Koshin

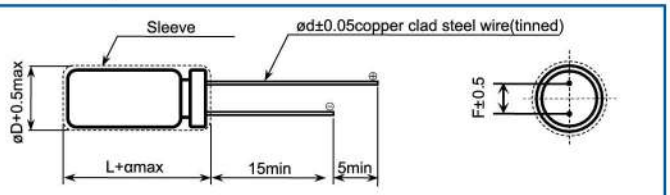
K2A Miniature Aluminum Electrolytic Capacitors For Audio

For Audio Ultra Miniaturized (heigh:7mm) Series K2A

A new foil and electrolyte makes powerful and clear sound.

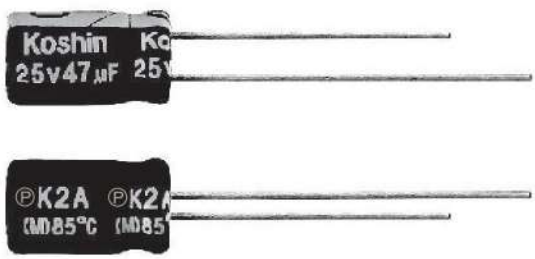
RoHS

Outline Drawing — Unit: mm



øD	4	5	6.3	8
F	1.5	2.0	2.5	3.5
ød	0.45	0.45	0.45	0.45
α	1.0	1.0	1.0	1.0

Photo



Marking color: white print on black sleeve

Specifications

No.	Item	Performance								
1	Temperature range(℃)	40 to +85								
2	Leakage current (μA)	Less than 0.01CV or 3 whichever is larger (after two 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)		4	6.3	10	16	25	35	50	20℃,120Hz
		Tanδ(max)		0.35	0.24	0.20	0.16	0.14	0.12	0.10	
5	Low temperature characteristics	Rated voltage (V)		4	6.3	10	16	25	35	50	120Hz
		Impedance ratio(max)	Z(-25℃)/Z(+20℃)	6	4	3	2	2	2	2	
			Z(-40℃)/Z(+20℃)	16	10	8	6	4	4	4	
6	Endurance (85℃) (Applied ripple current)	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							
7	Shelf life (85℃)	Test time		500hours							
		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 (μF)	50	120	300	1K	10K～
CAP≤47	0.75	1.00	1.35	1.57	2.00
47<CAP≤330	0.80	1.00	1.23	1.34	1.50

Coefficient of Temperature for Ripple Current

Temperature(℃)	55	50	70	85
Coefficient	1.65	1.50	1.30	1.00

ES France - Département Composants & Modules
127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 89
e-mail : comp@es-france.com
Site Web : www.es-france.com

Koshin

K2A Miniature Aluminum Electrolytic Capacitors For Audio

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension:ΦDXL(mm)
Ripple Current: mA/rms at 120Hz,85℃

V.DC / Contents μF	4V		6.3V		10V		16V		25V		35V		50V	
	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA
0.1													4X7	1.0
0.22													4X7	2.3
0.33													4X7	3.5
0.47													4X7	5.0
1													4X7	10
2.2													4X7	19
3.3													4X7	24
4.7											4X7	24	5X7	29
10							4X7	29	4X7	33	4X7	36	6.3X7	44
22			4X7	34	4X7	38	4X7	44	5X7	51	5X7	57	8X7	65
33	4X7	36	4X7	42	4X7	47	5X7	57	6.3X7	63	6.3X7	72		
47	4X7	44	4X7	50	5X7	59	5X7	68	6.3X7	78	8X7	96		
100	5X7	62	5X7	77	6.3X7	96	6.3X7	107	8X7	122				
220	6.3X7	105	6.3X7	130	8X7	158								
330	8X7	142	8X7	165										

Koshin

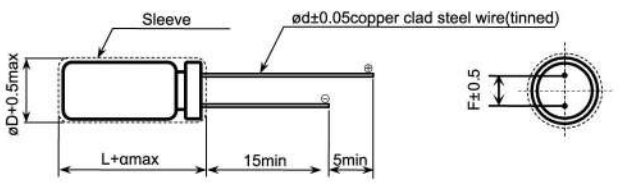
K3A Miniature Aluminum Electrolytic Capacitors For Audio

For Audio Ultra Miniaturized (height:5mm) Series K3A

A new foil and electrolyte makes powerful and clear sound.

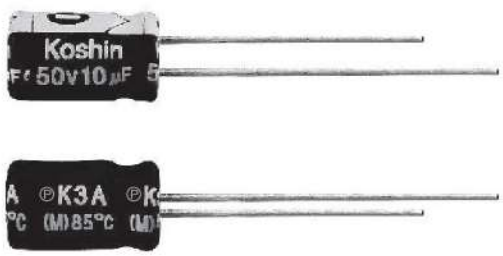
RoHS

Outline Drawing Unit: mm



øD	4	5	6.3
F	1.5	2.0	2.5
ød	0.45	0.45	0.45
α	1.0	1.0	1.0

Photo



Marking color: white print on black sleeve

Specifications

No.	Item	Performance								
1	Temperature range(℃)	-40 to +85								
2	Leakage current (μA)	Less than 0.01CV or 3 whichever is larger (after two 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)		4	6.3	10	16	25	35	50	20℃,120Hz
		Tanδ(max)		0.35	0.24	0.20	0.16	0.14	0.12	0.10	
5	Low temperature characteristics	Rated voltage (V)		4	6.3	10	16	25	35	50	120Hz
		Impedance ratio(max)	$Z_{(-25℃)}/Z_{(+20℃)}$	6	4	3	2	2	2	2	
			$Z_{(-40℃)}/Z_{(+20℃)}$	16	10	8	6	4	4	4	
6	Endurance (85℃) (Applied ripple current)	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							
7	Shelf life (85℃)	Test time		500hours							
		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 (μF)	50	120	300	1K	10K～
CAP≤47	0.75	1.00	1.35	1.57	2.00
47 <CAP≤220	0.80	1.00	1.23	1.34	1.50

Coefficient of Temperature for Ripple Current

Temperature(℃)	55	60	70	85
Coefficient	1.65	1.50	1.30	1.00

ES France - Département Composants & Modules
127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 89
e-mail : comp@es-france.com
Site Web : www.es-france.com

Koshin

K3A Miniature Aluminum Electrolytic Capacitors For Audio

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension:ΦDXL(mm)
Ripple Current: mA/rms at 120Hz,85℃

V.DC / Contents μF	4V		6.3V		10V		16V		25V		35V		50V	
	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA
0.1													4X5	1.1
0.22													4X5	2.0
0.33													4X5	2.8
0.47													4X5	4.0
1													4X5	8.4
2.2													4X5	13
3.3													4X5	17
4.7									4X5	16	4X5	18	5X5	20
10							4X5	23	5X5	27	5X5	29	6.3X5	33
22			4X5	28	5X5	33	5X5	37	6.3X5	42	6.3X5	46		
33	4X5	28	5X5	37	5X5	41	6.3X5	49	6.3X5	52				
47	4X5	33	5X5	45	6.3X5	52	6.3X5	58						
100	5X5	56	6.3X5	70										
220	6.3X5	96												

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127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 89
e-mail : comp@es-france.com
Site Web : www.es-france.com

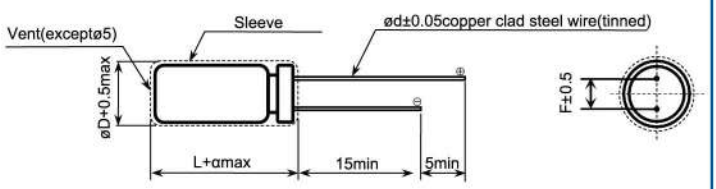
Koshin

KA3 Miniature Aluminum Electrolytic Capacitors For Audio

The newly developed audio use material makes clear sound a reality
All lead wires are copper clad steel

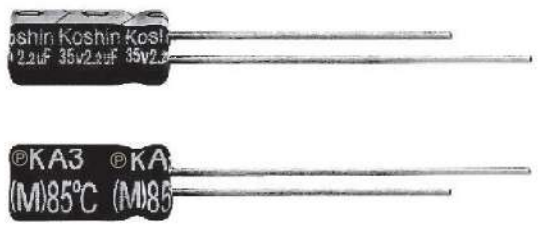
RoHS

Outline Drawing — Unit: mm



øD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ød	0.5	0.5	0.6	0.6	0.6	0.8	0.8
α	1.5			1.5 for L16 max. 2.0 for L20 min.			

Photo



Marking color: black print on orange sleeve

Specifications

No.	Item	Performance								
1	Temperature range(℃)	-40 to +85								
2	Leakage current (μA)	Less than 0.002CV or 0.3 whichever is larger (after two minutes) C: 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)	6.3	10	16	25	35	50	63	100	20℃,120Hz
		Tanδ(max)	0.28	0.24	0.20	0.16	0.14	0.12	0.11	0.10	
		0.02 is added to every 1000 μ F increase over 1000 μ F									
5	Low temperature characteristics	Rated voltage (V)	6.3	10	16	25	35	50	63	100	120Hz
		Impedance ratio(max) $Z_{(-25℃)}/Z_{(+20℃)}$	4	3	2	2	2	2	2	2	
		Impedance ratio(max) $Z_{(-40℃)}/Z_{(+20℃)}$	8	6	4	4	3	3	3	3	
6	Endurance (85℃) (Applied ripple current)	Test time	2000 hours								
		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 (85℃)	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

Rated voltage (v)	Frequency (Hz) / CV(μ FXWV)	50 • 60	120	1K	10K • 100K
6.3 to 16	All CV value	0.80	1.00	1.10	1.20
25 to 35	≤100	0.80	1.00	1.50	1.70
	>1000	0.80	1.00	1.20	1.30
50 to 100	≤100	0.80	1.00	1.60	1.90
	>1000	0.80	1.00	1.20	1.30

ES France - Département Composants & Modules
127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 89
e-mail : comp@es-france.com
Site Web : www.es-france.com

Koshin

KA3 Miniature Aluminum Electrolytic Capacitors For Audio

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension: ΦDXL(mm)
Ripple Current: mA/rms at 120Hz,85℃

V.DC / Contents μF	6.3V		10V		16V		25V		35V		50V		63V		100V	
	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA
0.1											5X11	3				
0.22											5X11	6				
0.33											5X11	9				
0.47											5X11	13			5X11	13
1											5X11	21			5X11	21
2.2											5X11	31			5X11	31
3.3											5X11	38			5X11	40
4.7											5X11	45	5X11	70	5X11	50
10					5X11	50	5X11	55	5X11	60	5X11	66	5X11	105	5X11	70
22					5X11	75	5X11	90	5X11	95	5X11	100	6.3X11	130	6.3X11	115
33					5X11	110	5X11	110	5X11	110	6.3X11	110	6.3X11	160	8X11.5	158
47					5X11	130	5X11	130	5X11	130	6.3X11	155	8X11.5	270	8X11.5	188
100	5X11	130	5X11	150	5X11	180	6.3X11	199	6.3X11	214	8X11.5	250	10X16	505	10X16	358
220	5X11	240	6.3X11	250	6.3X11	280	8X11.5	349	8X11.5	350	10X12.5	429	10X20	676	12.5X20	663
330	6.3X11	300	6.3X11	330	8X11.5	383	8X11.5	383	10X12.5	542	10X16	595	12.5X20	924	12.5X25	886
470	6.3X11	380	8X11.5	417	8X11.5	480	10X12.5	545	10X16	664	10X20	887	16X25	1710	16X25	1230
1000	8X11.5	580	10X12.5	650	10X16	791	10X20	996	12.5X20	1210	12.5X25	1400	18X35.5	2870	18X35.5	2210
2200	10X16	939	10X20	1080	12.5X20	1350	12.5X25	1660	16X25	1950	16X31.5	2340				
3300	12.5X20	1230	12.5X20	1430	12.5X25	1690	16X25	2030	16X31.5	2200	18X35.5	2810				
4700	12.5X20	1710	12.5X25	1780	16X25	2100	16X31.5	2650	18X35.5	2290						
6800	12.5X25	1930	16X25	2270	16X31.5	2480	18X35.5	3290								
10000	16X25	2450	16X31.5	2500	18X35.5	3130										
15000	16X31.5	2580	18X35.5	3100												
22000	18X35.5	3150														

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127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 89
e-mail : comp@es-france.com
Site Web : www.es-france.com

Koshin

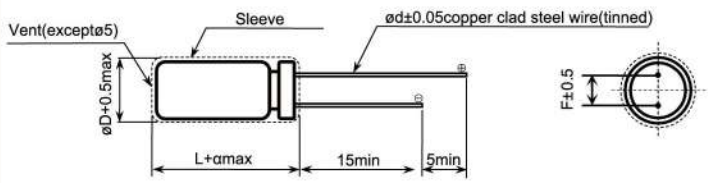
KBD Miniature Aluminum Electrolytic Capacitors For Audio

Miniature Bipolar Capacitors For Audio Series KBD

The newly developed audio use foil and special electrolyte makesslearsnd
far–carrying sound a reality
All lead wires are copper clad steel

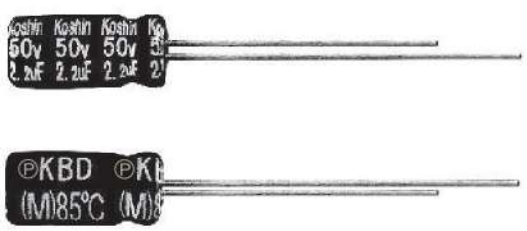
RoHS

Outline Drawing Unit: mm



øD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ød	0.5	0.5	0.6	0.6	0.6	0.8	0.8
α	1.5			1.5 for L16 max. 2.0 for L20 min.			

Photo



Marking color: white print on black sleeve

Specifications

No.	Item	Performance								
1	Temperature range(℃)	-40 to +85								
2	Leakage current (μA)	Less than 0.03CV or 4 whichever is larger (after one minutes) C: 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)	6.3	10	16	25	35	50	63	100	20℃,120Hz
		Tanδ(max)	0.24	0.20	0.16	0.15	0.14	0.12	0.10	0.09	
		0.02 is added to every 1000 μ F increase over 1000 μ F									
5	Low temperature characteristics	Rated voltage (V)	6.3	10	16	25	35	50	63	100	120Hz
		Impedance ratio(max) $Z_{(-25℃)}/Z_{(+20℃)}$	4	3	2	2	2	2	2	2	
		$Z_{(-40℃)}/Z_{(+20℃)}$	10	8	6	4	3	3	3	3	
6	Endurance (85℃) (Applied ripple current)	Test time	2000 hours (with the polarity inverted every 250 hrs)								
		Leakage current	The initial specified value or less								
		Percentage of capacitance change	Within ± 20% of initial value								
		Tangent of the loss angle	150% or less of the initial specified value								
7	Shelf life (85℃)	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	150% or less of the initial specified value								
8	Applicable standards	JIS–C–5101–4(IEC60384)									

Coefficient of Frequency for Ripple Current

Frequency (Hz) / Rated voltage (v)	50 • 60	120	1K	10K • 100K
6.3 to 16	0.80	1.00	1.10	1.20
25 to 35	0.80	1.00	1.50	1.70
50 to 100	0.80	1.00	1.60	1.90

ES France - Département Composants & Modules
127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 89
e-mail : comp@es-france.com
Site Web : www.es-france.com

Koshin

KBD Miniature Aluminum Electrolytic Capacitors For Audio

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension: ΦDXL(mm)
Ripple Current: mA/rms at 120Hz,85℃

V.DC / Contents μF	6.3V		10V		16V		25V		35V		50V		63V		100V	
	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA	ΦDXL	mA
0.1											5X11	4			5X11	5
0.22											5X11	7			5X11	8
0.33											5X11	8			5X11	9
0.47											5X11	10			5X11	11
1											5X11	14			5X11	16
2.2											5X11	21	5X11	23	5X11	24
3.3											5X11	26	5X11	28	6.3X11	34
4.7							5X11	28	5X11	28	5X11	31	5X11	34	6.3X11	41
10					5X11	39	5X11	40	5X11	42	5X11	45	6.3X11	57	8X11.5	70
22			5X11	52	5X11	58	5X11	60	6.3X11	71	6.3X11	77	8X11.5	89	10X16	136
33	5X11	58	5X11	63	5X11	71	6.3X11	84	6.3X11	87	8X11.5	111	10X12.5	144	10X20	181
47	5X11	69	5X11	75	6.3X11	97	6.3X11	100	8X11.5	122	10X12.5	157	10X16	188	12.5X20	248
100	6.3X11	115	6.3X11	126	8X11.5	167	10X12.5	204	10X12.5	212	10X20	273	12.5X20	343	16X25	458
220	8X11.5	202	8X11.5	221	10X12.5	294	10X16	332	10X20	375	12.5X25	506	16X25	645	18X35.5	837
330	8X11.5	247	10X12.5	322	10X16	394	10X20	444	12.5X20	526	12.5X25	620				
470	10X12.5	350	10X16	420	10X20	513	12.5X20	607	12.5X25	685	16X25	861				
1000	10X20	611	12.5X20	767	12.5X25	935	16X25	1120	16X31.5	1270						
2200	12.5X25	1090	16X25	1380	16X31.5	1660										
3300	16X25	1490	16X31.5	1760												
4700	16X31.5	1880	18X35.5	2280												

ES France - Département Composants & Modules
127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 89
e-mail : comp@es-france.com
Site Web : www.es-france.com

Koshin

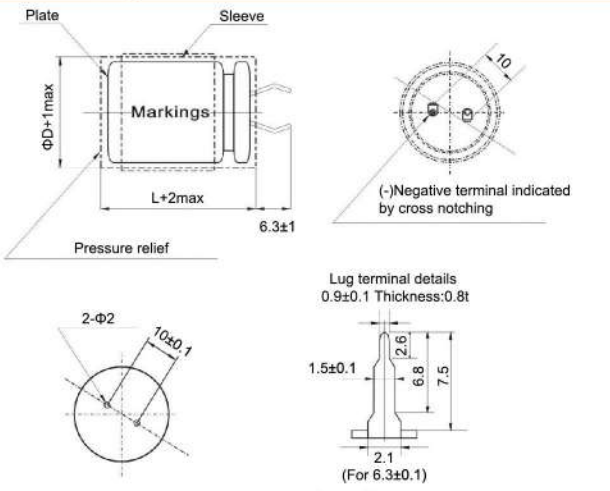
KPO Large Capacitance Aluminum Electrolytic Capacitors For Audio

Power Supply Smoothing Use Standard Capacitors, Series KPO.

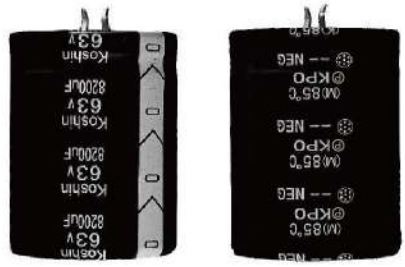
Adopting the newly developed formation method and composite electrolytic paper for audio application has reduced distortion achieving high–quality sound.
Best suited as power supply filters for sound quality priority audio equipment.
Printed circuit board terminal Snap–in type
Guarantees 1000 hours at 85℃

RoHS

Outline Drawing Unit: mm



Photo



Marking color: White print on black sleeve

Specifications

No.	Item	Performance								
1	Temperature range(℃)	-40 to +85								
2	Leakage current (μA)	Less than 0.02CV or 5mA whichever is smaller (after five 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)		16	25	35	50	63	80	100	20℃ , 120Hz
		(Tanδ)(max)		0.40	0.40	0.35	0.30	0.30	0.30	0.30	
5	Low temperature characteristics	Rated voltage (V)		16	25	35	50	63	80	100	120Hz
		Impedance ratio(max)	$Z_{(-25℃)}/Z_{(+20℃)}$	4	4	4	3	3	3	3	
			$Z_{(-40℃)}/Z_{(+20℃)}$	15	15	15	10	10	10	10	
6	Endurance (85℃) (Applied ripple current)	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		150% or less of the initial specified value							
7	Shelf life (85℃)	Test time		500hours							
		Leakage current		The initial specified value or less							
		Percentage of capacitance change		Within ±20% of initial value							
		Tangent of the loss angle		150% or less of the initial specified value							
8	Applicable standards	JIS–C–5101–4(IEC60384)								

Coefficient of Frequency for Ripple Current

Frequency (Hz) / Rated voltage (v)	50	120	1K	10K	20K
50 or less	0.95	1.00	1.10	1.15	1.15

ES France - Département Composants & Modules
127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 89
e-mail : comp@es-france.com
Site Web : www.es-france.com

Koshin

KPO Large Capacitance Aluminum Electrolytic Capacitors For Audio

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension: ΦDXL(mm)
Ripple Current: A/rms at 120Hz,85℃

V.DC / Contents μF	16V								25V							
	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A
680																
1000																
1500																
2200									22X25	1.0						
3300	22X20	1.2							22X30	1.3	25X25	1.7				
4700	22X25	1.5							22X35	1.7	25X30	2.1	30X25	2.2		
6800	22X35	2.0	25X30	2.5	30X25	2.6			22X45	2.2	25X40	2.7	30X30	2.7	35X25	2.8
10000	22X45	2.7	25X35	3.2	30X30	3.3	35X25	3.4			25X50	3.0	30X40	3.1	35X30	3.1

V.DC / Contents μF	35V								50V							
	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A
680																
1000									22X25	0.8						
1500	22X25	0.8							22X30	1.1	25X25	1.4				
2200	22X30	1.3	25X25	1.7					22X40	1.5	25X30	1.8	30X25	1.9		
3300	22X35	1.7	25X30	2.2	30X25	2.3			22X50	2.0	25X40	2.3	30X30	2.4	35X25	2.4
4700	22X45	2.3	25X40	2.8	30X30	2.8	35X25	2.9			25X50	2.4	30X40	2.4	35X30	2.5
6800			25X50	2.6	30X40	2.7	35X30	2.7					30X50	3.1	35X40	3.1
10000					30X50	3.4	35X40	3.5								

V.DC / Contents μF	63V								80V							
	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A
680	22X25	0.7							22X30	0.7	25X25	1.0				
1000	22X30	0.9	25X25	1.2					22X35	1.0	25X30	1.2	30X25	1.3		
1500	22X35	1.2	25X30	1.5	30X25	1.6			22X50	1.3	25X40	1.6	30X30	1.6	35X25	1.7
2200	22X45	1.6	25X40	1.9	30X30	1.9	35X25	2.0			25X50	2.0	30X40	2.1	35X30	2.1
3300			25X50	2.0	30X40	2.1	35X30	2.1					30X50	2.2	35X40	2.2
4700					30X50	2.6	35X40	2.6							35X50	2.7
6800							35X50	3.3								

V.DC / Contents μF	100V							
	ΦDXL	A	ΦDXL	A	ΦDXL	A	ΦDXL	A
680	22X35	0.8	25X30	1.1	30X25	1.1		
1000	22X50	1.2	25X40	1.4	30X30	1.4	35X25	1.5
1500			25X50	1.8	30X40	1.8	35X30	1.8
2200					30X40	1.8	35X40	1.8

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