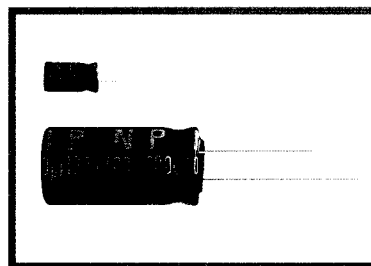




• 適用於極性反轉回路及須急遽印加逆向電壓之回路。

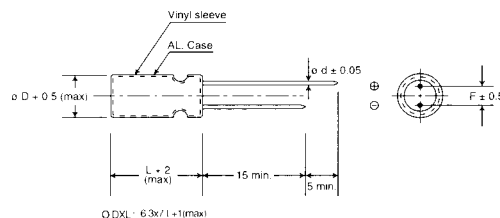
• Suitable for using in polarity reversal circuits, such as signal coupling circuits and speakers, etc.



## SPECIFICATION

Item	Characteristic									
使用溫度範圍 Operation Temperature Range	-40~+85°C									
額定電壓 Rated Working Voltage	6.3~100 VDC									
靜電容量容許差 Capacitance Tolerance (120Hz 25°C)	±20%(M)									
洩漏電流 Leakage Current (25°C)	I ≤ 0.05 CV or 10 μA (ø DxL ≤ 6.3x7) Whichever is greater after 2 minutes					I ≤ 0.04 CV + 4 μA (ø DxL ≥ 5x11) After 5 minutes				
	I : Leakage Current (μA) C : Rated Capacitance (μF) V : Working Voltage (V)									
湧浪電壓 Surge Voltage (25°C)	W.V.	6.3	10	16	25	35	50	63	100	
	S.V.	8	13	20	32	44	63	79	125	
散逸因素 Dissipation Factor (120Hz 25°C) (tan δ)	Add 0.02 per 1000 μF for more than 1000 μF									
	W.V.	6.3	10	16	25	35	50	63	100	
	tan δ	0.24	0.20	0.17	0.15	0.12	0.10	0.10	0.10	
低溫特性 Low Temperature Stability	Impedance ratio at 120Hz									
	Rated Voltage (V)		6.3	10	16	25			35~100	
	-25°C / +25°C		4	3	2	2			2	
	-40°C / +25°C		10	8	6	4			3	
高低負荷特性 Load Life	After 2000 hours (L=7mm 1000 hours) application of WV at +85°C the capacitor shall meet the following limits. The polarity needs to exchange every 250 hours.									
	Capacitance Change	≤ ±20% of initial value								
	Dissipation Factor	≤ 150% of initial specified value								
	Leakage current	≤ initial specified value								
放置特性 Shelf Life	At +85°C no voltage application after 500 hours the capacitor shall meet the following limits.									
	Capacitance Change	≤ ±20% of initial value								
	Dissipation Factor	≤ 200% of initial specified value								
	Leakage current	≤ 200% of initial specified value								

D	4	5	6.3	5	6.3	8	10	13	16
L	=7			≥11					
F	1.5	2.0	2.5	2.0	2.5	3.5	5.0	7.5	
d	0.45		0.5			0.6			



# ALUMINUM ELECTROLYTIC CAPACITOR

小型品  
MINIATURE SIZE

NK SERIES

CASE SIZE & MAX RIPPLE CURRENT

無極性

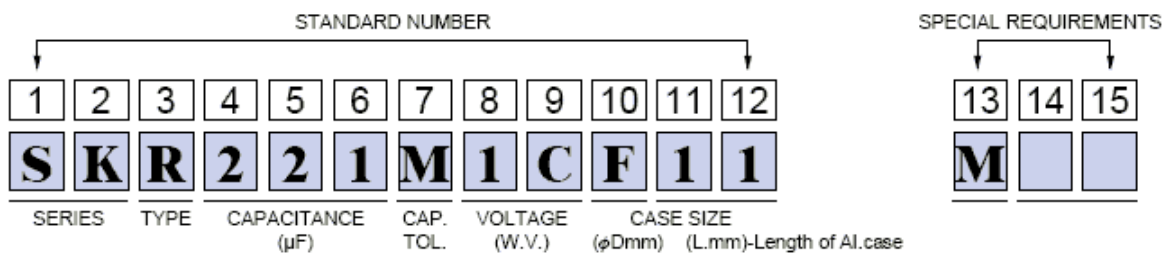
\* NKR \*

Case size : DxL (mm)  
Max ripple current : mA (rms)  
(R.C.) : 85°C 120Hz

μF	WV ITEM	6.3		10		16	
		DxL	R.C.	DxL	R.C.	DxL	R.C.
4.7			→		→	4x7	17
10			→	4x7	23	5x7	28
			→		→	5x11	47
22		5x7	35	5x7	38	6.3x7	47
			→	5x11	65	6.3x11	80
33		5x7	43	6.3x7	55	6.3x7	60
		5x11	70	6.3x11	90	8x11	110
47		6.3x7	60	6.3x7	65		
		6.3x11	100	6.3x11	110	8x11	130
100		8x11	160	8x11	180	10x16	230
220		10x13	260	10x16	310	10x21	380
330		10x16	350	10x21	430	13x21	480
470		10x21	470	13x21	530	13x26	630
1000		13x26	770	16x32	960	16x32	1040
2200		16x32	1250	16x35	1410		

μF	WV ITEM	25		35		50	
		DxL	R.C.	DxL	R.C.	DxL	R.C.
0.1					→	4x7	3
0.22		註：空格部份膠管所標示的電壓以“ ”右方一格表示			→	4x7	4
0.33		All blank voltage on sleeve marking			→	4x7	5
0.47		is the same voltage as “ ” point to.			→	4x7	6
					→	5x11	13
1					→	4x7	9
					→	5x11	19
2.2			→	4x7	12	5x7	16
					→	5x11	29
3.3		4x7	14	5x7	17	5x7	19
					→	6.3x11	40
4.7		5x7	19	5x7	20	6.3x7	26
		5x11	34	5x11	38	6.3x11	48
10		6.3x7	32	6.3x7	34		
		6.3x11	55	6.3x11	65	8x11	80
22		6.3x7	47				
		8x11	95	8x11	110	10x13	130
33		8x11	120	10x13	140	10x16	170
47		10x13	150	10x16	190	10x21	230
100		10x21	280	13x21	310	13x26	380
220		13x21	410	13x26	510	16x32	640
330		16x25	570	16x25	640	16x35	810
470		16x32	760	16x32	850		

μF	WV ITEM	63		100	
		DxL	R.C.	DxL	R.C.
0.47			→	5x11	13
1			→	5x11	19
2.2		5x11	29	6.3x11	33
3.3		6.3x11	40	8x11	46
4.7		6.3x11	48	8x11	55
10		8x11	80	10x16	95
22		10x16	140	13x21	160
33		10x21	190	13x26	220
47		13x21	240	16x25	260
100		16x25	390	16x32	430
220		16x32	640		



Series		Code	Type	Description	CAP (μF)	Code	Tolerance (%)	Code	Voltage (W.V.)	Code	Diameter (φ)	Code	Length (L)	Code	Code	Description
PS	TH	R		Bulk	0.1	OR1	+10	K	4	0G	3	A	11	11	W	Without Sleeve
PT	TX				0.22	R22	-10		6.3	0J	3.8	S	11.5	BB		Customer
CS	WB	P		Taping (Ammo Pack)	0.33	R33	+15	L	10	1A	4	C	12.5	BC	1~9	Assign
CR	FS				0.47	R47	-15		13	1P	5	D	31.5	DB	A~Z	Brand
CT	UK	C	Radial	Lead Cut	1	010	+20	M	16	1C	6	W	35.5	DF		
CH	NC				2.2	2R2	-20		20	1D	6.3	E	100	1H		
CL	LP	F		Lead Forming Cut	3.3	3R3	+100	P	25	1E	7	Y	110	1A		
CF	HP				4.7	4R7	-0		35	1V	8	F	115	1K		
SV	LS	B		Lead Forming Only	10	100	+30	Q	40	1G	10	G	120	1B		
ST	HS				22	220	-10		50	1H	12	H	121	1M		
NT	LT	Y		Lead Snap in	33	330	+20	R	63	1J	12.5	I	130	1C		
SS	HT				47	470	-0		80	1K	13	J	131	1P		
SH	HV	W		Snap in Terminal	100	101	+50	T	100	2A	16	K	140	1D		
SL	KP				220	221	-10		125	2B	18	L	144	1Q		
NS	RP	G	Lug	G Type Terminal	330	331	+75	U	160	2C	20	M	150	1E		
SK					470	471	-10		180	2M	22	N	155	1N		
SM		V		V Type Terminal	1000	102	+20	V	200	2D	25	O	157	1R		
TK					2200	222	-10		250	2E	30	P	160	1F		
TM		S	Screw	Screw Terminal Type	3300	332	+20	H	315	2F	35	Q	170	1G		
NK					4700	472	-5		330	2U	40	R	180	1I		
LK		M	Chip	Surface Mount Type	10000	103	+30	F	350	2V	51	V	190	1J		
WL					22000	223	-0		400	2G	64	1	196	1S		
WG		E	Chip	Horizontal Molded	33000	333	+100	W	450	2W	77	2	215	1L		
TL					47000	473	-10		500	2H	90	3	236	1T		

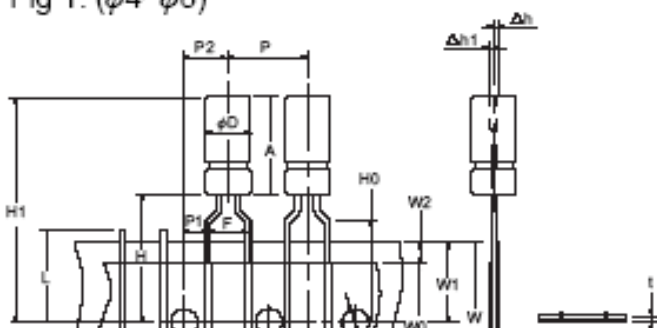
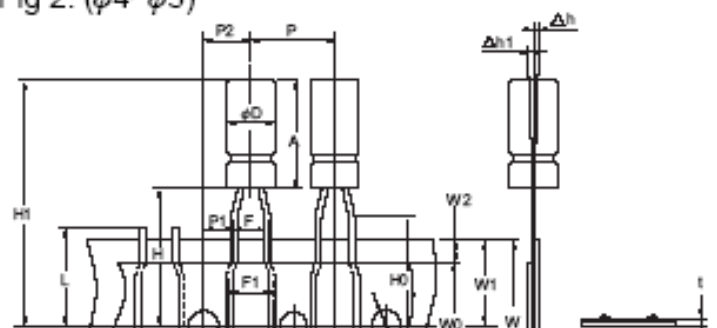
## SPECIFICATION

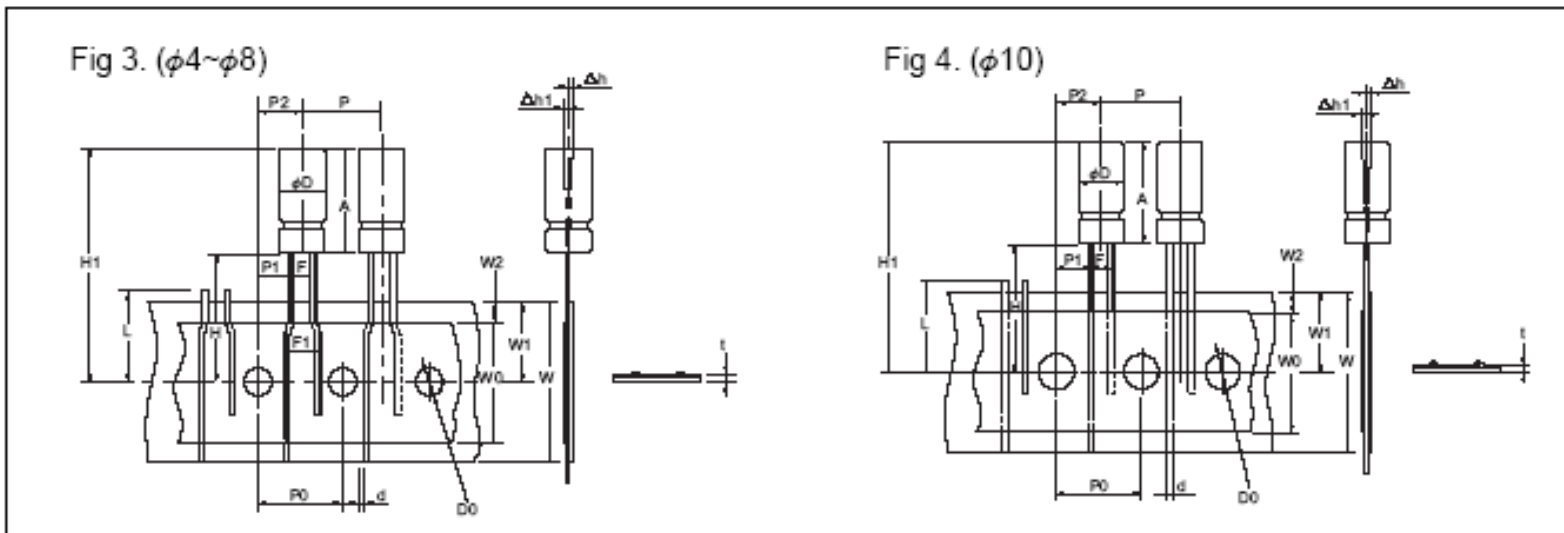
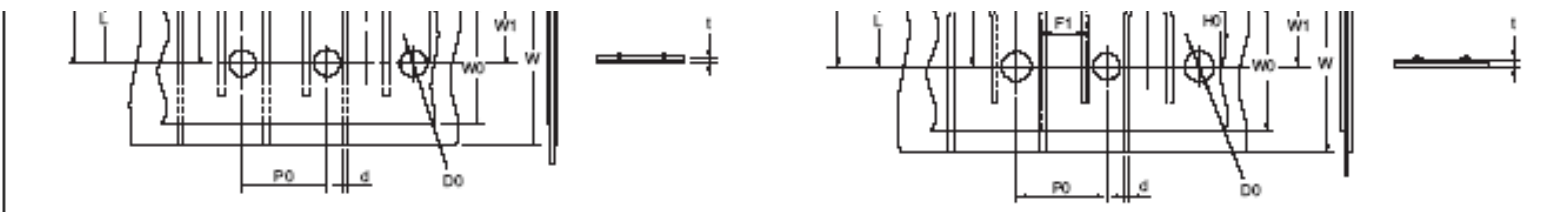
Lead taping is designed for automatic insertion equipment. Capacitor with case size of 18mm x 35.5mm or smaller are available in taping type.

## DIMENSIONS ( $\phi 4 \sim \phi 10$ )

(mm)

Item	Symbol	Case Size														Tolerance	Remark		
		4x5	5x5	6.3x5	8x5	4x7	5x7	6.3x7	8x7	5x11	6.3x11	8x11.5	10x12.5	10x16	10x18			10x20	
Lead wire diameter	d	0.45				0.5				0.6						$\pm 0.05$			
Body height	A	6.0				8.0				12.5	13	14	17.5	19.5	21.5	max			
Intervals of bodies	P	12.7														$\pm 1.0$			
Intervals of punched holes	P <sub>0</sub>	12.7														$\pm 0.2$			
Distance between holes and lead wire	P <sub>1</sub>	3.85														$\pm 0.7$	Fig 1. Fig 4.		
		5.35	5.1	5.1			5.35	5.1	5.1			5.1						Fig 2.	
		5.6	5.35	5.1	5.1	5.6	5.35	5.1	4.6	5.35	5.1	4.6						Fig 3.	
Distance between holes and bodies	P <sub>2</sub>	6.35														$\pm 1.0$			
Distance between lead and lead	F	5.0														$+0.8$ $-0.2$	Fig 1. Fig 4.		
		2.0	2.5	2.5			2.0	2.5	2.5			2.5						Fig 2. F <sub>1</sub> :5.0 <sup>+0.5</sup> <sub>-1.0</sub>	
		1.5	2.0	2.5	2.5	1.5	2.0	2.5	3.5	2.0	2.5	3.5						Fig 3. F <sub>1</sub> :5.0 <sup>+0.5</sup> <sub>-1.0</sub>	
Base tape width	W	18.0														$\pm 0.5$			
Adhesive tape width	W <sub>0</sub>	12.5														min			
Deviation between holes and base tape	W <sub>1</sub>	9.0														$\pm 0.5$			
Deviation between adhesive and base tape	W <sub>2</sub>	1.5														max			
Distance between body bottom and tape center	H	17.5								18.5	20.0	18.5				$\pm 0.5$	Fig 1. Fig 4.		
		17.5								18.5	18.5						Fig 2. Fig 3.		
Lead wire clinched height	H <sub>0</sub>	16.0														$\pm 0.5$			
Distance between body top and tape center	H <sub>1</sub>	24.5				27.5				32.5				33.0	36.0	38.0	41.0	max	
Punched hole diameter	D <sub>0</sub>	4.0														$\pm 0.3$			
Length of not good lead slit	L	11.0														max			
Base and adhesive tape thickness	t	0.6														$\pm 0.3$			
Deviation of body alignment	$\Delta h$	0														$\pm 2.0$			
Deviation of body alignment	$\Delta h_1$	0														$\pm 1.0$			

Fig 1. ( $\phi 4 \sim \phi 8$ )Fig 2. ( $\phi 4 \sim \phi 5$ )



**DIMENSIONS (φ13~φ18)**

(mm)

Item	Symbol	Case Size							Tolerance	Remark
		12.5 x 20	12.5 x 25	12.5 x 30	16 x 25	16 x 31.5	16 x 35.5	18 x 35.5		
Lead wire diameter	d	0.6			0.8				±0.05	
Body height	A	21.5	26.5	31.5	26.5	33	37.0	37.0	max	
Intervals of bodies	P	15.0			30.0				±1.0	Fig 5. Fig 6.
Intervals of punched holes	P <sub>0</sub>	15.0							±0.2	
Distance between holes and lead wire	P <sub>1</sub>	5.0			3.75				±0.7	
Distance between holes and bodies	P <sub>2</sub>	7.5							±1.0	
Distance between lead and lead	F	5.0			7.5				+0.8 -0.2	
Base tape width	W	18.0							±0.5	
Adhesive tape width	W <sub>0</sub>	15.0							min	
Deviation between holes and base tape	W <sub>1</sub>	9.0							±0.5	
Deviation between adhesive and base tape	W <sub>2</sub>	1.5							max	
Distance between body bottom and tape center	H	16.5			18.5				±0.5	Fig 5. Fig 6.
Distance between body top and tape center	H <sub>1</sub>	40.5	45.5	50.5	46.5	53.5	56.5	56.5	max	
Punched hole diameter	D <sub>0</sub>	4.0							±0.3	
Length of not good lead slit	L	11.0							max	
Base and adhesive tape thickness	t	0.6							±0.3	
Deviation of body alignment	Δh	0							±2.0	

Deviation of body alignment	$\Delta h$	0	$\pm 2.0$
Deviation of body alignment	$\Delta h1$	0	$\pm 1.0$

Fig 5. ( $\phi 13$ )

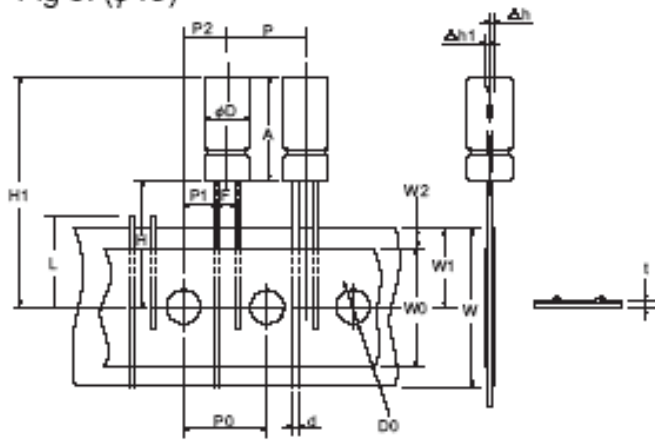
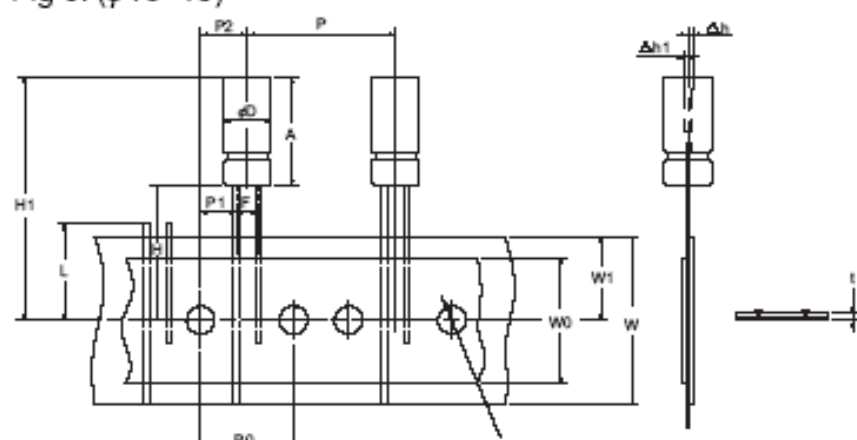


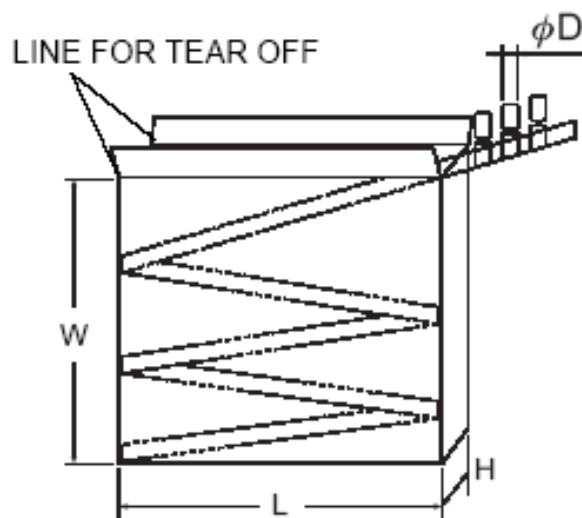
Fig 6. ( $\phi 16\sim 18$ )



## PACKING (SYMBOL : P)

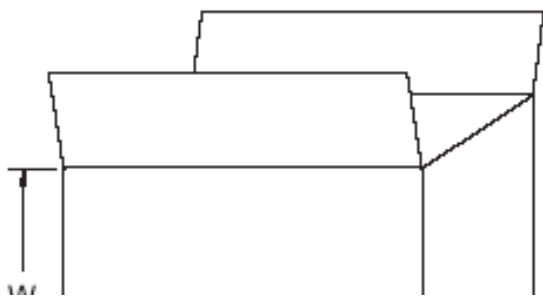
Available for various automatic equipment. Choosing the ordinal the polarity of capacitor's lead depends on customer's request.

## INNER BOX :

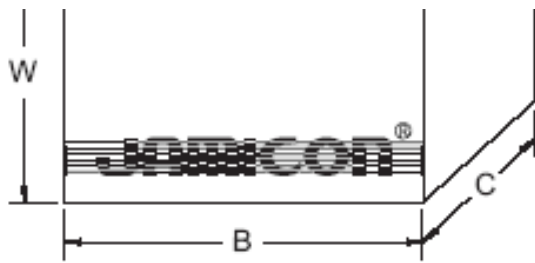


$\phi D$ (mm)	$W \pm 5$ (mm)	$L \pm 5$ (mm)	$H \pm 5$ (mm)	Quantity(Pcs)
4	175	335	45	2,000
5	235	335	50	2,000
6.3	280	335	50	2,000
8	235	335	50	1,000
10(L $\leq$ 16)	295	320	50	800
10(L $\leq$ 20)	295	320	55	800
12.5(L $\leq$ 20)	295	320	55	500
12.5(L $\leq$ 25)	295	320	60	500
12.5(L $\leq$ 30)	295	320	70	500
16(L $\leq$ 25)	295	320	60	300
16(L $\leq$ 31.5)	295	320	70	300
16(L $\leq$ 35.5)	300	320	70	300
18(L $\leq$ 35.5)	300	320	70	243

## PACKING CARTON :



$\phi D$ (mm)	$A \pm 5$ (mm)	$B \pm 5$ (mm)	$C \pm 5$ (mm)	Inner Box	Quantity(Pcs)
4	240	355	185	5	10,000
5	270	355	250	5	10,000
6.3	270	355	300	5	10,000
8	270	355	250	5	5,000
10(L $\leq$ 16)	290	345	320	5	4,000
10(L $\leq$ 20)	315	345	320	5	4,000
12.5(L $\leq$ 20)	315	345	320	4	2,000
12.5(L $\leq$ 25)	340	345	320	4	2,000

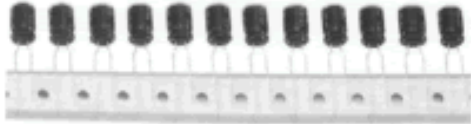
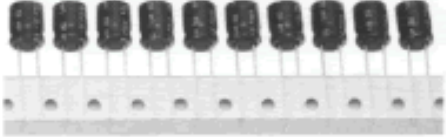


12.5(L≤20)	315	345	320	4	2,000
12.5(L≤25)	340	345	320	4	2,000
12.5(L≤30)	370	345	320	4	2,000
16(L≤25)	340	345	320	4	1,200
16(L≤31.5)	370	345	320	4	1,200
16(L≤35.5)	385	345	320	4	1,200
18(L≤35.5)	385	345	320	4	972

## Lead Style & taping

Item List		Code	Lead Diameter (mm)	Case Size DxL(mm)	Range	Dimensions
Lead Style	Lead Cut	C	0.5~0.8	5 x 11 } 18 x 40	$\phi 5 \sim \phi 18$	
	Lead Forming Cut	F	0.5~0.6	5 x 11 } 8 x 11.5	$\phi 5 \sim \phi 8$	
	Snap-in	Y	0.5~0.8	5 x 11	$\phi 5 \sim \phi 8$	
18 x 40				$\phi 10 \sim \phi 18$		
						$\phi 4 \sim \phi 8$ : See Fig 1. (page 8)



<p>Lead Taping</p>	<p>P</p>	<p>0.45~0.8</p>	<p>4 x 5  <math>\}</math>                      18 x 35.5</p>	<p><math>\leq \phi 18</math></p>	<p><math>\phi 4 \sim \phi 8</math> : See Fig 1. (page 8)</p>  <p><math>\phi 10</math> : See Fig 4. (page 9)</p> 
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