规格書

SPECIFICATION

Customer：_____

Part Name: E-CAP

SPEC : RJ Series

Part NO. : ALL

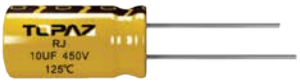
Date : 2017-11-22

CUSTOMER SIGN		

TOPAZCON	
DRAWING	RATIFY
黃峰	陳慶

TOPAZCON 黄宝石
专注耐高温型长寿命电解电容

RJ Series

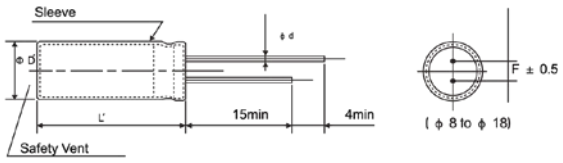


- Life time,+125 ℃ 2,000–4,000 hours
- Long life and high stability
- Suitable for electronic ballast, electronic energy saving lamp
- RoHS Compliant

SPECIFICATIONS

Items	Characteristics										
Temperature Range	–25 to +125 ℃ (10V to 450Vdc)										
Rated Voltage Range	10 to 450Vdc										
Capacitance Tolerance	± 20%(M)										(20 ℃ 120Hz)
Leakage Current	10 ~ 400Vdc: 1 ≤ 0.01CV or 3 μ A; 450Vdc: 1 ≤ 0.03CV +10 μ A; I: Leakage Current(μ A), C:Nominal capacitance (μ F), V:Rated Voltage(V)										(20 ℃ ,2minutes)
Dissipation Factor (tan §)	Rated Voltage(Vdc)	10	16	25	35	50	63	100	160–250	350–450	(20 ℃ 120Hz)
	tan § (Max)	0.2	0.16	0.14	0.12	0.10	0.10	0.08	0.15	0.20	
Temperature Characteristics (Max.Impedance Ratio)	Rate Voltage(Vdc)	10	16	25	35	50	63	100	160–250	350–450	(120Hz)
	Z(–25 ℃)/Z(+20 ℃)	4	3	2	2	2	2	2	3	6	
	Z(–40 ℃)/Z(+20 ℃)	6	4	3	3	3	3	3	6	–	
Endurance	After application of the rated DC voltage at 125 ℃ 2000–400hours measuring the parameters when the capacitors are restored to 20 ℃ the capacitors shall meet the requirements as below										
	Capacitance Change: ≤ ± 20% of the initial value										
	D.F. (tan §): ≤ 200% of the initial specified value										
	Leakage Current: ≤ The initial specified value										
	Φ D: =8 → 2000; =10 → 3000; > 10 → 4000 (Life time)										
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20 ℃ after exposing them for 1.000 hours at 125 ℃ without voltage application										
	Capacitance Change: ≤ ± 20% of the initial value										
	D.F. (tan §): ≤ 200% of the initial specified value										
	Leakage Current: ≤ 200% The initial specified value										

DIMENSIONS[mm]



Φ D	8		10	12.5	16	18
Φ d	0.5	0.6	0.6	0.6	0.8	0.8
F	3.5		5.0	5.0	7.5	7.5
Φ D'	Φ D+0.5max					
L'	L+2max					

RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

WV (Vdc) \ Freq (Hz)	50(60)	120	1k	10k	100k
10–100	0.20	0.45	0.70	0.80	1.00
160–450	0.25	0.50	0.80	0.90	1.00

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WV (Vdc)	Cap (μ F)	Case Size φ D × L(mm)	tan §	Ripple current (mArms/125 ℃ ,100kHZ)
10(1A)	220	8 × 12	0.20	340
	330	8 × 12	0.20	360
	470	10 × 12	0.20	620
	1000	10 × 20	0.20	960
	2200	12.5 × 25	0.22	1430
	3300	16 × 25	0.24	1520
	4700	16 × 30	0.26	1850
16(1C)	100	8 × 12	0.16	340
	220	10 × 12	0.16	600
	330	10 × 12	0.16	620
	470	10 × 16	0.16	790
	1000	12.5 × 20	0.16	960
	2200	16 × 25	0.18	1430
	3300	16 × 30	0.20	1850
25(1E)	100	8 × 12	0.14	340
	220	10 × 12	0.14	580
	330	10 × 16	0.14	620
	470	10 × 20	0.14	900
	1000	12.5 × 25	0.14	1300
	2200	16 × 30	0.16	1900
	3300	16 × 35	0.18	2100
35(1V)	100	8 × 12	0.12	340
	220	10 × 16	0.12	620
	330	10 × 20	0.12	800
	470	12.5 × 20	0.12	960
	1000	16 × 25	0.12	1430
	2200	16 × 35	0.14	2550
	3300	18 × 35	0.16	2800

WV (Vdc)	Cap (μ F)	Case Size φ D × L(mm)	tan §	Ripple current (mArms/125 ℃ ,100kHZ)
50(1H)	10	8 × 12	0.10	200
	22	8 × 12	0.10	260
	33	8 × 12	0.10	300
	47	8 × 12	0.10	340
	100	10 × 12	0.10	520
	220	10 × 20	0.10	890
	330	12.5 × 20	0.10	1000
	470	12.5 × 25	0.10	1200
	1000	16 × 30	0.10	2180
	2200	18 × 40	0.12	2800
63(1J)	33	8 × 12	0.10	250
	47	10 × 12	0.10	400
	100	10 × 16	0.10	450
	220	12.5 × 20	0.10	820
	330	12.5 × 25	0.10	1000
	470	16 × 25	0.10	1500
	1000	16 × 30	0.10	1850
	2200	16 × 40	0.12	2350
100(2A)	4.7	8 × 12	0.08	100
	10	8 × 12	0.08	200
	22	8 × 12	0.08	220
	33	10 × 12	0.08	260
	47	10 × 16	0.08	330
	100	12.5 × 20	0.08	670
	220	16 × 25	0.08	1100
	330	16 × 31	0.08	1300
	470	18 × 30	0.08	1600

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WV (Vdc)	Cap (μF)	Size φD × L(mm)	tan §	Ripple current (mArms/105℃,100kHZ)
160V(2C)	3.3	8 × 12	0.15	88
	4.7	8 × 12	0.15	96
	5.6	8 × 16	0.15	102
	6.8	8 × 16	0.15	110
	8.2	8 × 16	0.15	180
	10	8 × 16	0.15	250
	15	8 × 20	0.15	340
	22	10 × 20	0.15	500
	33	10 × 20	0.15	525
		12.5 × 20	0.15	550
	47	12.5 × 20	0.15	660
		12.5 × 25	0.15	695
	68	12.5 × 25	0.15	760
		16 × 20	0.15	760
	100	16 × 25	0.15	1120
		18 × 20	0.15	1120
	150	16 × 30	0.15	1360
		18 × 25	0.15	1360
	220	18 × 25	0.15	1400
200V(2D)	2.8	8 × 12	0.15	80
	3.3	8 × 12	0.15	92
	4.7	8 × 12	0.15	100
	5.6	8 × 16	0.15	108
	6.8	8 × 16	0.15	118
	8.2	10 × 16	0.15	180
	10	10 × 16	0.15	250
	15	10 × 20	0.15	358
	22	10 × 20	0.15	500
		12.5 × 20	0.15	525
	33	12.5 × 20	0.15	600
	47	12.5 × 20	0.15	660
		12.5 × 25	0.15	695
	68	16 × 20	0.15	760
		16 × 25	0.15	800
	100	16 × 30	0.15	1180
		18 × 20	0.15	1120
	150	18 × 30	0.15	1430
	220	18 × 35	0.15	1700

WV (Vdc)	Cap (μF)	Size φD × L(mm)	tan §	Ripple current (mArms/105℃,100kHZ)
250V(2E)	2.2	8 × 12	0.15	80
	2.8	8 × 12	0.15	90
	3.3	8 × 12	0.15	100
	4.7	8 × 16	0.15	120
	5.6	8 × 16	0.15	140
	6.8	8 × 16	0.15	160
	8.2	10 × 16	0.15	180
	10	10 × 16	0.15	265
		10 × 20	0.15	280
	15	10 × 20	0.15	380
	22	12.5 × 20	0.15	525
	33	12.5 × 20	0.15	610
		12.5 × 25	0.15	630
	47	12.5 × 25	0.15	720
		16 × 25	0.15	760
	68	16 × 30	0.15	850
		18 × 20	0.15	850
	100	16 × 30	0.15	1200
		18 × 30	0.15	1260
	150	18 × 35	0.15	1500
350V(2V)	1	8 × 12	0.20	64
	1.5	8 × 12	0.20	70
	1.8	8 × 12	0.20	78
	2.2	8 × 16	0.20	88
	2.8	8 × 16	0.20	96
	3.3	8 × 16	0.20	110
	4.7	8 × 20	0.20	130
	5.6	8 × 20	0.20	180
	6.8	10 × 16	0.20	220
		10 × 20	0.20	232
	8.2	10 × 20	0.20	238
		12.5 × 20	0.20	245
	10	10 × 20	0.20	280
		12.5 × 20	0.20	294
	15	12.5 × 20	0.20	400
		12.5 × 25	0.20	420
	22	12.5 × 20	0.20	525
		12.5 × 25	0.20	540
	33	16 × 20	0.20	630
		16 × 25	0.20	650
	47	16 × 25	0.20	760
		18 × 20	0.20	760
	68	16 × 30	0.20	850
		18 × 25	0.20	850
	100	18 × 35	0.20	1300

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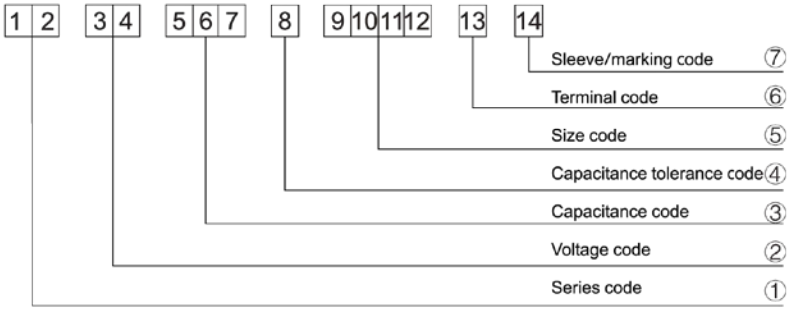
WV (Vdc)	Cap (μ F)	Size ϕ D × L(mm)	tan §	Ripple current (mArms/105 ℃ ,100kHZ)
400(2G)	1	8 × 16	0.20	72
	1.5	8 × 16	0.20	84
	1.8	8 × 16	0.20	85
	2.2	10 × 16	0.20	92
	2.8	10 × 16	0.20	100
	3.3	10 × 16	0.20	110
	4.7	10 × 20	0.20	130
	5.6	12.5 × 20	0.20	180
	6.8	10 × 16	0.20	220
		12.5 × 20	0.20	232
	8.2	12.5 × 20	0.20	250
	10	10 × 20	0.20	280
		12.5 × 20	0.20	294
	15	12.5 × 25	0.20	420
	22	16 × 25	0.20	560
	33	16 × 30	0.20	674
	47	18 × 30	0.20	884
	68	18 × 40	0.20	1100
	100	18 × 50	0.20	1470

WV (Vdc)	Cap (μ F)	Size ϕ D × L(mm)	tan §	Ripple current (mArms/105 ℃ ,100kHZ)
450(2W)	1.5	8 × 16	0.20	88
	1.8	8 × 16	0.20	90
	2.2	10 × 16	0.20	96
	2.8	10 × 16	0.20	100
	3.3	10 × 16	0.20	110
	4.7	10 × 20	0.20	130
	5.6	12.5 × 20	0.20	180
	6.8	12.5 × 20	0.20	232
	8.2	12.5 × 20	0.20	262
	10	12.5 × 20	0.20	320
	15	12.5 × 25	0.20	420
	22	16 × 25	0.20	560
		18 × 20	0.20	560
	33	16 × 30	0.20	700
		18 × 25	0.20	700
	47	18 × 30	0.20	880
	68	18 × 40	0.20	1000
	100	18 × 50	0.20	1470

Part Number System



① Series code

Series name	Code	
	1	2
SM	S	M
SS	S	S
SH	S	H
SP	S	P
NP	N	P
LL	L	L
RD	R	D
RE	R	E
RT	R	T
RF	R	F
RG	R	G
RJ	R	J
RR	R	R
LF	L	F
LJ	L	J
LR	L	R
LG	L	G

② Voltage code

WV (Vdc)	Code	
	3	4
4	0	G
6.3	0	J
10	1	A
16	1	C
25	1	E
35	1	V
50	1	H
63	1	J
80	1	K
100	2	A
160	2	C
200	2	D
250	2	E
350	2	V
400	2	G
450	2	W
500	2	H

③ Capacitance code

Cap (uF)	Code		
	5	6	7
0.1	R	1	0
0.22	R	2	2
0.33	R	3	3
0.47	R	4	7
1	1	R	0
2.2	2	R	2
3.3	3	R	3
4.7	4	R	7
6.8	6	R	8
10	1	0	0
22	2	2	0
33	3	3	0
47	4	7	0
100	1	0	1
220	2	2	1
330	3	3	1
470	4	7	1
560	5	6	1
1000	1	0	2
1500	1	5	2
2200	2	2	2
3300	3	3	2
4700	4	7	2
6800	6	8	2
10000	1	0	3
15000	1	5	3

④ Capacitance tolerance code

Tol. (%)	Code
	8
−5 ~ +5	J
−10 ~ +10	K
−20 ~ +20	M

⑤ Size code

ΦD × L (mm)	Code			
	9	10	11	12
3 × 5	0	3	0	5
4 × 5	0	4	0	5
5 × 5	0	5	0	5
6.3 × 5	0	6	0	5
4 × 7	0	4	0	7
5 × 7	0	5	0	7
6.3 × 7	0	6	0	7
8 × 7	0	8	0	7
5 × 11	0	5	1	1
6.3 × 11	0	6	1	1
8 × 12	0	8	1	2
8 × 16	0	8	1	6
10 × 12	1	0	1	2
10 × 16	1	0	1	6
8 × 20	0	8	2	0
10 × 20	1	0	2	0
13 × 20	1	3	2	0
13 × 25	1	3	2	5
16 × 25	1	6	2	5
16 × 32	1	6	3	2
16 × 36	1	6	3	6
18 × 32	1	8	3	2
18 × 36	1	8	3	6
18 × 40	1	8	4	0

⑦ Sleeve/Marking code

Sleeve/Marking	Code
	14
PET	T
Black	B
Yellow	Y
Ink Green	I
Pea Green	P
Orange	O

⑥ Terminal code

Specification	Code
	13
Bulk packing	0
Φ4–8Taping	T1
	T2
	T2
Φ10–18Taping	T3
Lesd Cut	F
	C
	R
	L
	M
	S
	B
	K

Lead Forming

Taping Specifications

Fig.1 Code:T1

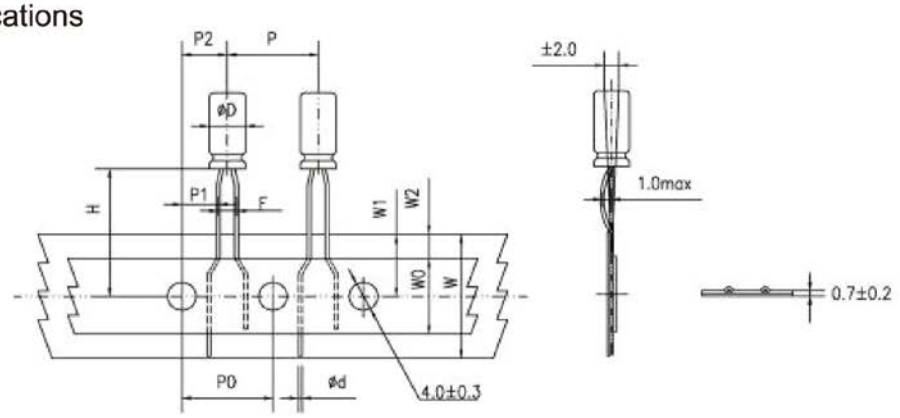


Fig.2Code:T2

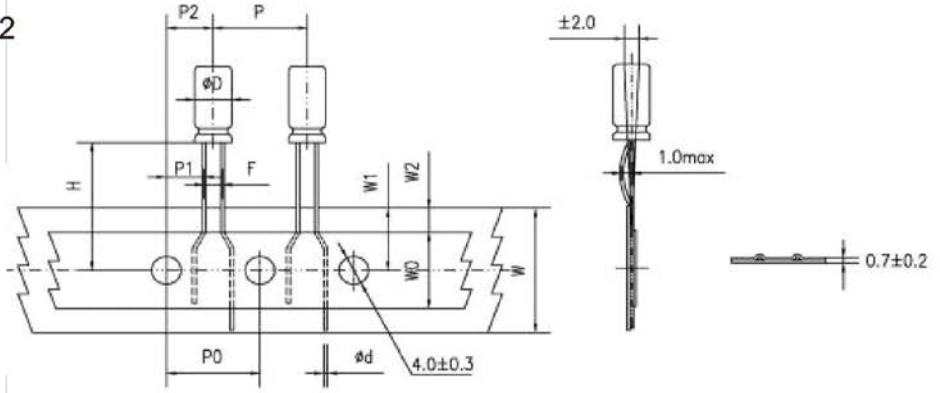


Fig.3 Code:T2

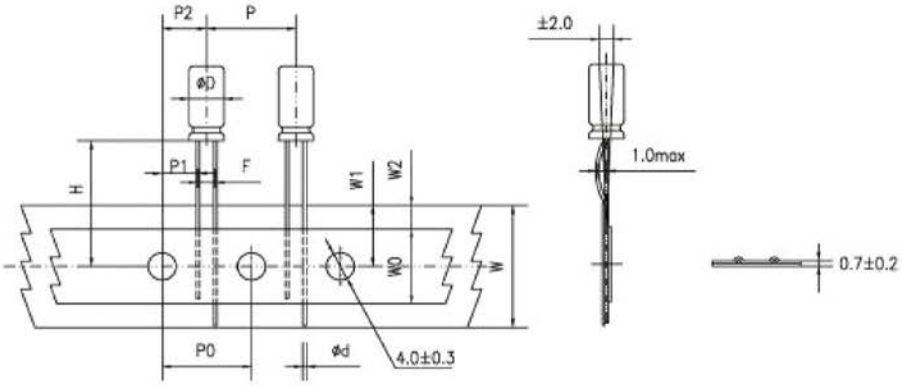
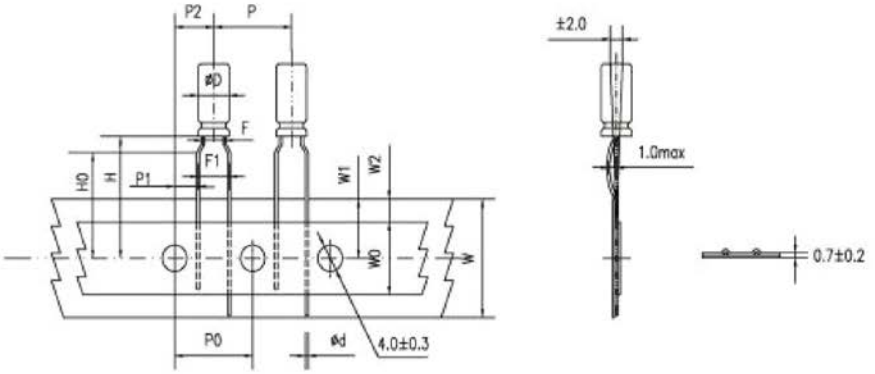


Fig.4 Code:T3



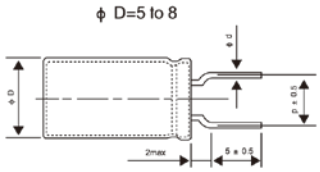
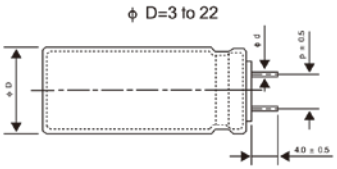
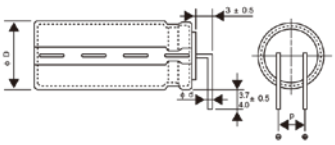
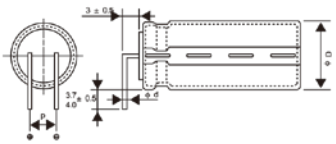
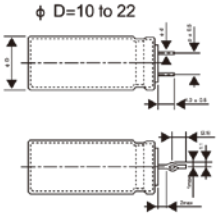
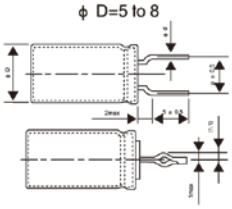
Specification Fig.1 & Fig.2 & Fig.3

Iterms	Symbol	CASE SIZE										Tolerance
		4 × 5 4 × 7		5 × 5 5 × 7		5x11	6.3x5	6.3x7 6.3x9	6.3x11 6.3x12	8x5/7 8x9/11 8x11.5 8x12	8x16 8x20	10x9/12 10x12.5 10x13/16 10x20/25	
Pin Code		T1	T2	T1	T2	T1	T2	T2	T2	T2	T2	T2	
Lead wire diameter	ϕd	0.45		0.45		0.5	0.45	0.5	0.5	0.45/0.5	0.6	0.6	± 0.05
Pitch of body	P	12.7		12.7		12.7	12.7	12.7	12.7	12.7	12.7	12.7	± 1.0
Feed hole pitch	PO	12.7		12.7		12.7	12.7	12.7	12.7	12.7	12.7	12.7	± 0.2
Hole center to lead distance	P1	5.1	5.6	5.1	5.35	5.1	5.35	5.1	5.1	5.1	4.6	4.6	3.85	± 0.7
Feed hole center to body center distance	P2	6.35		6.35		6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	± 1.0
Lead to lead distance	F	2.5	1.5	2.5	2.0	2.5	2.0	2.5	2.5	2.5	3.5	3.5	5.0	± 0.5
Height of body from tape center	H	18.5		18.5		18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	± 0.75
Base tape width	W	18.0		18.0		18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	± 0.5
Adhesive tape width	WO	11.0		11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	min
Hole positron	W1	9.0		9.0		9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	+0.75 −0.5
Hole down tape position	W2	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	max

Specification Fig.4

Iterms	Symbol	CASE SIZE									Tolerance
		4 × 5 4 × 7	5 × 5	5 × 7	5 × 11	6.3 × 5	6.3 × 7 6.3 × 9	6.3 × 11 6.3 × 12	8 × 5/7 8 × 9/11 8 × 11.5/12	8 × 16 8 × 20	
Pin Code		T3	T3	T3	T3	T3	T3	T3	T3	T3	
Lead wire diameter	ϕd	0.45	0.45	0.45	0.5	0.45	0.5	0.5	0.45/0.5	0.6	± 0.05
Pitch of body	P	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	± 1.0
Feed hole pitch	PO	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	± 0.2
Hole center to lead distance	P1	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	± 0.7
Feed hole center to body center distance	P2	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	± 1.0
Lead to lead distance	F	1.5	2.0	2.0	2.0	2.5	2.5	2.5	3.5	3.5	± 0.5
Lead to lead distance	F1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	+0.8 −0.2
Height of body from tape center	H	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	± 0.75
Lead wire clinch height	HO	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	± 0.5
Base tape width	W	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	± 0.5
Adhesive tape width	WO	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	min
Hole position	W1	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	+0.75 −0.5
Hole down tape position	W2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	max

Lead Forming & Cut:

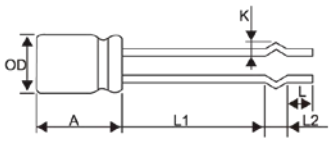
Lead comfiguration:F	Lead comfiguration:C
ϕ D=5 to 8 	ϕ D=3 to 22 
Lead comfiguration:R	**Lead comfiguration:L**
ϕ D=10 to 22 	ϕ D=10 to 22 
Lead comfiguration:M	**Lead comfiguration:S**
ϕ D=10 to 22 	ϕ D=5 to 8 

LEAD SPACING&RECOMMENDED PCB DIMENSIONS

(mm)

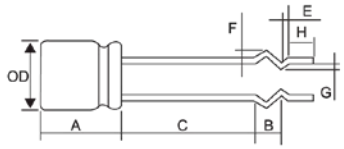
ϕD / Dimensionc	ϕd	p	PC Board		Lead Configuration
			Hole diame ter	Thickness	
5	0.5	5.0	0.8	1.6	F C S
6.3	0.5	5.0	0.8		
8	0.5/0.6	5.0	1.0		
10	0.6	5.0	1.0	1.6	C M R L
12.5	0.6	5.0	1.0		
16	0.8	7.5	1.2		
18	0.8	7.5	1.2		
20	0.8	7.5	1.2		
22	0.8	10.0	1.2		

Lead comfiguration:B



⌀D	L1	L2	K	A	L
5	17.5–19.5	2.6	1.9	10.0–15.0	3.0–5.0
6.3	17.5–19.5	2.6	1.9	10.0–16.0	
8	12.0–14.0	2.5	1.3	10.0–20.0	
8	13.5–15.5	2.5	1.5		
8	13.0–15.0	3.0	1.5		
8	19.5–21.5	3.0	1.5		
8	21.0–23.0	3.0	1.5		
10	7.5–9.5	2.5	1.7	10.0–25.0	
10	17.0–19.0	2.5	1.7		
10	10.5–12.5	2.5	1.5		
10	10.0–12.0	3.0	1.5		
10	13.0–15.0	3.0	1.5		
10	18.0–20.0	3.0	1.5		
10	21.0–23.0	3.0	1.5		
	± 1.0	± 0.5	0.3	± 1.0	± 1.0

Lead comfiguration:K



⌀D	C	B	E	F	G	A	H
8	13.5–15.5	3	1.2	1.8	0.8	10–20	3.0–5.0
10	18.5–20.5	3	1.2	1.8	1	10–25	
10	19.0–21.0	3	1.5	1.4	0.5		
	± 1.0	± 0.5	± 0.3	± 0.3	± 0.3	± 1.0	± 1.0