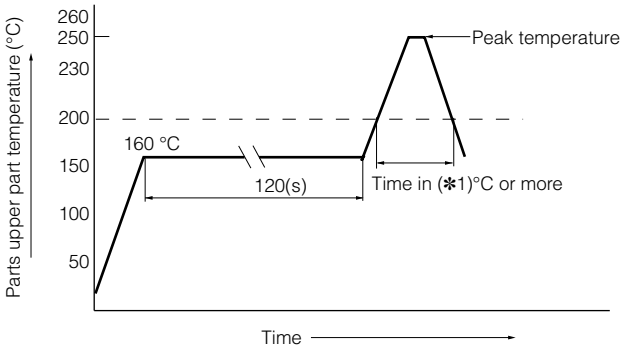
■ Reflow guaranteed condition

● RoHS compliant



■ Lead-Free reflow

Reflow No.	Fig. (1)	Fig. (2)	Fig. (3)	Fig. (4)
Category	ϕ4 to ϕ6.3	ϕ8 to ϕ10	ϕ12.5 to ϕ18	EB series (ϕ10 to ϕ18)
Peak temperature	250 °C	235 °C	230 °C (220 °C)	230 °C
Time in peak temperature	5 s	5 s	5 s (5 s)	5 s
Time in (✻1) °C or more	≧200 °C 60 s	≧200 °C 60 s	≧200 °C 20 s (30 s)	≧200 °C 20 s
Time of reflow	1 time	1 time	1 time	1 time

■ High temperature Lead-Free reflow

Reflow No.	Fig. (5)	Fig. (6)		Fig. (7)		Fig. (8)	
Category	ϕ4 to ϕ6.3	ϕ8 to ϕ10		ϕ8 to ϕ10		ϕ6.3 to ϕ10 (TK・TP series)	
Peak temperature	260 °C (255 °C)	245 °C	260 °C	250 °C	260 °C	255 °C	260 °C
Time in peak temperature	≧250 °C 5 s (10 s)	≧240 °C 10 s	≧250 °C 5 s	≧240 °C 10 s	≧250 °C 5 s	≧250 °C 30 s	≧250 °C 20 s
Time in (✻1) °C or more	≧230 °C 30 s	≧230 °C 30 s	≧230 °C 30 s	≧230 °C 30 s	≧230 °C 30 s	≧230 °C 40 s	≧230 °C 30 s
	≧217 °C 40 s	≧217 °C 40 s	≧217 °C 40 s	≧217 °C 40 s	≧217 °C 40 s	≧217 °C 65 s	≧217 °C 65 s
	≧200 °C 70 s	≧200 °C 70 s	≧200 °C 70 s	≧200 °C 70 s	≧200 °C 70 s	≧200 °C 90 s	≧200 °C 70 s
Time of reflow	2 times	2 times	1 time	2 times	1 time	2 times	2 times

Reflow No.	Fig. (9)	Fig. (10)	Fig. (11)
Category	ϕ12.5 to ϕ18 (FK, TK, HD series) 6.3 V to 35 V	ϕ12.5 to ϕ18 (FK series) 50 V to 63 V (TK series) 50 V	ϕ12.5 to ϕ18 (FK series) 80 V to 100 V (TK series) 63 V to 100 V
Peak temperature	245 °C	245 °C	245 °C
Time in peak temperature	≧240 °C 30 s	≧240 °C 5 s	≧240 °C 5 s
Time in (✻1) °C or more	≧217 °C 90 s	≧217 °C 30 s	≧217 °C 30 s
Time of reflow	2 times	2 times	1 time

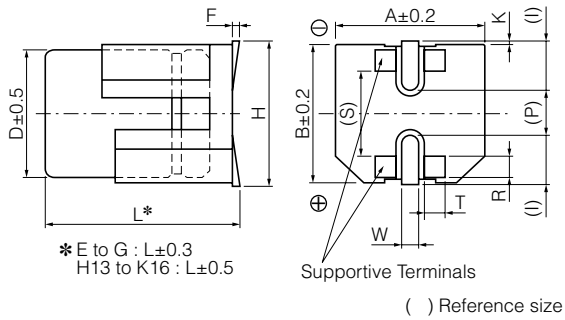
✻ For reflow, use a thermal condition system such as infrared radiation (IR) or hot blast.

✻ Panasonic have several series available for pure Tin terminal and ZVEI reflow based on J-STD-020D (JEDEC). (Please contact sales for details.)

■ Dimensions (Vibration-proof products)

✻ The size and shape are different from standard products. Please inquire details of our company.

(Unit : mm)

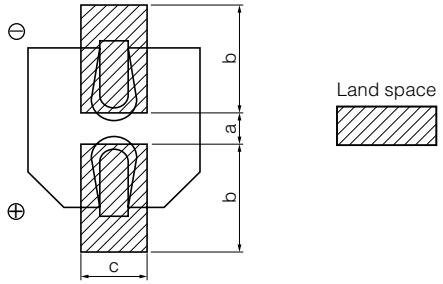


Size Code	φD	L	A, B	H max.	F	I	W	P	K	R	S	T
E	8.0	6.5	8.3	9.5	0 to +0.15	3.4	0.7±0.1	2.2	$0.35^{+0.15}_{-0.20}$	0.70±0.2	5.3±0.2	1.7±0.2
F	8.0	10.5	8.3	10.0	0 to +0.15	3.4	1.2±0.2	3.1	0.70±0.2	0.70±0.2	5.3±0.2	1.3±0.2
G	10.0	10.5	10.3	12.0	0 to +0.15	3.5	1.2±0.2	4.6	0.70±0.2	0.70±0.2	6.9±0.2	1.3±0.2
H13	12.5	13.8	13.5	15.0	–0.1 to +0.15	4.7	1.2±0.2	4.4	0.70±0.3	2.2±0.2	7.1±0.2	2.4±0.2
J16	16.0	16.8	17.0	19.0	–0.1 to +0.15	5.5	1.4±0.2	6.7	0.70±0.3	3.0±0.2	9.0±0.2	1.9±0.2
K16	18.0	16.8	19.0	21.0	–0.1 to +0.15	6.7	1.4±0.2	6.7	0.70±0.3	3.0±0.2	11.0±0.2	1.9±0.2

■ Land/Pad Pattern

The circuit board land/pad pattern size for chip capacitors is specified in the following table.
The land pitch influences installation strength and consider it.

● Standard products

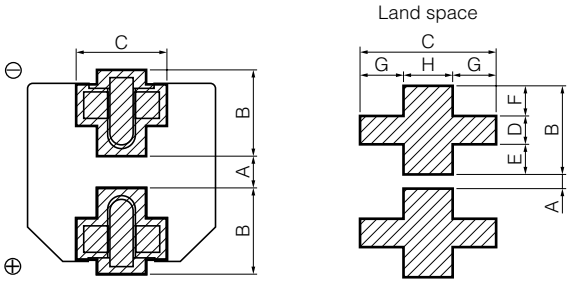


[Table of Board Land Size vs. Capacitor Size] (Unit : mm)

Size/Dimension	a	b	c
B (φ4)	1.0	2.5	1.6
C (φ5)	1.5	2.8	1.6
D (φ6.3)	1.8	3.2	1.6
E (φ8 × 6.2L)	2.2	4.0	1.6
F (φ8 × 10.2L)	3.1	4.0	2.0
G (φ10 × 10.2L)	4.6	4.1	2.0
H (φ12.5)	4.0	5.7	2.0
J (φ16)	6.0	6.5	2.5
K (φ18)	6.0	7.5	2.5

✻ When size “a” is wide, back fillet can be made, decreasing fitting strength.

● Vibration-proof products



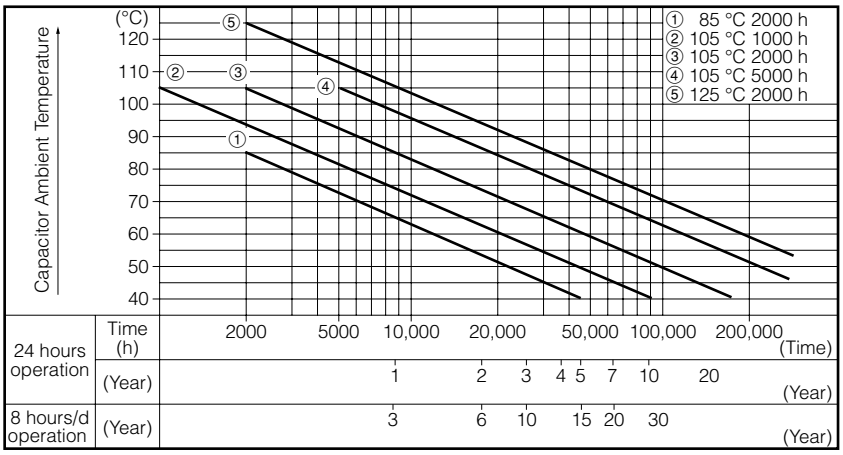
[Table of Board Land Size vs. Capacitor Size] (Unit : mm)

Size/Dimension	A	B	C	D	E	F	G	H
E (φ8 × 6.5L)	1.8	4.2	5.0	1.3	1.5	1.4	1.5	2.0
F (φ8 × 10.5L)	2.7	4.0	4.7	1.3	1.0	1.7	1.1	2.5
G (φ10)	3.9	4.4	4.7	1.3	1.2	1.9	1.1	2.5
H (φ12.5)	3.9	6.0	6.9	2.8	1.3	1.9	2.2	2.5
J (φ16)	5.8	6.8	6.2	3.6	1.3	1.9	1.7	2.8
K (φ18)	5.8	7.3	6.2	3.6	1.8	1.9	1.7	2.8

✻ When size “A” is wide, back fillet can be made, decreasing fitting strength.

✻ Take mounting conditions, solderability and fitting strength into consideration when selecting parts for your company’s design.

■ Expected Life Estimate Quick Reference Guide

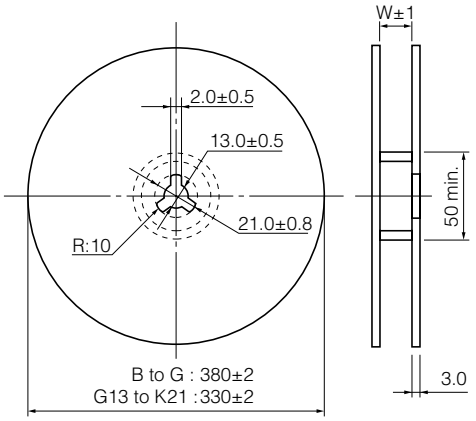


05 Mar. 2015

Surface Mount Type

■ Packaging Specifications.

● Reel Dimensions in mm (not to scale)

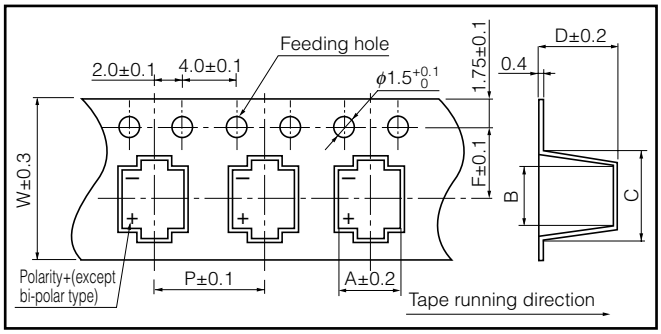


(Unit : mm)

Size	W
B, C	14
D, E, D8	18
F, G	26

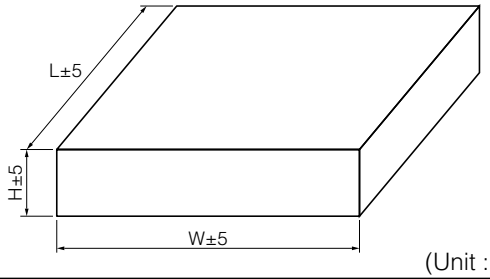
Size	W
G13, G17	34
H13, H16	
J16, J21	46
K16, K21	

● Taping Dimensions in mm (size B to G)



Ask factory for technical specifications.

● Dimensions of Outer Carton Box



(Unit : mm)

Size code	H	W, L
B, C	220	395
D, D8, E	250	395
F, G	220	395
G13, G17	210	350
H13, H16		
J16, J21	230	350
K16, K21		

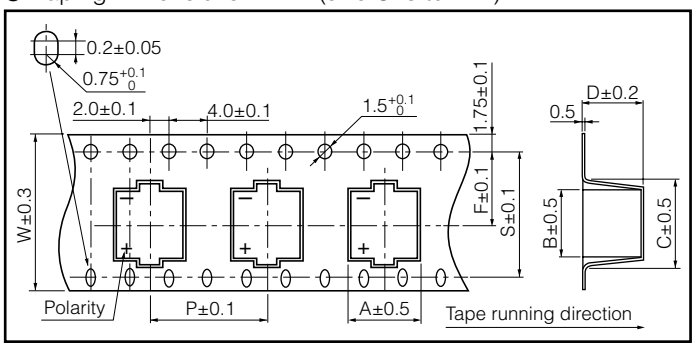
● Min.Packing Quantity

Size code	Height	Min.Packing Quantity pcs.
		380 mm reel
B	L=5.4 mm	2000
	L=5.8 mm	2000
C, D	L=5.4 mm	1000
	L=5.8 mm	1000
E	–	1000
D8	–	900
F, G	–	500

Size code	Min.Packing Quantity pcs.
	330 mm reel
G13	250
G17, H13	200
H16	150
J16, K16	125
J21, K21	75

Size code	W	A	B	C	P	F	D	
							Height	
							L=5.4 mm	L=5.8 mm
B	12.0	4.7	4.6 +0.2 −0.1	6.5±0.3	8.0	5.5	5.8	6.2
C	12.0	5.7	5.7 +0.3 −0.2	8.0±0.5	12.0	5.5	5.8	6.4
D	16.0	7.0	7.0 +0.3 −0.2	9.0±0.5	12.0	7.5	5.8	6.4
D8	16.0	7.0	7.0 +0.3 −0.2	9.0±0.5	12.0	7.5	8.4	
E	16.0	8.7	8.7 +0.3 −0.2	11.4±0.5	12.0	7.5	6.8	
F	24.0	8.7	8.7 +0.3 −0.2	12.5±0.5	16.0	11.5	11.0	
G	24.0	10.7	10.7 +0.3 −0.2	14.5±0.5	16.0	11.5	11.0	

● Taping Dimensions in mm (size G13 to K21)



Ask factory for technical specifications.

Size	Taping Size							
	A	B	C	D	F	P	S	W
G13	10.7	10.7	14.5	14.5	14.2	20.0	28.4	32.0
G17	10.7	10.7	14.5	17.5	14.2	20.0	28.4	32.0
H13	14.0	14.0	18.0	14.5	14.2	24.0	28.4	32.0
H16	14.0	14.0	18.0	17.5	14.2	24.0	28.4	32.0
J16	17.5	17.5	23.0	17.5	20.2	28.0	40.4	44.0
J21	17.5	17.5	23.0	22.5	20.2	28.0	40.4	44.0
K16	19.5	19.5	26.0	17.5	20.2	32.0	40.4	44.0
K21	19.5	19.5	26.0	22.5	20.2	32.0	40.4	44.0

05 Mar. 2014