Koshin

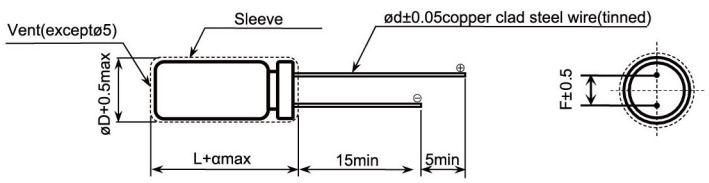
KHT Miniature Aluminum Electrolytic Capacitors

High Temperature Miniature Capacitors, Series KHT

Guaranteed 2000–5000 hours at 125℃

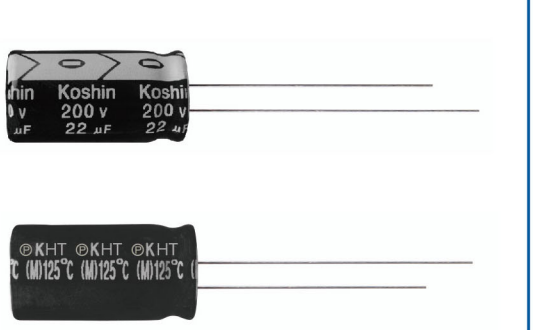
RoHS

Outline Drawing Unit: mm



øD	8	10	12.5	16	18
F	3.5	5.0	5.0	7.5	7.5
ød	0.6	0.6	0.6	0.8	0.8
α	1.5		1.5 for L16 max. 2.0 for L20 min.		

Photo



Making color: white print on black sleeve

Specifications

No.	Item	Performance											
1	Temperature range(℃)	–40 to +125 (10V ~ 100V)						–25 to +125(160V ~ 450V)					
2	Leakage current (μA)	Less than 0.01CV or 3 whichever is larger (after one minutes)						Less than 0.03CV or 3 whichever is larger (after one minutes)					
		C: Rated Capacitance (μ F). V: Rated voltage (V) 20℃											
3	Capacitance tolerance (%)	±20 (20˚C,120Hz)											
4	Tangent of the loss angle (Tan δ)	Rated voltage (V)	10	16	25	35	50	63	80–100	160	200	250	350	20˚C 120Hz
		Tanδ (max)	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.15	0.15	0.15	
5	Low temperature characteristics	Rated voltage (V)	10	16	25	35	50	63	80–100	160–250	350–450			120Hz
		Impedance ratio(max) $Z_{(-25°C)}/Z_{(+20°C)}$	3	2	2	2	2	2	2	3	6			
		Impedance ratio(max) $Z_{(-40°C)}/Z_{(+20°C)}$	6	4	4	4	4	4	4	–	–			
6	Endurance (125℃) (Applied ripple current)	Rated voltage (V)				10–100V				160–450V				
		Test time				ϕ8：2000hours、ϕ10：3000hours、ϕ12.5：5000hours				2000hours				
		Leakage current				The initial specified value or less				The initial specified value or less				
		Percentage of capacitance change				Within ±30% of initial value				Within ±20% of initial value				
		Tangent of the loss angle				300% or less of the initial specified value				200% or less of the initial specified value				
7	Shelf life (125℃)	Test time				1000hours				1000hours				
		Leakage current				The initial specified value or less				The initial specified value or less				
		Percentage of capacitance change				Within ±30% of initial value				Within ±20% of initial value				
		Tangent of the loss angle				300% or less of the initial specified value				500% or less of the initial specified value				
8	Applicable standards	JIS–C–5101–4(IEC60384)											

Coefficient of Temperature for Ripple Current

Temperature(℃)	45	60	70	85	105	125
Coefficient	1.80	1.55	1.50	1.45	1.15	1.00

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Koshin

KHT Miniature Aluminum Electrolytic Capacitors

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension:ΦDXL(mm)
Ripple Current: mA/rms at 120Hz,125℃

V.DC / μF Contents	10V		16V		25V		35V		50V		63V	
	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA
10									8X11.5	170		
22									8X11.5	240		
33									8X11.5	270	8X11.5	140
47									8X11.5	270	10X12.5	520
100			8X11.5	330	8X11.5	330	10X12.5	620	10X12.5	510	10X16	680
220	8X11.5	330	10X12.5	620	10X12.5	620	10X16	740	10X20	870	12.5X20	1040
330	10X12.5	620	10X12.5	620	10X16	780	10X20	940	12.5X20	980	12.5X25	1280
470	10X12.5	620	10X16	780	10X20	940	12.5X20	1070	12.5X25	1140	12.5X30	1450
1000	10X20	950	12.5X20	1070	12.5X25	1340	16X25	1610	16X31.5	1580	16X31.5	1840
2200	12.5X25	1340	16X25	1620	16X31.5	1850						
3300	16X25	1620	16X31.5	1850								
4700	16X31.5	1850										

V.DC / μF Contents	80V		100V	
	ΦDXL	mA	ΦDXL	mA
4.7			8X11.5	120
10			8X11.5	140
22	8X11.5	140	10X12.5	470
33	10X12.5	470	10X12.5	470
47	10X12.5	470	10X16	620
100	10X20	780	12.5X20	980
220	12.5X25	1230	16X25	1490
330	12.5X30	1380	16X31.5	1780
470	16X25	1490		

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension:ΦDXL(mm)
Ripple Current: mA/rms at 120Hz,125℃

V.DC / μF Contents	160V		200V		250V		350V	
	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA
4.7							10X20	50
10			10X20	75	10X20	75	10X25	80
22	10X20	110	10X25	120	12.5X20	120	12.5X25	130
33	10X25	150	12.5X20	150	12.5X25	170	16X25	180
47	12.5X20	180	12.5X25	200	16X25	220	16X31.5	240
68	12.5X25	240	16X20	240	16X31.5	290		
100	16X25	320	16X25	320				
150	16X31.5	430						

V.DC / μF Contents	400V		450V	
	ΦDXL	mA	ΦDXL	mA
4.7	10X20	50	10X25	50
10	10X25	80	12.5X20	80
22	12.5X30	140	16X25	150
33	16X25	180	16X31.5	200
47	16X31.5	240		

Coefficient of Frequency for Ripple Current

(10–100V)

Frequency (Hz) / Capacitance (μ F)	120	1K	10K	10 · 100K
CAP≤100	0.40	0.75	0.90	1.00
220<CAP≤470	0.50	0.85	0.94	1.00
1000	0.60	0.87	0.95	1.00
2,200–3,300	0.75	0.90	0.95	1.00
4,700	0.85	0.95	0.98	1.00

(160–450V)

Frequency (Hz) / Capacitance (μ F)	120	1K	10K	100K
4.7–33	1.00	1.50	1.75	1.80
47–150	1.00	1.15	1.40	1.50

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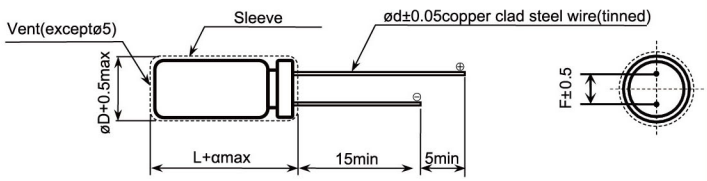
KZM Miniature Aluminum Electrolytic Capacitors

High Temperature Miniature Capacitors, Series KZM

Guaranteed 2000 hours at 125℃, (Φ8:1000hours)

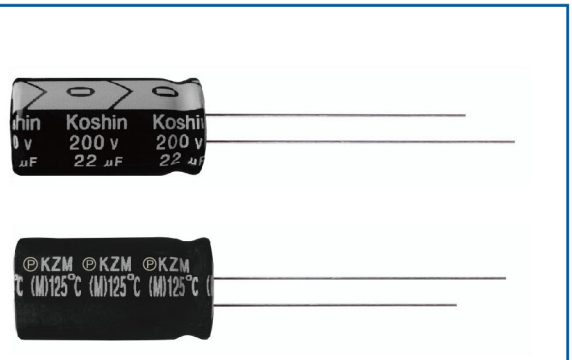
RoHS

Outline Drawing Unit: mm



øD	8	10	12.5	16	18
F	3.5	5.0	5.0	7.5	7.5
ød	0.6	0.6	0.6	0.8	0.8
α	1.5	1.5 for L16 max. 2.0 for L20 min.			

Photo



Making color: white print on black sleeve

Specifications

No.	Item	Performance												
1	Temperature range(℃)	-40 to +125 (10V～100V)							-25 to +125(160V～350V)					
2	Leakage current (μA)	Less than 0.01CV or 3 whichever is larger (after one minutes)							Less than 0.03CV or 3 whichever is larger (after one minutes)					
		C: Rated Capacitance (μ F). V: Rated voltage (V) 20℃												
3	Capacitance tolerance (%)	±20 (20℃,120Hz)												
4	Tangent of the loss angle (Tan δ)	Rated voltage (V)	10	16	25	35	50	63	100	160	200	250	350	20℃ 120Hz
		Tan δ (max)	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.15	0.15	0.15	
		0.02 is added to each 1000uF increase over 1000uF.												
5	Low temperature characteristics	Rated voltage (V)	10	16	25	35	50	63	100	160	200	250	350	120Hz
		Impedance ratio(max) $Z_{(-25℃)}/Z_{(+20℃)}$	3	2	2	2	2	2	2	2	2	2	2	
		Impedance ratio(max) $Z_{(-40℃)}/Z_{(+20℃)}$	6	4	4	4	4	4	3	4	4	4	4	
6	Endurance (125℃) (Applied ripple current)	Test time	2000hours (Φ8:1000hours)											
		Leakage current	The initial specified value or less											
		Percentage of capacitance change	Within ±20% of initial value											
		Tangent of the loss angle	200% or less of the initial specified value											
7	Shelf life (125℃)	Test time	1000hours											
		Leakage current	The initial specified value or less											
		Percentage of capacitance change	Within ±20% of initial value											
		Tangent of the loss angle	200% or less of the initial specified value											
8	Applicable standards	JIS–C–5101–4(IEC60384)												

Coefficient of Frequency for Ripple Current

Frequency (Hz) / Capacitance (μ F)	50 • 60	120	1K	10K • 100K
CAP≤10	0.80	1.00	1.30	1.71
10<CAP≤100	0.80	1.00	1.23	1.53
100<CAP≤1000	0.80	1.00	1.16	1.38

Coefficient of Temperature for Ripple Current

Temperature(℃)	45	60	70	85	105	125
Coefficient	1.80	1.55	1.50	1.45	1.15	1.00

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KZM Miniature Aluminum Electrolytic Capacitors

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension:ΦDXL(mm)
Ripple Current: mA/rms at 120Hz,125℃

V.DC / Contents μF	10V		16V		25V		35V		50V		63V	
	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA
0.47									8X11.5	12	8X11.5	12
1									8X11.5	17	8X11.5	17
2.2									8X11.5	26	8X11.5	26
3.3									8X11.5	32	8X11.5	32
4.7									8X11.5	38	8X11.5	38
10									8X11.5	56	8X11.5	56
22							8X11.5	75	10X12.5	99	10X12.5	99
33					8X11.5	92	10X12.5	108	10X16	133	10X16	133
47			8X11.5	100	10X 12.5	129	10X16	142	10X16	159	10X20	173
100	10X12.5	154	10X16	190	10X16	208	10X20	225	12.5X20	279	12.5X20	279
220	10X16	252	10X20	305	12.5X20	371	12.5X25	403	16X20	459		
330	10X16	308	12.5X20	414	12.5X25	493	16X20	503				
470	10X20	399	12.5X25	537	16X20	601						
1000	16X20	715										

V.DC / Contents μF	100V		160V		200V		250V		350V	
	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA
0.47	8X11.5	14								
1	8X11.5	21	8X11.5	30	8X11.5	35	8X11.5	41	8X11.5	45
2.2	8X11.5	31	8X11.5	37	10X12.5	43	10X12.5	50	10X16	55
3.3	8X11.5	36	10X12.5	41	10X16	48	10X20	53	10X20	60
4.7	10X12.5	45	10X16	52	10X20	60	10X20	68	12.5X20	75
10	10X16	70	10X20	82	12.5X25	88	12.5X25	92	16X25	110
22	12.5X20	100	12.5X25	128	12.5X25	135	16X25	160	16X31.5	180
33	12.5X20	158	12.5X25	164	16X 25	172	16X31.5	185	16X35.5	200
47	12.5X25	185	16X25	200	18X35.5	215	16X35.5	230	18X35.5	245
100	16X31.5	310	18X35.5	365	18X40	400				

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