

规格書

SPECIFICATION

Customer : _____

Part Name: _____ **E-CAP** _____

SPEC : _____ **RF Series** _____

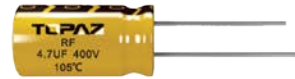
Part NO. : _____ **ALL** _____

Date : _____ **2017-11-22** _____

CUSTOMER SIGN		

TOPAZCON	
DRAWING	RATIFY
黃峰	陳慶

RF Series

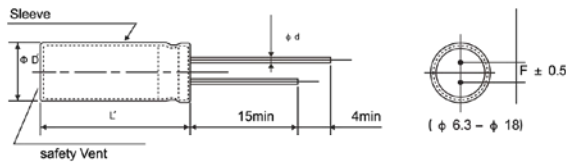


- Longer life, better performance, cost effective
- Life time: +105 °C 6,000 hours
- Suitable for electronic ballast; electronic energy saving lamp
- RoHS Compliant

● SPECIFICATIONS

Items	Characteristics							
Temperature Range	-25 ~ +105 °C (160 ~ 400Vdc)			-25 ~ +105 °C (450Vdc)				
Rated Voltage Range	160 to 450Vdc							
Capacitance Tolerance	± 20%(M) (at 20 °C ,120Hz)							
Leakage Current	160 ~ 400Vdc	450Vdc		I:leakage current(μ A),C:Nominal capacitance (μ F) V:Rated voltage(V)				
	1 ≤ 0.02CV +10 μ A	1 ≤ 0.03CV +10 μ A		(20 °C ,2minutes)				
Dissipation Factor (tan δ)	Rated voltage(Vdc)	160	200	250	350	400	450	
	tan δ (Max)	0.15	0.15	0.15	0.20	0.20	0.20	
Temperature Characteristics (Max.Impedance Ratio)	Rate Voltage(Vcd)	160	200	250	350	400	450	
	Z[-25 °C]/Z[+20 °C]	3	3	3	5	5	6	
	Z[-40 °C]/Z[+20 °C]	6	6	6	6	6	-	
Endurance	After application of DC voltage with rated ripple current (the voltage peak is not more than rated voltage) at 105 °C 6,000 hours, measuring the parameters when the capacitors are restored to 20 °C ,the capacitors shall meet the requirements as below							
	Capacitance change	≤ ± 20% of the initial value						
	D.F. (tan δ)	≤ 200% of the initial specified value						
	Leakage current	≤ The initial specified value						
Shelf Life	The following specification shall be satisfied when the capacitor are restored to 20 °C after exposing them for 1,000hours at 105 °C without voltage application.							
	Capacitance change	≤ ± 20% of the initial value						
	D.F. (tan δ)	≤ 200% of the initial specified value						
	Leakage current	≤ 200% of the initial specified value						

● DIMENSIONS[MM]



Φ D	6.3	8	10	12.5	16	18
Φ d	0.5	0.5	0.6	0.6	0.8	0.8
F	2.5	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)	120	1k	10k	100k
160-450		0.50	0.80	0.90	1.00

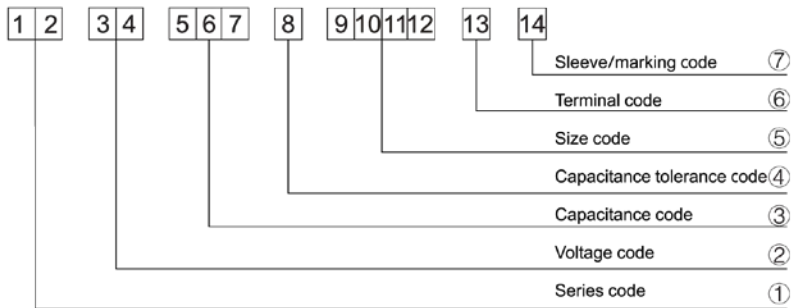
RF Series

● STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size (DxL,mm)	tan δ	Ripple current (mA _{rms} /105 °C, 100kHz)
160V(2C)	1.0	6.3 × 12	0.15	40
	1.5	6.3 × 12	0.15	50
	1.8	6.3 × 12	0.15	56
	2.2	6.3 × 12	0.15	60
	2.8	6.3 × 12	0.15	68
	3.3	6.3 × 12	0.15	72
	4.7	8 × 12	0.15	80
	5.6	8 × 12	0.15	84
	6.8	8 × 12	0.15	96
	8.2	8 × 12	0.15	110
	10	8 × 12	0.15	206
	15	8 × 16	0.15	250
	22	8 × 20	0.15	400
	33	10 × 20	0.15	450
	47	10 × 20	0.15	500
200V(2D)	68	12.5 × 20	0.15	630
	100	12.5 × 25	0.15	720
	150	16 × 25	0.15	850
	1.0	6.3 × 12	0.15	42
	1.5	6.3 × 12	0.15	54
	1.8	6.3 × 12	0.15	60
	2.2	6.3 × 12	0.15	68
	2.8	6.3 × 12	0.15	71
	3.3	6.3 × 12	0.15	80
	4.7	8 × 12	0.15	95
	5.6	8 × 12	0.15	98
	6.8	8 × 12	0.15	110
	8.2	8 × 16	0.15	120
	10	8 × 16	0.15	210
	15	8 × 20	0.15	268
22	10 × 16	0.15	400	
33	10 × 20	0.15	450	
47	12.5 × 20	0.15	610	
68	12.5 × 25	0.15	700	
100	16 × 25	0.15	800	
150	16 × 30	0.15	900	
250V(2E)	1.0	6.3 × 12	0.15	46
	1.5	6.3 × 12	0.15	58
	1.8	6.3 × 12	0.15	63
	2.2	6.3 × 12	0.15	75
	2.8	6.3 × 12	0.15	78
	3.3	6.3 × 12	0.15	83
	4.7	8 × 12	0.15	102
	6.6	8 × 12	0.15	105
	6.8	8 × 16	0.15	115
	8.2	8 × 16	0.15	120
	10	8 × 16	0.15	210
	15	8 × 20	0.15	310
	22	10 × 16	0.15	400
	33	12.5 × 20	0.15	530
	47	12.5 × 20	0.15	627
68	16 × 25	0.15	720	
100	16 × 30	0.15	880	
150	16 × 35	0.15	1030	

WV (Vdc)	Cap (μF)	Size (DxL,mm)	tan δ	Ripple current (mA _{rms} /105 °C, 100kHz)
350V(2V)	1.0	6.3 × 12	0.20	65
	1.5	6.3 × 12	0.20	72
	1.8	6.3 × 12	0.20	80
	2.2	6.3 × 12	0.20	90
	2.8	8 × 12	0.20	106
	3.3	8 × 12	0.20	110
	4.7	8 × 16	0.20	120
	5.6	8 × 16	0.20	150
	6.8	8 × 20	0.20	170
	8.2	8 × 20	0.20	189
	10	8 × 20	0.20	230
	15	10 × 20	0.20	310
	22	12.5 × 20	0.20	430
	33	12.5 × 25	0.20	535
	47	16 × 20	0.20	650
400V(2G)	68	18 × 20	0.20	726
	82	18 × 25	0.20	910
	1.0	6.3 × 12	0.20	75
	1.5	8 × 12	0.20	80
	1.8	8 × 12	0.20	90
	2.2	8 × 12	0.20	105
	2.8	8 × 16	0.20	109
	3.3	8 × 16	0.20	112
	4.7	6.3 × 9	0.20	120
	5.6	8 × 20	0.20	155
	6.8	8 × 20	0.20	170
	8.2	10 × 20	0.20	230
	10	10 × 20	0.20	280
	12	10 × 20	0.20	290
	15	12.5 × 20	0.20	320
22	12.5 × 25	0.20	450	
33	16 × 25	0.20	550	
47	16 × 30	0.20	670	
56	16 × 35	0.20	720	
68	18 × 30	0.20	800	
100	18 × 40	0.20	950	
450V(2W)	1.0	8 × 12	0.20	72
	1.5	8 × 12	0.20	75
	1.8	8 × 12	0.20	90
	2.2	8 × 16	0.20	115
	2.8	8 × 16	0.20	120
	3.3	8 × 16	0.20	128
	4.7	8 × 20	0.20	140
	5.6	10 × 16	0.20	158
	6.8	10 × 20	0.20	200
	8.2	10 × 20	0.20	230
	10	10 × 20	0.20	250
	15	12.5 × 20	0.20	350
	22	12.5 × 25	0.20	450
	33	16 × 25	0.20	550
	47	16 × 35	0.20	700
68	18 × 30	0.20	810	
100	18 × 40	0.20	950	

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 (V _{dc})	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
Lead Cut	F
	C
	R
	L
	M
	S
	B
	K

Lead Forming

Taping Specifications

Fig.1 Code:T1

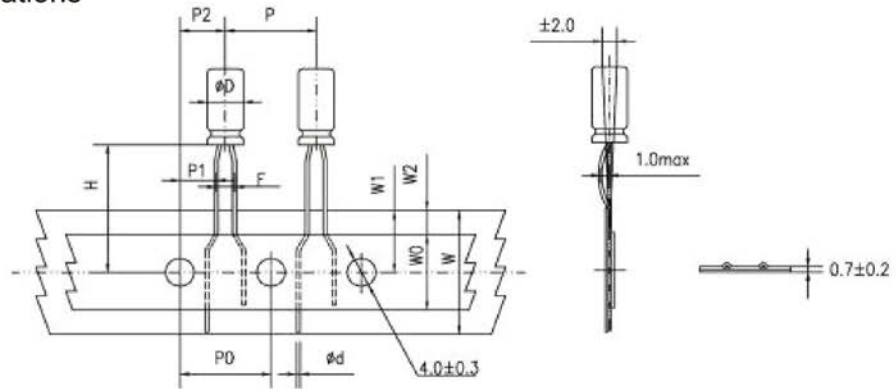


Fig.2 Code:T2

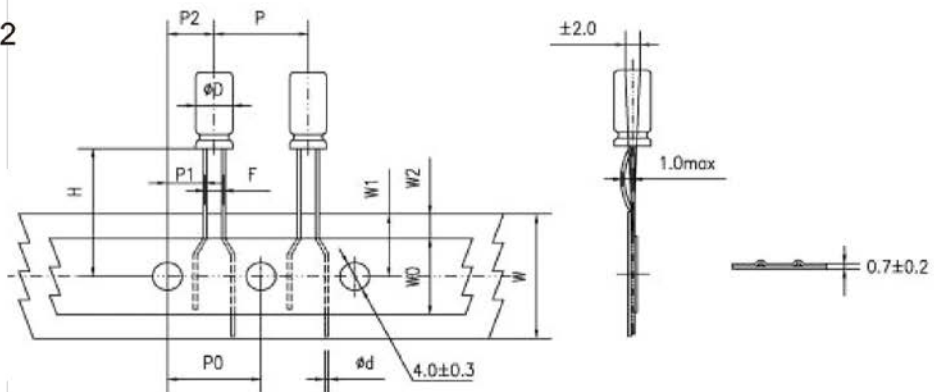


Fig.3 Code:T2

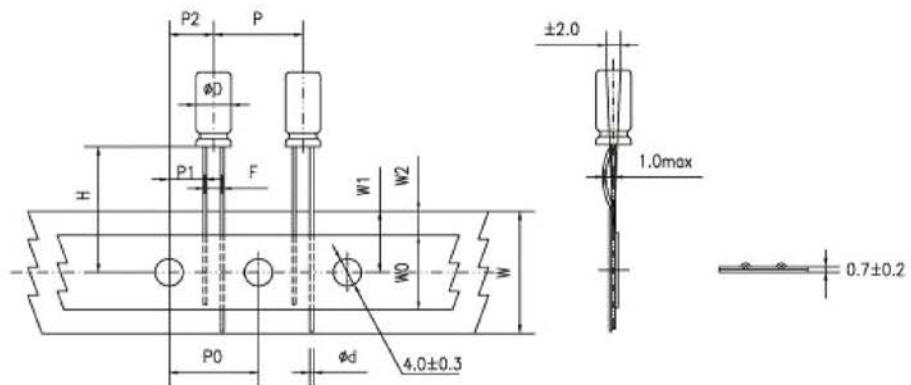
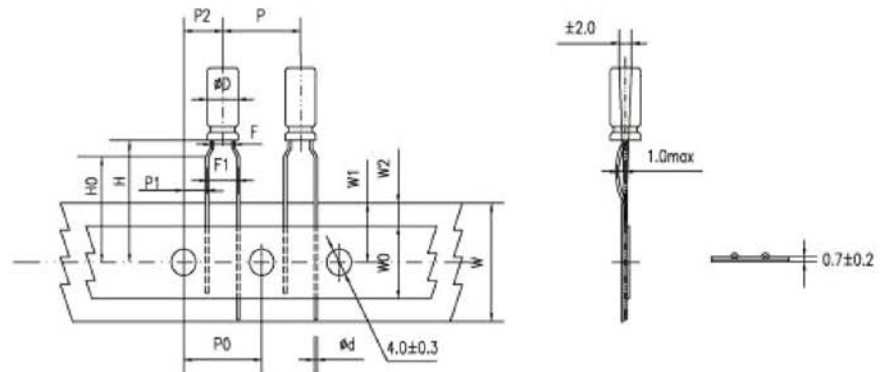


Fig.4 Code:T3



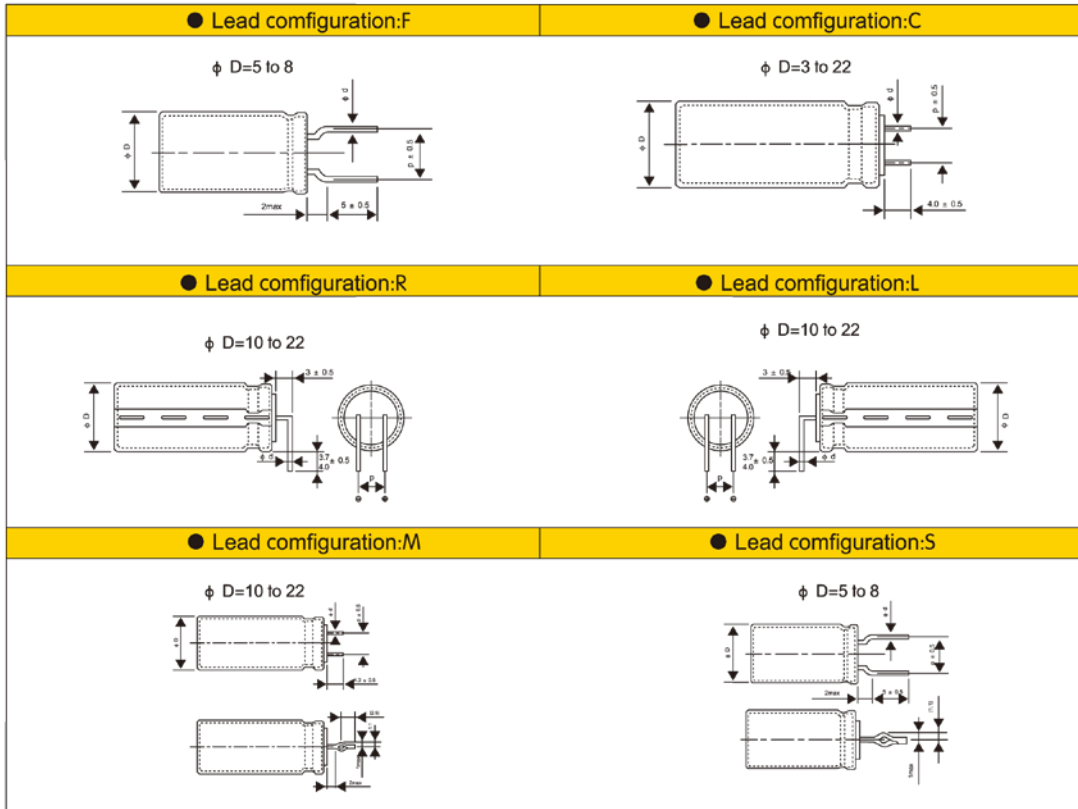
Specification Fig.1 & Fig.2 & Fig.3

Items	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 8×12		8×16 8×20
Pin Code		T ₁	T ₂	T ₁	T ₂	T ₁		T ₂	T ₂	T ₂	T ₂	T ₂	T ₂	T ₂			
Lead wire diameter	φd	0.45		0.45		0.5		0.45	0.5	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	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	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	5.1	4.6	4.6	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	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	2.5	3.5	3.5	5.0	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	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	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	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	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	3.0	max	

Specification Fig.4

Items	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	
Pin Code		T ₃	T ₃	T ₃	T ₃	T ₃	T ₃	T ₃	T ₃	T ₃	T ₃	T ₃	T ₃	T ₃	T ₃		
Lead wire diameter	φd	0.45		0.45		0.45		0.5	0.45	0.5	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	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	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	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	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	2.5	3.5	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	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	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	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	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	11.0	min	
Hole position	W1	9.0		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	3.0	max	

● Lead Forming & Cut:

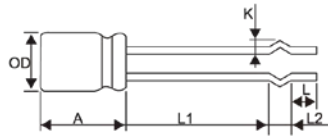


● LEAD SPACING&RECOMMENDED PCB DIMENSIONS

(mm)

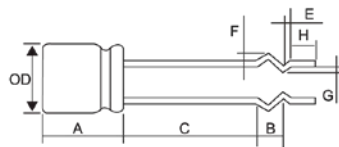
Dimension	φD	φd	p	PC Board		Lead Configuration
				Hole diameter	Thickness	
5	5	0.5	5.0	0.8	1.6	F C S
6.3	6.3	0.5	5.0	0.8		
8	8	0.5/0.6	5.0	1.0		
10	10	0.6	5.0	1.0	1.6	C M R L
12.5	12.5	0.6	5.0	1.0		
16	16	0.8	7.5	1.2		
18	18	0.8	7.5	1.2		
20	20	0.8	7.5	1.2		
22	22	0.8	10.0	1.2		

● Lead configuration: B



φD	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 configuration: K



φD	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