

KR1 Miniature Aluminum Electrolytic Capacitors

85°C Miniature Standard Capacitors, Series KR1.

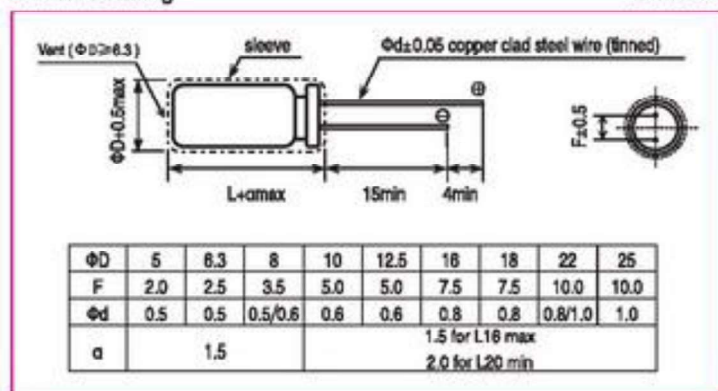
Guaranteed 2000 hours at 85°C

Outline Drawing

Unit: mm

Photo

RoHS



Marking color: white print on black sleeve

Specifications

No.	Item	Performance												
1	Temperature range (°C)	-40 to +85 (6.3V~100V)						-25 to +85 (160V~500V)						
2	Leakage current (μA)	Less than 0.01CV or 3 whichever is larger (after two minutes)						Less than 0.03CV or 3 whichever is larger (after two minutes)						
3	Capacitance tolerance (%)	C: Rated Capacitance (μF). V: Rated voltage (V) 20°C												
4	Tangent of the loss angle (Tan δ)	±20 (20°C,120Hz)												
4	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160-250	350-500	20°C		
		Tan δ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.15	120Hz	
		0.02 is added to each 1000uF increase over 1000uF.												
5	Low temperature characteristics	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160-250	350-500	120Hz	
		Impedance ratio (max)	$Z_{+25^{\circ}C}/Z_{+20^{\circ}C}$	4	3	2	2	2	2	2	2	4		6
		$Z_{-40^{\circ}C}/Z_{+20^{\circ}C}$	8	6	4	4	3	3	3	3	15	10		
6	Endurance (85°C) (Applied ripple current)	Test time	2000hours											
		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°C)	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-5102 and JIS-C-5141												

Coefficient of Frequency for Ripple Current

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

Coefficient of Temperature for Ripple Current

Temperature (°C)	70 or less	85
Coefficient	1.35	1.00

KR1 Miniature Aluminum Electrolytic Capacitors

Dimension: $\Phi \times D \times L$ (mm)

Ripple Current: mA/rms at 120Hz, 85°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

μF	V.DC		6.3V				10V				16V				25V			
	Contents		$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA
4.7															5X11	31		
10											5X11	49			5X11	54		
22							5X11	70			5X11	75			5X11	80		
33		5X11	72				5X11	84			5X11	90			5X11	97		
47		5X11	90				5X11	100			5X11	110			5X11	115		
100		5X11	130				5X11	145			6.3X11	180	5X11	160	6.3X11	190		
220		6.3X11	230	5X11	200		6.3X11	250	5X11	220	8X11.5	300	6.3X11	260	8X11.5	320		
330		8X11.5	290	6.3X11	270		8X11.5	350	6.3X11	290	8X11.5	370			10X12.5	470	8X11.5	440
470		8X11.5	380	6.3X11	320		8X11.5	415	6.3X11	350	10X12.5	520	8X11.5	440	10X16	620	10X12.5	545
1000		8X11.5	540				10X12.5	650			10X16	785			12.5X25	1090	12.5X20	955
2200		10X20	1000				12.5X20	1240	10X20	1070	12.5X20	1295			16X25	1660	12.5X25	1540
3300		12.5X20	1380	10X20	1185		12.5X20	1420			16X25	1840	12.5X25	1655	16X31.5	2070	16X25	1975
4700		16X25	1880	12.5X20	1545		16X25	1980	12.5X25	1780	16X31.5	2260	16X25	2090	18X35.5	2520	16X31.5	2420
6800		16X25	2120	12.5X25	1880		16X25	2220			16X31.5	2520			18X35.5	2880		
10000		16X31.5	2500	16X25	2330		18X35.5	2880	16X35.5	2670	18X40	3080	18X35.5	2920	22X40	3440	18X40	3080
22000		22X40	3700	18X40	3320		22X40	3790	18X40	3370	22X40	3900						

μF	V.DC		35V				50V				63V				100V			
	Contents		$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA
0.1							5X11	1.5			5X11	3			5X11	3		
0.22							5X11	3.5			5X11	4.5			5X11	5.8		
0.33							5X11	5			5X11	7.5			5X11	8.8		
0.47							5X11	7			5X11	9.5			5X11	12		
1							5X11	15			5X11	17			5X11	22		
2.2							5X11	29			5X11	28			5X11	33		
3.3							5X11	35			5X11	34			5X11	40		
4.7		5X11	40				5X11	42			5X11	45			5X11	48		
10		5X11	58				5X11	65			5X11	70			6.3X11	80		
22		5X11	87				5X11	95			6.3X11	115			8X11.5	135	6.3X11	115
33		6.3X11	115	5X11	108		6.3X11	136			8X11.5	150	6.3X11	140	10X16	195	8X11.5	145
47		6.3X11	145	5X11	130		6.3X11	165			8X11.5	190	6.3X11	170	10X16	255	10X12.5	235
100		8X11.5	240	6.3X11	210		8X11.5	260			10X12.5	320			10X20	370		
220		10X12.5	420	8X11.5	385		10X16	490			10X20	565	10X16	490	12.5X25	675	12.5X20	640
330		10X16	570	10X12.5	490		12.5X20	635			12.5X20	765	10X20	710	16X31.5	972	16X25	825
470		10X16	740				12.5X20	860			16X25	1050	12.5X20	900	18X35.5	1135	16X31.5	1070
1000		12.5X20	1145				16X25	1530			16X31.5	1700	16X25	1560	22X40	2600	18X40	2410
2200		16X31.5	1890	16X25	1785		18X40	2231			18X40	2385						
3300		18X35.5	2430	16X35.5	2275		22X40	2785			22X40	3000						
4700		18X40	2890	18X35.5	2700		25X40	3300			25X40	3560						

KR1 Miniature Aluminum Electrolytic Capacitors

Dimension: Φ DXL(mm)

Ripple Current: mA/rms at 120Hz, 85°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V.DC Contents μ F	160V				200V				250V			
	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA
0.47	6.3X11	15	5X11	13	6.3X11	15	5X11	13	5X11	12		
1	6.3X11	24	5X11	20	6.3X11	24	5X11	20	6.3X11	17		
2.2	6.3X11	34	5X11	29	6.3X11	34	5X11	29	6.3X11	20	8X11.5	33
3.3	8X11.5	50	6.3X11	43	8X11.5	50	6.3X11	43	10X12.5	38	8X11.5	43
4.7	8X11.5	60	6.3X11	51	8X11.5	60	6.3X11	51	8X11.5	48	10X12.5	51
6.8	8X11.5	56			8X11.5	56			8X11.5	56	10X12.5	60
10	8X11.5	75	10X12.5	83	8X11.5	75	10X12.5	83	10X12.5	90	10X16	105
22	10X16	110	10X20	135	10X16	110	10X20	135	10X20	135	12.5X20	165
33	10X20	205			10X20	205			12.5X20	210	12.5X25	220
47	12.5X20	250			12.5X20	250			12.5X20	240	12.5X25	260
68	12.5X25	370			12.5X25	370			16X25	390		
100	16X25	460			16X25	460			16X31.5	450		
120	16X25	550			16X25	550			16X31.5	560		
150	16X31.5	580			16X31.5	580			16X31.5	600		
180	16X31.5	660			16X31.5	660			18X31.5	680		
220	18X35.5	750			18X35.5	750						
330	18X35.5	940			18X35.5	940						
470	18X40	1000			18X40	1000						

V.DC Contents μ F	350V				400V				450V			
	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA
0.47	6.3X11	12	8X11.5	12	6.3X11	12	8X11.5	12	6.3X11	12	8X11.5	12
1	6.3X11	20	8X11.5	22	6.3X11	20	8X11.5	22	6.3X11	20	8X11.5	22
2.2	6.3X11	63	10X12.5	57	6.3X11	63	10X12.5	57	8X11.5	32	10X12.5	35
3.3	8X11.5	86	10X12.5	78	8X11.5	86	10X12.5	78	10X12.5	32	10X16	38
4.7	8X11.5	55	10X12.5	66	8X11.5	55	10X12.5	66	10X12.5	52	10X16	56
6.8	10X12.5	80			10X12.5	80			10X12.5	80		
10	10X16	105	10X20	115	10X16	105	10X20	115	10X20	100	12.5X20	105
22	12.5X20	190	12.5X25	200	12.5X20	190	12.5X25	200	12.5X25	150	16X25	165
33	12.5X25	230	16X25	250	12.5X25	230	16X25	250	16X25	190		
47	16X25	270	16X31.5	290	16X25	270	16X31.5	290	16X25	260	16X31.5	280
68	16X31.5	310	18X25	330	16X31.5	310	18X25	330	18X31.5	370	18X35.5	390
100	18X31.5	440	18X35.5	450	18X31.5	440	18X35.5	450	18X35.5	400	18X40	420
120	18X40	520			18X40	520			18X45	510		
150												
180												

V.DC Contents μ F	500V	
	Φ DXL	mA
2.2	8X11.5	63
3.3	10X12.5	78
4.7	10X16	103
10	10X20	174
22	12.5X25	282
33	16X25	438
47	18X31.5	500

Note: Case size in mark of "*" is smaller.

KLP Miniature Aluminum Electrolytic Capacitors

85°C Miniature Standard Capacitors, 9-25mm Height Low Profile Series.

Miniaturized low profile.

Height 9mm-25mm max.

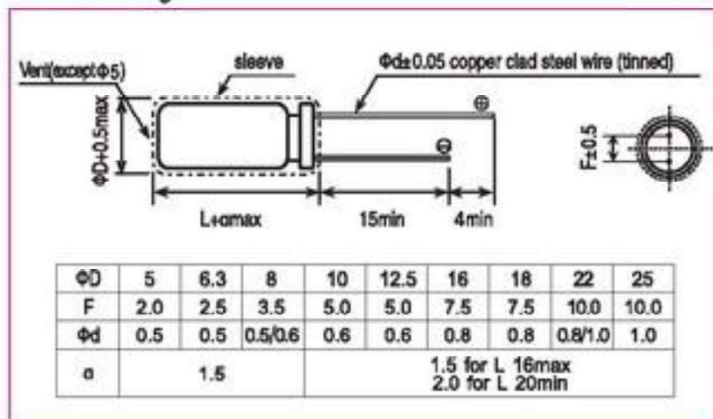
Safety vent construction design.

RoHS Compliant

RoHS

Outline Drawing

Unit: mm



Photo



Marking color: white print on black sleeve

Specifications

No.	Item	Performance													
1	Temperature range (°C)	-40 to +85 (6.3V~100V)							-25 to +85 (160V~450V)						
2	Leakage current (μ A)	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)	6.3	10	16	25	35	50	63	100	160-250	350-450	20℃		
		Tan δ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.15	120Hz		
		0.02 is added to each 1000uF increase over 1000uF.													
5	Low temperature characteristics	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160-250	350-450	120Hz		
		Impedance ratio													
		$Z_{(-25℃)}/Z_{(+20℃)}$	4	3	2	2	2	2	2	2	4	6			
		$Z_{(-40℃)}/Z_{(+20℃)}$	8	6	4	4	3	3	3	3	15	10			
6	Endurance (85℃) (Applied ripple current)	Test time	2000hours												
		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-5102 and JIS-C-5141													

KLP Miniature Aluminum Electrolytic Capacitors

Dimension: $\Phi \times D \times L$ (mm)

Ripple Current: mA/rms at 120Hz, 85°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V.DC Contents μF	6.3V				10V				16V				25V			
	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA
4.7																
10																
22																
33																
47													5X9	105		
68									5X9	120			6.3X9	130		
100	5X9	128			5X9	134			6.3X9	160			6.3X9	175		
150	5X9	150			6.3X9	180			6.3X9	260			8X9	280		
220	6.3X9	180			6.3X9	210			8X9	290			8X9	310		
330	6.3X9	247			8X9	300			8X9	340	10X9	355	10X9	400		
470	8X9	360			8X9	360			10X9	410			10X12.5	525		
680	10X9	420			10X9	540			10X12.5	560			10X16	700	12.5X13	730
1000	10X9	530			10X12.5	625			12.5X13	750			12.5X16	1050		
2200	12.5X16	1050			12.5X16	1080			16X16	1150			16X21	1350	18X16	1300
3300	16X16	1200			16X16	1350			16X16	1500	18X16	1460	18X21	1600		
4700	16X16	1500			16X21	1550			18X21	1650			18X25	2100		
6800	16X21	1550	18X16	1600	18X21	1850			18X25	2120						
10000	18X21	2000			18X25	2300										
22000																

V.DC Contents μF	35V				50V				63V				100V			
	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA
2.2					5X9	23			5X9	26			5X9	27		
3.3					5X9	30			5X9	31			5X9	33		
4.7					5X9	35			5X9	36			6.3X9	41		
6.8					5X9	50			5X9	54			6.3X9	59		
10					5X9	64			6.3X9	68			8X9	78		
22					5X9	86			6.3X9	102			8X9	107		
33	5X9	95			6.3X9	115			8X9	135			10X9	155		
47	6.3X9	120			6.3X9	135			10X9	170			10X16	220		
68	6.3X9	140			8X9	155			10X9	200			10X16	261	12.5X13	270
100	8X9	220			10X9	230			10X16	340			12.5X13	410		
150	8X9	300			10X9	320			12.5X13	384			16X16	579		
220	10X9	335			10X16	380	12.5X13	400	12.5X13	490			16X21	668		
330	10X12.5	475			12.5X13	530	12.5X16	550	16X16	610			16X25	864		
470	12.5X13	590	12.5X16	650	12.5X16	720	16X16	750	16X16	840			18X25	1361		
680	12.5X16	750			16X16	805			16X21	950						
1000	16X16	1230			16X21	1450			18X25	1600						
2200	18X21	1600			18X25	1650										
3300	18X25	1750														
4700																

KLP Miniature Aluminum Electrolytic Capacitors

Dimension: Φ DXL (mm)

Ripple Current: mA/rms at 120Hz, 85°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

VDC Contents μ F	160V				200V				250V			
	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA
0.47												
1												
2.2												
3.3												
4.7	8X9	50			8X9	55			8X9	60	10X9	52
6.8	8X9	75			8X9	78			10X9	82		
10	10X9	87			10X9	92			10X9	98	10X16	120
22	10X16	135			12.5X16	150			12.5X16	165	16X16	210
33	12.5X16	175			12.5X16	190	16X16	200	16X16	230	18X16	260
47	12.5X16	285	16X16	325	16X16	320			16X21	340	18X16	380
68	16X16	340			16X16	360	18X16	390	16X21	420		
100	16X21	515			16X21	575			18X21	610		
150	18X21	620			18X25	645			18X25	685		
220	18X25	840										
330												
470												

Standard Type

VDC Contents μ F	350V				400V				450V			
	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA
1.5									8X9	30		
2.2					8X9	38			10X9	46		
3.3	8X9	45			10X9	50			10X9	55		
4.7	10X9	78			10X9	90			10X12.5	105		
6.8	10X16	105			12.5X16	125			12.5X16	135		
10	12.5X16	145			12.5X16	160	16X16	190	16X16	200		
22	16X16	190			16X21	230	18X16	225	16X21	250		
33	16X21	270	18X16	335	18X21	300			18X21	320		
47	18X21	360			18X21	385			18X25	410		
68	18X25	510			18X25	540						
100												
120												
150												
180												

KLP Miniature Aluminum Electrolytic Capacitors

Coefficient of Frequency for Ripple Current

Rated voltage (V)	Frequency (Hz) CV ($\mu F \times V$)	50 • 60	120	1K	10K	100K
6.3 to 16	All CV value	0.80	1.00	1.30	1.50	1.50
25 to 35	≤ 1000	0.80	1.00	1.30	1.50	1.50
	> 1000	0.80	1.00	1.20	1.30	1.30
50 to 100	≤ 1000	0.80	1.00	1.20	1.30	1.30
	> 1000	0.80	1.00	1.10	1.20	1.20
160 to 450	All CV value	0.80	1.00	1.10	1.20	1.20

Coefficient of Temperature for Ripple Current

Temperature (°C)	70 or less	85
Coefficient	1.35	1.00

KRM Miniature Aluminum Electrolytic Capacitors

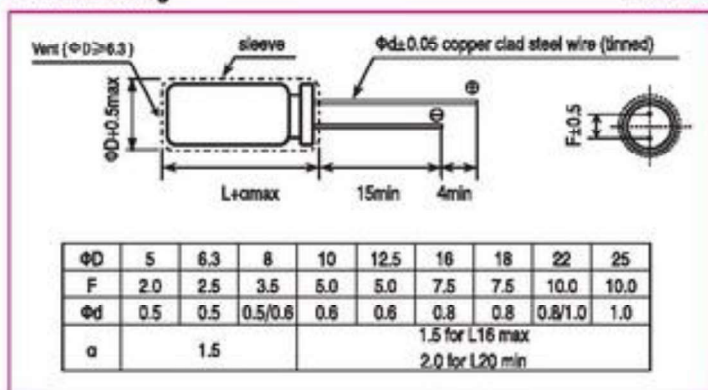
105°C Standard Capacitors, Series KRM.

Guaranteed 2000 hours at 105°C

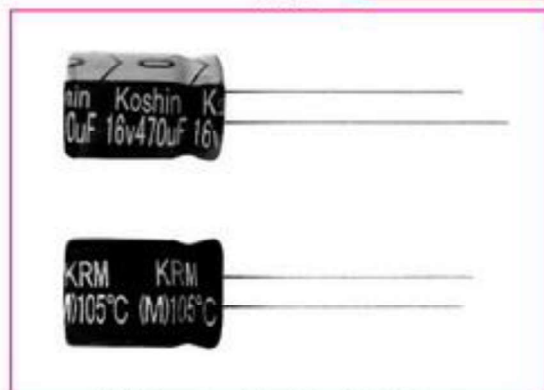
RoHS

Outline Drawing

Unit: mm



Photo



Marking color: white print on black sleeve

Standard Type

Specifications

No.	Item	Performance											
1	Temperature range (°C)	-55 to +105(6.3V~100V)						-40 to +105(160V~500V)					
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 (μF). 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	160-250	350-500	20℃
		Tan δ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.15	120Hz
		0.02 is added to each 1000uF increase over 1000uF.											
5	Low temperature Characteristics	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160-250	350-500	120Hz
		Impedance ratio (max)	Z _(-25℃) /Z _(+20℃)	4	3	2	2	2	2	2	3	3	
			Z _(-40℃) /Z _(+20℃)	8	6	4	3	3	3	3	8	6	
6	Endurance (105℃) (Applied ripple current)	Test time	2000hours										
		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 (105℃)	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-5102 and JIS-C-5141											

Coefficient of Frequency for Ripple Current

Rated voltage (v)	Frequency (Hz)					
	Capacitance(μF)	50 + 60	120	1K	10K	100K
6.3 to 100	CAP ≤ 10	0.80	1.00	1.30	1.65	1.70
	10 < CAP ≤ 100	0.80	1.00	1.23	1.48	1.53
	100 < CAP ≤ 1000	0.80	1.00	1.16	1.35	1.38
	1000 < CAP	0.80	1.00	1.11	1.25	1.28
160 to 500	0.47 to 330	0.80	1.00	1.30	1.40	1.60

Coefficient of Temperature for Ripple Current

Rated voltage (V)	Temperature (°C)			
		70 or less	85	105
6.3 to 100		2.00	1.70	1.00
160 to 500		1.80	1.40	1.00

KRM Miniature Aluminum Electrolytic Capacitors

Dimension: Φ DXL(mm)

Ripple Current: mA/rms at 120Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

VDC Contents μ F	6.3V				10V				16V				25V			
	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA
4.7													5X11	26		
10									5X11	35			5X11	43		
22					5X11	49			5X11	58			5X11	62		
33	5X11	54			5X11	60			5X11	71			5X11	76		
47	5X11	65			5X11	76			5X11	85			5X11	97		
100	5X11	95			5X11	105			6.3X11	133	5X11	110	6.3X11	142		
220	6.3X11	160	5X11	140	6.3X11	175			8X11.5	215	6.3X11	190	8X11.5	236		
330	8X11.5	195	6.3X11	190	8X11.5	245	6.3X11	200	8X11.5	270			10X12.5	335	8X11.5	310
470	8X11.5	270	6.3X11	230	8X11.5	290			10X12.5	370	8X11.5	310	10X16	440	10X12.5	380
1000	10X12.5	460	8X11.5	380	10X16	550	10X12.5	460	10X20	640	10X16	560	12.5X20	770	10X20	680
2200									10X25	900						
	10X20	810			12.5X20	860	10X20	760	12.5X25	1000	12.5X20	920	16X25	1170	12.5X25	1110
3300	12.5X20	960	10X20	840	12.5X20	1100			16X25	1300	12.5X25	1170	16X31.5	1460	16X25	1440
4700	16X25	1330	12.5X20	1090	16X25	1400	12.5X25	1260	16X31.5	1600	16X25	1480	18X35.5	1780	16X31.5	1710
6800	16X25	1640	12.5X25	1460	16X31.5	1880	16X25	1690	18X35.5	2170	16X31.5	1930	18X40	2280	18X35.5	2160
10000	16X31.5	2200	16X25	1990	18X35.5	2560	16X35.5	2400	18X40	2780	18X35.5	2640				
22000	18X40	3270														

VDC Contents μ F	35V				50V				63V				100V			
	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA	Φ DXL	mA	* Φ DXL	mA
0.1					5X11	3.2			5X11	3.5			5X11	4		
0.22					5X11	4.9			5X11	5.1			5X11	6		
0.33					5X11	6			5X11	7.5			5X11	8		
0.47					5X11	7.1			5X11	9			5X11	9		
1					5X11	13			5X11	15			5X11	15		
2.2					5X11	20			5X11	30			5X11	30		
3.3					5X11	30			5X11	31			5X11	31		
4.7	5X11	30			5X11	33			5X11	36			6.3X11	40		
10	5X11	46			5X11	50			5X11	54			8X11.5	66	6.3X11	54
22	5X11	71			5X11	78			6.3X11	86			8X11.5	99	6.3X11	93
33	6.3X11	90	5X11	75	6.3X11	96	5X11	90	8X11.5	114	6.3X11	100	10X12.5	148	8X11.5	130
47	6.3X11	110	5X11	90	6.3X11	120			8X11.5	141	6.3X11	130	10X16	180	10X12.5	165
100	8X11.5	180	6.3X11	150	8X11.5	188			10X12.5	235			12.5X20	320	10X20	265
220	10X12.5	300	8X11.5	270	10X20	355	10X16	300	10X20	450	10X16	335	16X25	570	12.5X25	440
330	10X16	400	10X12.5	350	10X20	460	10X16	410	12.5X20	540	10X20	510	16X31.5	700	16X25	540
470	10X20	520	10X16	460	12.5X25	610	10X20	530	12.5X25	720	12.5X20	640	18X35.5	880	16X31.5	715
1000	12.5X25	920	12.5X20	810	16X25	1080	12.5X25	950	16X31.5	1210	16X25	930	22X40	1760	18X40	985
2200	16X31.5	1340	16X25	1260	18X35.5	2120	16X35.5	1470	18X40	2340						
3300	18X35.5	1650	16X35.5	1610	22X40	2290	18X35.5	1770	22X40	2510						
4700	18X40	1920	18X35.5	1900	25X40	2610	22X40	2340	25X40	3000						

KRM Miniature Aluminum Electrolytic Capacitors

Dimension: $\Phi \times D \times L$ (mm)

Ripple Current: mA/rms at 120Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V.DC Contents μF	160V				200V				250V			
	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA
0.47	6.3X11	15	5X11	13	6.3X11	15	5X11	13	5X11	12		
1	6.3X11	24	5X11	20	6.3X11	24	5X11	20	6.3X11	17		
2.2	6.3X11	34	5X11	29	6.3X11	34	5X11	29	6.3X11	20	8X11.5	33
3.3	8X11.5	50	6.3X11	43	8X11.5	50	6.3X11	43	10X12.5	38	8X11.5	43
4.7	8X11.5	60	6.3X11	51	8X11.5	60	6.3X11	51	8X11.5	48	10X12.5	51
6.8	8X11.5	56			8X11.5	56			8X11.5	56	10X12.5	60
10	8X11.5	75	10X12.5	83	8X11.5	75	10X12.5	83	10X12.5	90	10X16	105
22	10X16	110	10X20	135	10X16	110	10X20	135	10X20	135	12.5X20	165
33	10X20	205			10X20	205			12.5X20	210	12.5X25	220
47	12.5X20	250			12.5X20	250			12.5X20	240	12.5X25	260
68	12.5X25	370			12.5X25	370			16X25	390		
100	16X25	460			16X25	460			16X31.5	450		
120	16X25	550			16X25	550			16X31.5	560		
150	16X31.5	580			16X31.5	580			16X31.5	600		
180	16X31.5	660			16X31.5	660			18X31.5	680		
220	18X35.5	750			18X35.5	750						
330	18X35.5	940			18X35.5	940						
470	18X40	1000			18X40	1000						

V.DC Contents μF	350V				400V				450V			
	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA
0.47	6.3X11	12	8X11.5	12	6.3X11	12	8X11.5	12	6.3X11	12	8X11.5	12
1	6.3X11	20	8X11.5	22	6.3X11	20	8X11.5	22	6.3X11	20	8X11.5	22
2.2	6.3X11	63	10X12.5	57	6.3X11	63	10X12.5	57	8X11.5	32	10X12.5	35
3.3	8X11.5	86	10X12.5	78	8X11.5	86	10X12.5	78	10X12.5	32	10X16	38
4.7	8X11.5	55	10X12.5	66	8X11.5	55	10X12.5	66	10X12.5	52	10X16	56
6.8	10X12.5	80			10X12.5	80			10X12.5	80		
10	10X16	105	10X20	115	10X16	105	10X20	115	10X20	100	12.5X20	105
22	12.5X20	190	12.5X25	200	12.5X20	190	12.5X25	200	12.5X25	150	16X25	165
33	12.5X25	230	16X25	250	12.5X25	230	16X25	250	16X25	190		
47	16X25	270	16X31.5	290	16X25	270	16X31.5	290	16X25	260	16X31.5	280
68	16X31.5	310	18X25	330	16X31.5	310	18X25	330	18X31.5	370	18X35.5	390
100	18X31.5	440	18X35.5	450	18X31.5	440	18X35.5	450	18X35.5	400	18X40	420
120	18X40	520			18X40	520			18X45	510		
150												
180												

V.DC Contents μF	500V	
	$\Phi \times D \times L$	mA
2.2	8X11.5	63
3.3	10X12.5	78
4.7	10X16	103
10	10X20	174
22	12.5X25	282
33	16X25	438
47	18X31.5	500

Note: Case size in mark of *** is smaller.

KHP Miniature Aluminum Electrolytic Capacitors

105°C Miniature Standard Capacitors, 9-25mm Height Low Profile Series.

Used space-saving equipment, low profile.

Load life 2000 hours at 105°C

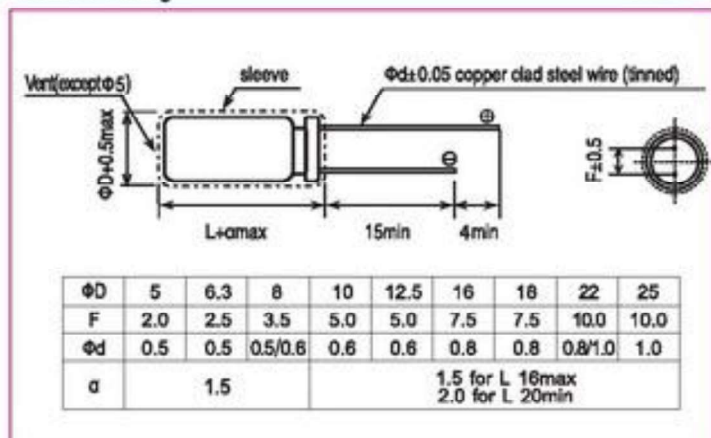
Safety vent construction design.

RoHS Compliant

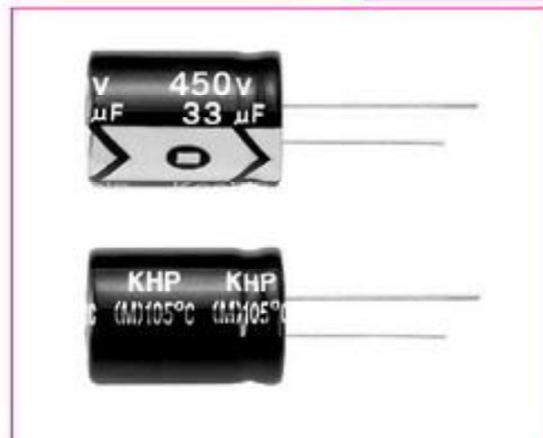
RoHS

Outline Drawing

Unit: mm



Photo



Marking color: white print on black sleeve

Specifications

No.	Item	Performance												
1	Temperature range (°C)	-55 to +105(6.3V~100V)							-40 to +105(160V~450V)					
2	Leakage current (μ A)	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)	6.3	10	16	25	35	50	63	100	160-250	350-450	20℃	
		Tan δ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.15	120Hz	
		0.02 is added to each 1000uF increase over 1000uF.												
5	Low temperature Characteristics	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160-250	350-450	120Hz	
		Impedance ratio (max)	$Z_{(-25^{\circ}C)}/Z_{(+20^{\circ}C)}$	4	3	2	2	2	2	2	3	3		
			$Z_{(-40^{\circ}C)}/Z_{(+20^{\circ}C)}$	8	6	4	3	3	3	3	8	6		
6	Endurance (105℃) (Applied ripple current)	Test time	2000hours											
		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 (105℃)	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-5102 and JIS-C-5141												

KHP Miniature Aluminum Electrolytic Capacitors

Dimension: Φ DXL(mm)

Ripple Current: mA/rms at 120Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

μ F	VDC Contents	6.3V				10V				16V				25V			
		Φ D×L	mA	* Φ D×L	mA	Φ D×L	mA	* Φ D×L	mA	Φ D×L	mA	* Φ D×L	mA	Φ D×L	mA	* Φ D×L	mA
10																	
22																	
33																	
47																	
68						5X9	115			5X9	105			5X9	110		
100		5X9	120			5X9	135			6.3X9	125			6.3X9	130		
150		5X9	135			6.3X9	150			6.3X9	150			6.3X9	160		
220		6.3X9	165			6.3X9	165			8X9	200			8X9	185		
330		6.3X9	185			8X9	205			8X9	250			10X9	230		
470		8X9	260			8X9	275	10X9	280	10X9	310			10X12.5	370		
680		10X9	310			10X9	360			12.5X13	390			12.5X16	520		
1000		10X9	370			10X12.5	450			12.5X13	520			12.5X16	600		
2200		12.5X16	620			12.5X16	690			16X16	850			16X21	950	18X16	940
3300		16X16	860			16X16	950			16X21	1180			18X21	1250		
4700		16X16	1010			16X21	1150			18X21	1480			18X25	1470		
6800		16X16	1210			18X21	1350			18X25	1600						
10000		18X21	1450			18X25	1700										

μ F	VDC Contents	35V				50V				63V				100V			
		Φ D×L	mA	* Φ D×L	mA	Φ D×L	mA	* Φ D×L	mA	Φ D×L	mA	* Φ D×L	mA	Φ D×L	mA	* Φ D×L	mA
2.2						5X9	19			5X9	20			5X9	20		
3.3						5X9	25			5X9	26			5X9	27		
4.7						5X9	40			5X9	41			5X9	42		
6.8						5X9	48			5X9	49			6.3X9	56		
10						5X9	54			5X9	55			8X9	72		
22						5X9	75			6.3X9	107			8X9	114		
33		5X9	90			6.3X9	115			6.3X9	114			10X9	141		
47		6.3X9	120			6.3X9	130			8X9	136			10X16	197		
68		8X9	145			8X9	169			10X9	170			10X16	200		
100		8X9	180			10X9	200			10X9	173			12.5X13	247		
150		8X9	210			10X9	250			10X16	245			12.5X16	295	16X16	346
220		10X9	255			10X12.5	290			12.5X13	317			16X16	373		
330		10X12.5	360			12.5X13	375	12.5X16	400	12.5X16	382			16X21	500		
470		12.5X13	410	13X16	430	16X16	550			16X16	490			18X25	745		
680		12.5X16	580			16X16	700			16X21	730						
1000		16X16	750			16X21	850			16X25	1050						
2200		18X21	1200			18X25	1300										
3300		18X25	1450														
4700																	

Dimension: $\Phi \times D \times L$ (mm)

Ripple Current: mA/rms at 120Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

μF	V.DC Contents	160V				200V				250V			
		$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA
2.2													
3.3													
4.7		8X9	50			8X9	50			8X9	50		
6.8		8X9	55			8X9	58			10X9	65		
10		10X9	80			10X9	78			12.5X16	82		
22		12.5X16	120			12.5X16	145			12.5X16	165	16X16	180
33		12.5X16	175			16X16	200			16X16	225		
47		16X16	225			16X16	240			18X16	350		
68		16X21	305			16X21	360			18X21	390		
100		16X21	380			18X21	410			18X25	450		
150		18X21	530			18X25	560						
180		18X25	600										
220													
330													
470													

μF	V.DC Contents	350V				400V				450V			
		$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	* $\Phi \times D \times L$	mA
1.5										8X9	18		
2.2						8X9	35			10X9	25		
3.3		8X9	35			10X9	40			10X9	30		
4.7		10X9	50			12.5X16	50			12.5X16	48		
6.8		12.5X16	80			12.5X16	80			12.5X16	68		
10		12.5X16	95			12.5X16	100	16X16	105	16X16	100		
22		16X16	180			16X21	185			16X21	170		
33		16X21	225			18X21	230			18X25	225		
47		18X21	300			18X21	309			18X25	270		
68		18X25	390										
100													
150													
180													

KHP Miniature Aluminum Electrolytic Capacitors

Coefficient of Frequency for Ripple Current

Rated voltage (V)	Frequency (Hz)					
	Capacitance (μF)	50	60	120	1K	10K
6.3 to 100	CAP ≤ 10	0.80	1.00	1.30	1.50	1570
	10 < CAP ≤ 100	0.80	1.00	1.30	1.50	1.50
	100 < CAP ≤ 1000	0.80	1.00	1.20	1.30	1.30
	1000 < CAP	0.80	1.00	1.10	1.20	1.20
160 to 450	0.47 to 330	0.80	1.00	1.10	1.20	1.20

Coefficient of Temperature for Ripple Current

Rated voltage (V)	Temperature (°C)			
		70 or less	85	105
6.3 to 100		2.00	1.70	1.00
160 to 450		1.80	1.40	1.00

KZM Miniature Aluminum Electrolytic Capacitors

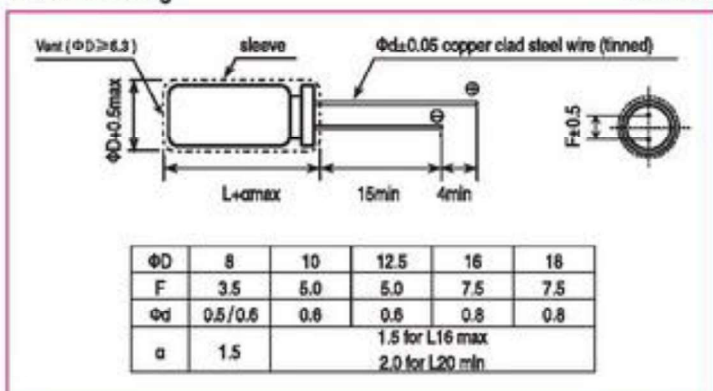
High Temperature Miniature Capacitors, Series KZM

Guaranteed 1000 hours at 125°C

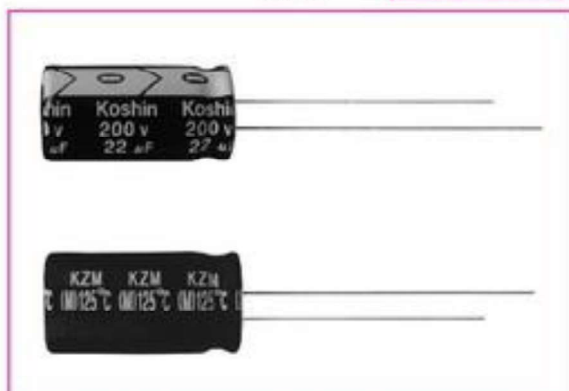
RoHS

Outline Drawing

Unit: mm



Photo



Making color: white print on black sleeve

Specifications

No.	Item	Performance												
1	Temperature range (°C)	-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 (μF). 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℃
		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	120Hz
5	Low temperature characteristics	Rated voltage (V)	10	16	25	35	50	63	100	160	200	250	350	120Hz
		Impedance ratio (max)	3	2	2	2	2	2	2	2	2	2	2	
		Z(-25℃)/Z(+20℃)	6	4	4	4	4	4	3	4	4	4	4	
6	Endurance (125℃) (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 (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-5102 and JIS-C- 5141												

Coefficient of Frequency for Ripple Current

Frequency (Hz)	50 ~ 60	120	1K	10K ~ 100K
Capacitance (μF)				
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(°C)	45	60	70	85	105	125
Coefficient	1.80	1.55	1.50	1.45	1.15	1.00

Dimension: Φ D×L(mm)

Ripple Current: mA/rms at 120Hz, 125°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

μ F	VDC Contents	10V		16V		25V		35V		50V		63V	
		Φ D×L	mA	Φ D×L	mA	Φ D×L	mA	Φ D×L	mA	Φ D×L	mA	Φ D×L	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	10X12.5	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										

μ F	VDC Contents	100V		160V		200V		250V		350V	
		Φ D×L	mA	Φ D×L	mA	Φ D×L	mA	Φ D×L	mA	Φ D×L	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	16X25	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				

Standard Type

KRB Miniature Aluminum Electrolytic Capacitors

85°C Non-polar Miniature Capacitors, Series KRB.

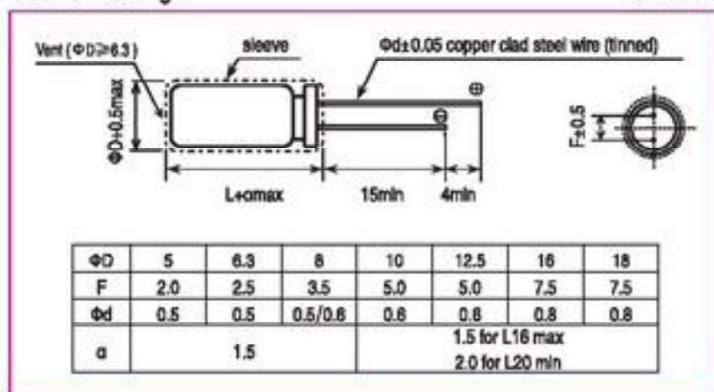
Guaranteed 2000 hours at 85°C

Outline Drawing

Unit: mm

Photo

RoHS



Marking color: black print on red sleeve

Specifications

No.	Item	Performance											
1	Temperature range (°C)	-40 to +85											
2	Leakage current (μ A)	Less than 0.03CV or 3 whichever is larger(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)	6.3	10	16	25	35	50	63	100	160-250	20℃	
		Tan δ (max)	0.25	0.25	0.20	0.15	0.15	0.13	0.10	0.09	0.15	120Hz	
		0.02 is added to each 1000uF increase over 1000uF.											
5	Low temperature characteristics	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160-250	120Hz	
		Impedance ratio (max)	$Z_{(-25℃)}/Z_{(+20℃)}$	4	3	2	2	2	2	2	2		2
		$Z_{(-40℃)}/Z_{(+20℃)}$	8	6	4	4	3	3	3	3	4		
0.5 for -25℃,1 for -40℃ are added to each 1000uF increase over 1000uF.													
6	Endurance (85℃) (Applied ripple current)	Test time	2000hours (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	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-5102 and JIS-C- 5141											

Coefficient of Frequency for Ripple Current

Frequency (Hz)	50 - 60	120	1K	10K - 100K
CAP ≤ 10	0.80	1.00	1.30	1.70
10 < CAP ≤ 100	0.80	1.00	1.23	1.53
100 < CAP ≤ 1000	0.80	1.00	1.16	1.38
1000 < CAP	0.80	1.00	1.11	1.28

Coefficient of Temperature for Ripple Current

Temperature(°C)	45	60	70	85
Coefficient	1.80	1.50	1.30	1.00

KRB Miniature Aluminum Electrolytic Capacitors

Dimension: Φ DXL(mm)

Ripple Current: mA/rms at 120Hz, 85°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V.DC Contents μ F	6.3V		10V		16V		25V		35V		50V		63V		100V	
	Φ DXL	mA	Φ DXL	mA	Φ DXL	mA	Φ DXL	mA	Φ DXL	mA	Φ DXL	mA	Φ DXL	mA	Φ DXL	mA
0.1											5X11	4	5X11	5	5X11	5
0.22											5X11	7	5X11	8	5X11	8
0.33											5X11	8	5X11	10	5X11	10
0.47											5X11	10	5X11	12	5X11	12
1											5X11	15	5X11	18	6.3X11	23
2.2											5X11	23	5X11	25	6.3X11	26
3.3											5X11	28	5X11	31	6.3X11	32
4.7											5X11	33	6.3X11	37	8X11.5	44
10					5X11	40	5X11	42	6.3X11	46	8X11.5	55	8X11.5	61	8X11.5	66
22	5X11	50	5X11	56	5X11	59	6.3X11	63	8X11.5	76	8X11.5	82	10X12.5	108	10X16	118
33	5X11	62	5X11	69	6.3X11	73	6.3X11	78	8X11.5	94	8X11.5	104	10X16	137	10X20	152
47	5X11	74	6.3X11	83	6.3X11	88	8X11.5	105	8X11.5	115	10X16	150	10X20	172	12.5X20	193
100	6.3X11	108	8X11.5	137	8X11.5	149	10X12.5	182	10X16	202	10X20	229	12.5X20	267	16X25	315
220	8X11.5	181	10X12.5	242	10X16	265	10X16	294	12.5X20	335	12.5X25	378	16X25	443	16X35.5	498
330	8X11.5	236	10X16	308	10X20	340	12.5X20	384	12.5X25	429	16X25	496	16X31.5	653		
470	10X16	329	10X20	385	12.5X20	432	12.5X25	479	16X25	548	16X31.5	614	18X35.5	787		
1000	10X20	502	12.5X20	598	12.5X25	659	16X31.5	775	16X35.5	852	18X40	1048				
2200	12.5X25	829	16X25	992	16X35.5	1114	18X40	1347								

V.DC Contents μ F	160V		200V		250V	
	Φ DXL	mA	Φ DXL	mA	Φ DXL	mA
0.47	5X11	10	6.3X11	10	6.3X11	12
1	6.3X11	14	8X11.5	16	8X11.5	16
2.2	8X11.5	23	8X11.5	28	10X12.5	32
3.3	8X11.5	33	10X12.5	33	10X16	46
4.7	10X12.5	39	10X16	46	10X20	62
10	10X16	75	10X20	83	10X20	99
22	12.5X20	146	12.5X20	146	12.5X25	172
33	12.5X20	179	12.5X25	197	16X25	211
47	12.5X25	235				

Standard Type

KZB Miniature Aluminum Electrolytic Capacitors

105°C Non-polar High Temperature Miniature Capacitors, Series KZB.

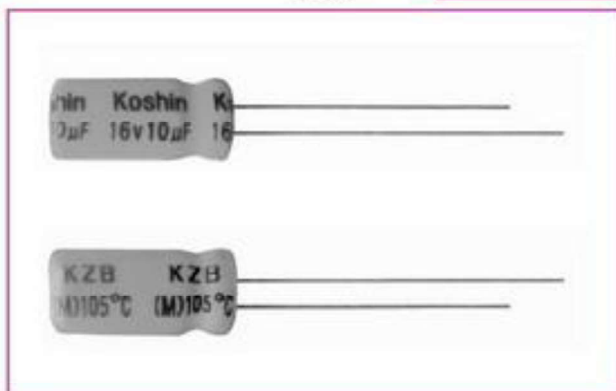
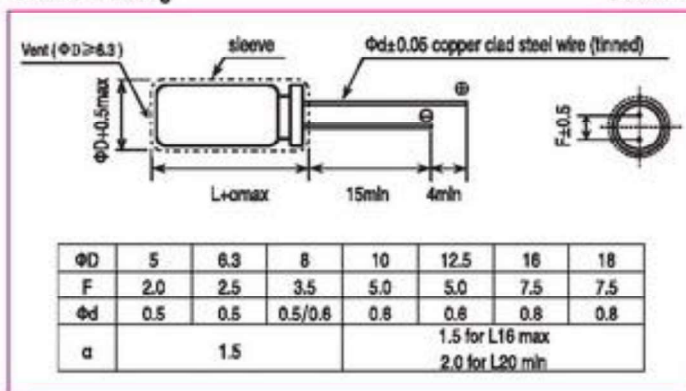
Guaranteed 2000 hours at 105°C

RoHS

Outline Drawing

Unit: mm

Photo



Making color: black print on red sleeve

Specifications

No.	Item	Performance												
1	Temperature range (°C)	-40 to +105												
2	Leakage current (μ A)	Less than 0.03CV or 3 whichever is larger(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)	6.3	10	16	25	35	50	63	100	160-250	20℃		
		Tan δ (max)	0.25	0.25	0.20	0.15	0.15	0.13	0.10	0.09	0.15	120Hz		
		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	160-200	250	120Hz	
		Impedance ratio (max)	$Z_{(-25℃)}/Z_{(+20℃)}$	4	3	3	2	2	2	2	2	2		3
			$Z_{(-40℃)}/Z_{(+20℃)}$	8	6	6	4	4	3	3	3	4		6
6	Endurance (105℃) (Applied ripple current)	Test time	2000hours (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	200% or less of the initial specified value											
7	Shelf life (105℃)	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-5102 and JIS-C- 5141												

Coefficient of Frequency for Ripple Current

Frequency (Hz)	50 - 60	120	1K	10K - 100K
Capacitance (μF)				
CAP ≤ 10	0.80	1.00	1.30	1.70
10 < CAP ≤ 100	0.80	1.00	1.23	1.53
100 < CAP ≤ 1000	0.80	1.00	1.16	1.38
1000 < CAP	0.80	1.00	1.11	1.28

Coefficient of Temperature for Ripple Current

Temperature(°C)	45	60	70	85	105
Coefficient	2.10	1.90	1.65	1.40	1.00

KZB Miniature Aluminum Electrolytic Capacitors

Dimension: $\Phi \times D \times L$ (mm)

Ripple Current: mA/rms at 120Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

μF	V.DC Contents		6.3V		10V		16V		25V		35V		50V		63V		100V	
	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA
0.1													5X11	4	5X11	5	5X11	5
0.22													5X11	5	5X11	6	5X11	6
0.33													5X11	6	5X11	6	5X11	7
0.47													5X11	7	5X11	8	5X11	8
1													5X11	10	5X11	11	5X11	12
2.2													5X11	15	5X11	16	6.3X11	20
3.3													5X11	18	5X11	20	6.3X11	25
4.7													5X11	22	6.3X11	24	6.3X11	30
10							5X11	27	5X11	27	5X11	30	6.3X11	37	6.3X11	40	8X11.5	50
22	5X11	34	5X11	34	5X11	40	6.3X11	46	6.3X11.5	51	8X11.5	63	8X11.5	68	10X16	97		
33	5X11	45	5X11	45	5X11	49	6.3X11	56	8X11.5	72	8X11.5	77	10X12.5	98	10X20	140		
47	5X11	54	5X11	54	6.3X11	67	6.3X11	67	8X11.5	86	10X12.5	105	10X16	130	12.5X20	170		
100	6.3X11	90	6.3X11	90	8X11.5	110	8X11.5	110	10X16	160	10X20	190	12.5X20	225	16X25	300		
220	8X11.5	150	8X11.5	150	10X12.5	195	10X16	215	12.5X20	290	12.5X25	340	16X25	405	16X35.5	510		
330	8X11.5	185	10X16	240	10X16	265	12.5X20	320	12.5X20	350	16X25	460	16X31.5	535				
470	10X12.5	260	10X16	290	10X20	345	12.5X25	380	12.5X25	465	16X31.5	590	18X35.5	680				
1000	10X20	460	12.5X20	510	12.5X25	605	16X25	670	16X31.5	805								
2200	12.5X25	820	16X25	940	16X31.5	1070	18X35.5	1140										

μF	V.DC Contents		160V		200V		250V	
	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA	$\Phi \times D \times L$	mA
0.47	5X11	8	6.3X11	9	6.3X11	10		
1	6.3X11	11	8X11.5	12	8X11.5	13		
2.2	8X11.5	18	8X11.5	22	10X12.5	26		
3.3	8X11.5	26	10X12.5	30	10X16	37		
4.7	10X12.5	31	10X16	37	10X20	50		
10	10X16	60	10X20	66	10X20	79		
22	12.5X20	117	12.5X20	117	12.5X25	138		
33	12.5X20	143	12.5X25	158	16X25	169		
47	16X25	188						

Standard Type