M□□180025
	5600	0.057	0.022	0.044	2930	16×35.5	ECR1CGK562M□□160035
		0.057	0.023	0.046	2860	18×31.5	ECR1CGK562M□□180031
	6800	0.051	0.020	0.04	3330	16×40	ECR1CGK682M□□160040
	8200	0.049	0.019	0.038	3180	18×35.5	ECR1CGK822M□□180035
	10000	0.045	0.018	0.036	3570	18×40	ECR1CGK103M□□180040
25 (32) 1E	47	4.0	0.65	1.3	175	5×11.5	ECR1EGK470M□□050011
	100	1.86	0.30	0.6	290	6.3×11.5	ECR1EGK101M□□063011
	150	1.24	0.20	0.4	400	6.3×15	ECR1EGK151M□□063015
	220	0.84	0.17	0.34	555	8×11.5	ECR1EGK221M□□080011
	330	0.56	0.13	0.26	730	8×16	ECR1EGK331M□□080016
		0.56	0.12	0.24	730	10×12.5	ECR1EGK331M□□100012
	390	0.48	0.095	0.19	810	8×20	ECR1EGK391M□□080020
	470	0.40	0.095	0.19	910	10×16	ECR1EGK471M□□100016
	680	0.27	0.065	0.13	1160	10×20	ECR1EGK681M□□100020
	820	0.23	0.055	0.11	1360	10×25	ECR1EGK821M□□100025
	1000	0.19	0.045	0.09	1660	10×30	ECR1EGK102M□□100030
		0.19	0.042	0.084	1610	12.5×20	ECR1EGK102M□□125020
	1500	0.12	0.038	0.076	1950	12.5×25	ECR1EGK152M□□125025
	1800	0.10	0.032	0.064	2240	12.5×30	ECR1EGK182M□□125030
		0.10	0.034	0.068	1990	16×20	ECR1EGK182M□□160020
	2200	0.097	0.028	0.056	2510	12.5×35	ECR1EGK222M□□125035
		0.097	0.026	0.052	2750	18×20	ECR1EGK222M□□180020
	2700	0.079	0.028	0.056	2380	12.5×40	ECR1EGK272M□□125040
		0.079	0.030	0.06	2185	16×25	ECR1EGK272M□□160025
	3300	0.072	0.025	0.05	2700	16×31.5	ECR1EGK332M□□160031
		0.072	0.027	0.054	2530	18×25	ECR1EGK332M□□180025
	3900	0.061	0.022	0.044	2930	16×35.5	ECR1EGK392M□□160035
		0.061	0.023	0.046	2860	18×31.5	ECR1EGK392M□□180031
	4700	0.056	0.020	0.04	3330	16×40	ECR1EGK472M□□160040
		0.056	0.019	0.038	3180	18×35.5	ECR1EGK472M□□180035
	5600	0.052	0.018	0.036	3570	18×40	ECR1EGK562M□□180040
35 (44) 1V	33	4.8	0.65	1.3	175	5×11.5	ECR1VGK330M□□050011
	56	2.8	0.30	0.6	290	6.3×11.5	ECR1VGK560M□□063011
	100	1.6	0.20	0.4	400	6.3×15	ECR1VGK101M□□063015
	150	1.1	0.17	0.34	555	8×11.5	ECR1VGK151M□□080011
	220	0.72	0.13	0.26	730	8×16	ECR1VGK221M□□080016
		0.72	0.12	0.24	730	10×12.5	ECR1VGK221M□□100012
	270	0.59	0.095	0.19	810	8×20	ECR1VGK271M□□080020
	330	0.48	0.095	0.19	910	10×16	ECR1VGK331M□□100016
	470	0.34	0.065	0.13	1160	10×20	ECR1VGK471M□□100020
	560	0.28	0.055	0.11	1360	10×25	ECR1VGK561M□□100025
	680	0.23	0.045	0.09	1660	10×30	ECR1VGK681M□□100030
		0.23	0.042	0.084	1610	12.5×20	ECR1VGK681M□□125020
	1000	0.16	0.038	0.076	1950	12.5×25	ECR1VGK102M□□125025
	1200	0.13	0.032	0.064	2240	12.5×30	ECR1VGK122M□□125030
		0.13	0.034	0.068	1990	16×20	ECR1VGK122M□□160020
	1500	0.11	0.028	0.056	2510	12.5×35	ECR1VGK152M□□125035
	1800	0.088	0.026	0.052	2750	12.5×40	ECR1VGK182M□□125040
		0.088	0.028	0.056	2380	16×25	ECR1VGK182M□□160025
		0.088	0.030	0.06	2185	18×20	ECR1VGK182M□□180020
	2200	0.084	0.025	0.05	2700	16×31.5	ECR1VGK222M□□160031
		0.084	0.027	0.054	2530	18×25	ECR1VGK222M□□180025
	2700	0.069	0.022	0.044	2930	16×35.5	ECR1VGK272M□□160035
		0.069	0.023	0.046	2860	18×31.5	ECR1VGK272M□□180031
	3300	0.064	0.020	0.04	3330	16×40	ECR1VGK332M□□160040
		0.064	0.019	0.038	3180	18×35.5	ECR1VGK332M□□180035
	3900	0.054	0.018	0.036	3570	18×40	ECR1VGK392M□□180040
50 (63) 1H	22	6.0	0.90	1.8	135	5×11.5	ECR1HGK220M□□050011
	47	2.8	0.45	0.9	170	6.3×11.5	ECR1HGK470M□□063011
	68	2.0	0.31	0.62	180	6.3×15	ECR1HGK680M□□063015
	100	1.3	0.22	0.44	410	8×11.5	ECR1HGK101M□□080011
	120	1.1	0.18	0.36	530	8×16	ECR1HGK121M□□080016
		1.1	0.18	0.36	510	10×12.5	ECR1HGK121M□□100012
	180	0.74	0.13	0.26	770	8×20	ECR1HGK181M□□080020
		0.74	0.15	0.3	640	10×16	ECR1HGK181M□□100016
	220	0.60	0.095	0.19	780	10×20	ECR1HGK221M□□100020
	330	0.40	0.080	0.16	1010	10×25	ECR1HGK331M□□100025
	390	0.34	0.065	0.13	1160	10×30	ECR1HGK391M□□100030
		0.34	0.070	0.14	1130	12.5×20	ECR1HGK391M□□125020

Ratings for CD **286** GK Series

U_R (Surge Voltage) Code	Rated Capa-citance	Max ESR 20℃, 120Hz	Max Imp 20℃, 100kHz	Max Imp -10℃, 100kHz	Rated Ripple Current 105℃, 100kHz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(Ω)	(Ω)	(mArms)	(mm)	-
50 (63) 1H	560	0.24	0.054	0.108	1360	12.5×25	ECR1HGK561M□□125025
	680	0.20	0.050	0.1	1500	12.5×30	ECR1HGK681M□□125030
		0.20	0.050	0.1	1390	16×20	ECR1HGK681M□□160020
	820	0.16	0.046	0.092	1690	12.5×35	ECR1HGK821M□□125035
		0.16	0.046	0.092	1670	18×20	ECR1HGK821M□□180020
	1000	0.13	0.044	0.088	1830	12.5×40	ECR1HGK102M□□125040
		0.13	0.048	0.096	1710	16×25	ECR1HGK102M□□160025
	1200	0.11	0.040	0.08	2170	16×31.5	ECR1HGK122M□□160031
		0.11	0.040	0.08	1980	18×25	ECR1HGK122M□□180025
	1500	0.088	0.032	0.064	2460	16×35.5	ECR1HGK152M□□160035
	1800	0.074	0.026	0.052	2770	16×40	ECR1HGK182M□□160040
		0.074	0.026	0.052	2260	18×31.5	ECR1HGK182M□□180031
	2200	0.072	0.025	0.05	2650	18×35.5	ECR1HGK222M□□180035
	2700	0.059	0.024	0.048	2900	18×40	ECR1HGK272M□□180040
63 (79) 1J	10	11.9	1.9	5.7	145	5×11.5	ECR1JGK100M□□050011
	22	5.4	1.0	3.0	192	6.3×11.5	ECR1JGK220M□□063011
	33	3.6	0.61	1.8	240	6.3×15	ECR1JGK330M□□063015
	47	2.5	0.34	1.1	380	8×11.5	ECR1JGK470M□□080011
	100	1.2	0.27	0.81	535	8×16	ECR1JGK101M□□080016
		1.2	0.26	0.78	515	10×12.5	ECR1JGK101M□□100012
	120	1.0	0.21	0.63	600	8×20	ECR1JGK121M□□080020
	150	0.80	0.19	0.57	635	10×16	ECR1JGK151M□□100016
	180	0.66	0.15	0.45	770	10×20	ECR1JGK181M□□100020
	220	0.54	0.13	0.39	1000	10×25	ECR1JGK221M□□100025
	330	0.36	0.090	0.27	1170	10×30	ECR1JGK331M□□100030
		0.36	0.085	0.26	1120	12.5×20	ECR1JGK331M□□125020
	390	0.31	0.070	0.21	1350	12.5×25	ECR1JGK391M□□125025
	470	0.25	0.055	0.17	1500	12.5×30	ECR1JGK471M□□125030
		0.25	0.060	0.18	1390	16×20	ECR1JGK471M□□160020
	680	0.18	0.048	0.15	1690	12.5×35	ECR1JGK681M□□125035
		0.18	0.042	0.13	1820	12.5×40	ECR1JGK681M□□125040
		0.18	0.052	0.16	1710	16×25	ECR1JGK681M□□160025
	820	0.15	0.058	0.18	1680	18×20	ECR1JGK821M□□180020
		0.15	0.043	0.13	2170	16×31.5	ECR1JGK821M□□160031
		0.15	0.050	0.15	2000	18×25	ECR1JGK821M□□180025
	1000	0.12	0.036	0.11	2460	16×35.5	ECR1JGK102M□□160035
	1200	0.10	0.042	0.13	2280	18×31.5	ECR1JGK122M□□180031
		0.10	0.032	0.096	2770	16×40	ECR1JGK122M□□160040
	1500	0.080	0.035	0.105	2690	18×35.5	ECR1JGK152M□□180035
	1800	0.066	0.030	0.090	2940	18×40	ECR1JGK182M□□180040
100 (125) 2A	5.6	19.0	1.9	7.6	62	5×11.5	ECR2AGK5R6M□□050011
	10	10.6	1.1	4.4	85	6.3×11.5	ECR2AGK100M□□063011
	15	7.1	0.62	2.5	93	6.3×15	ECR2AGK150M□□063015
	22	4.8	0.53	2.1	302	8×11.5	ECR2AGK220M□□080011
	33	3.2	0.35	1.4	396	8×16	ECR2AGK330M□□080016
		3.2	0.47	1.9	350	10×12.5	ECR2AGK330M□□100012
	47	2.3	0.27	1.1	540	8×20	ECR2AGK470M□□080020
		2.3	0.32	1.3	460	10×16	ECR2AGK470M□□100016
	68	1.6	0.25	1.0	548	10×20	ECR2AGK680M□□100020
	100	1.1	0.18	0.72	695	10×25	ECR2AGK101M□□100025
	120	0.89	0.15	0.60	810	10×30	ECR2AGK121M□□100030
		0.89	0.13	0.52	885	12.5×20	ECR2AGK121M□□125020
	150	0.71	0.11	0.44	942	12.5×25	ECR2AGK151M□□125025
	180	0.59	0.11	0.44	1010	16×20	ECR2AGK181M□□160020
	220	0.48	0.090	0.36	1230	12.5×30	ECR2AGK221M□□125030
	270	0.39	0.075	0.30	1360	12.5×35	ECR2AGK271M□□125035
		0.39	0.085	0.34	1280	18×20	ECR2AGK271M□□180020
		0.39	0.060	0.24	1450	12.5×40	ECR2AGK271M□□125040
		0.39	0.081	0.32	1390	16×25	ECR2AGK271M□□160025
	330	0.32	0.059	0.24	1750	16×31.5	ECR2AGK331M□□160031
		0.32	0.071	0.29	1650	18×25	ECR2AGK331M□□180025
	470	0.23	0.052	0.21	1925	16×35.5	ECR2AGK471M□□160035
	560	0.19	0.045	0.18	2110	16×40	ECR2AGK561M□□160040
		0.19	0.058	0.23	1790	18×31.5	ECR2AGK561M□□180031
	680	0.16	0.054	0.22	2110	18×35.5	ECR2AGK681M□□180035
	820	0.13	0.041	0.17	2300	18×40	ECR2AGK821M□□180040

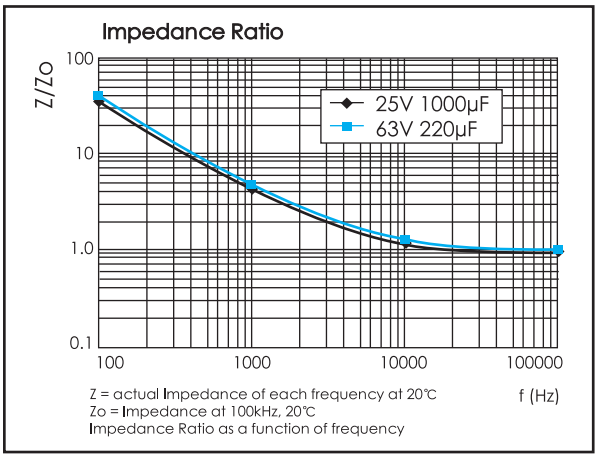
Customer products are available on request.

Lifetime Diagram



I_A= actual ripple current at 100kHz, I_R= rated ripple current at 100kHz, 105℃
Multiplier of Useful Life as a function of ambient temperature and ripple current load

Typical Curves



Z = actual Impedance of each frequency at 20℃
Zo = Impedance at 100kHz, 20℃
Impedance Ratio as a function of frequency

MINIATURE