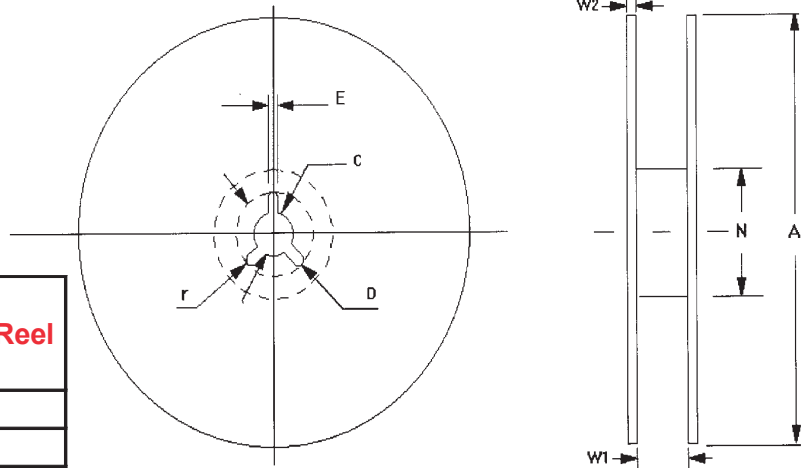


Application Guide **Film Chip Capacitors**

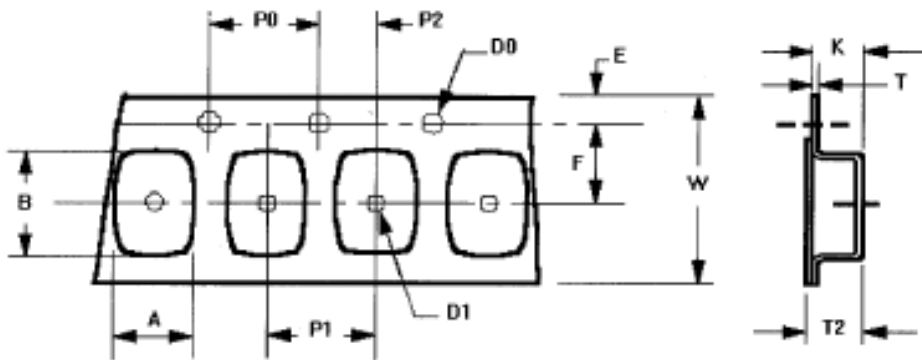
Reel Quantity and Dimensions

Packaging Code	Tape Width [mm]	Reel Diameter [in.(mm)]	Quantity Reel
K1	8	7(178)	4000
J1, J2	8	7(178)	3000
H1, H2	8	7(178)	3000
H3	8	7(178)	2000
G1, G2, G3	8	7(178)	2000
E1, E2	12	13(330)	3000
E3, E4	12	13(330)	2000
D1, D2	12	13(330)	3000
D3, D4, D5	12	13(330)	2000
B, Z	12	13(330)	1500
U, V, X, Y	16	13(330)	1000
S, T	24	13(330)	750



Symbol	Reel Dimensions (mm)			
	8 mm Tape	12 mm Tape	16 mm Tape	24 mm Tape
A	178	330	330	330
C	13	13	13	13
D	21	21	21	21
E	2	2		
N	60	80	80	80
r	1	1		
W1	9.5	14	17.5	25.5
W2	1.2	2		

Tape Dimensions



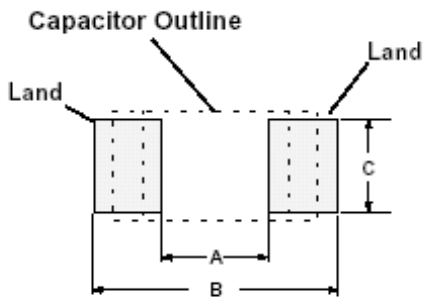
Symbol	Tape Dimensions (mm)					
	K1	J1, J2 H1, H2, H3, G1, G2, G3	E1, E2 E3, E4	D1, D2, D3 D4, D5, B, Z	U, V X, Y	S, T
W	8	8	12	12	16	24
F	3.5	3.5	5.5	5.5	7.5	11.5
E	1.75	1.75	1.75	1.75	1.75	1.75
P1		4	8	8	12	16
P2	2	2	2	2	2	2
P0	4	4	4	4	4	4
D0	1.5	1.5	1.5	1.5	1.5	1.5
D1		1	1.5		1.5	1.5

(mm)

Type	A ±0.1	B ±0.1	T ±0.05	T2 ±0.2	K ±0.1
K1	1	1.85	0.2	1.1	1
J1	1.55	2.3	0.25	1.3	1.2
J2	1.55	2.3	0.25	1.5	1.4
H1, H2	1.9	3.5	0.25	1.5	1.4
H3	1.9	3.5	0.25	1.9	1.8
G1, G2	2.8	3.5	0.25	1.9	1.8
G3	2.8	3.5	0.25	2.5	2.4
E1	3.8	5.1	0.30	2	1.9
E2	3.8	5.1	0.30	2.6	2.5
E3, E4	3.8	5.1	0.30	3.4	3.5
D1	4.6	6.3	0.30	2.7	2.6
D3, D4	4.6	6.3	0.30	3.5	3.4
D5	4.6	6.3	0.30	4.6	4.5
B	5.5	6.3	0.30	5.1	5.0
Z	5.5	7.5	0.30	4.7	4.6
X, Y	6.91	8.43	0.34±0.2	5.69	5.64
U, V	8.94	10.54	0.34±0.2	5.8	5.75
S, T	10.8	16	0.36±0.2	5.82	5.77

Application Guide Film chip Capacitors

Recommended Land Patterns



Case Size Code	Land Dimensions [in. (mm)]		
	A	B	C
0603	0.024 (0.6)	0.068 (2.0)	0.028 (0.7)
0805	0.03 (0.8)	0.09 (2.4)	0.04 (1.1)
1206	0.07 (1.8)	0.14 (3.6)	0.06 (1.4)
1210	0.07 (1.8)	0.14 (3.6)	0.09 (2.3)
1913	0.10 (2.6)	0.26 (6.6)	0.12 (3.0)
2416	0.15 (3.8)	0.31 (7.8)	0.15 (3.8)
2420	0.15 (3.8)	0.31 (7.8)	0.18 (4.6)
2820	0.18 (4.5)	0.35 (9.0)	0.18 (4.6)
2825	0.18 (4.5)	0.35 (9.0)	0.22 (5.7)
3022	0.20 (5.1)	0.38 (9.7)	0.20 (5.0)
3925	0.28 (7.2)	0.47 (11.9)	0.22 (5.7)
3931	0.28 (7.2)	0.47 (11.9)	0.28 (7.2)
6031	0.50 (12.6)	0.68 (17.3)	0.28 (7.2)
6040	0.50 (12.6)	0.68 (17.3)	0.35 (9.0)

Soldering Information

Soldering

Reflow method only, not to exceed two reflow processings. Halogen content of flux, solder paste and cleaner should be less than 0.1% for each.

Cleaning Solvent

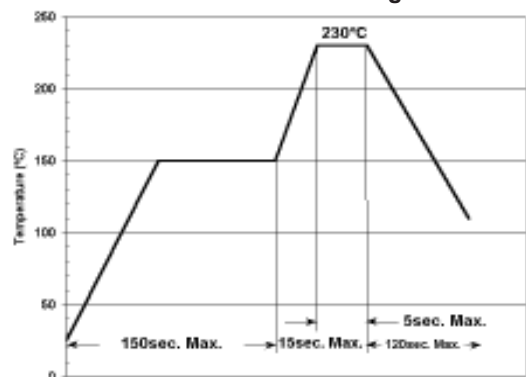
Isopropyl alcohol

Cleaning Method

	Temperature	Time
Immersion	50 °C	<5 min.
Vapor	<50 °C	<5 min.
Ultrasonic	<50 °C	<5 min.

Dry the circuit board completely after cleaning.

Recommended Reflow Soldering Conditions



Capacitor Type	Maximum Capacitor Surface Temperature (°C)	Recommended Peak Reflow Temperature (°C)	Maximum 30 Seconds at or above (°C)
FCN 16 V, 50 V, 100 V (.001 - .01 µF)	240	230	210
FCN 100 V (.012 - 1.0 µF) 250 V, 400 V	230	220	210
FCP	260	230	230
FCA	240	230	210

Part Numbering System

Type	Case Size	Voltage Code	Capacitance Code	Tolerance Code	Packaging Code
FCN	1913	C C = 16 Vdc H = 50 Vdc A = 100 Vdc E = 250 Vdc G = 400 Vdc	124 124 = 0.12 µF	J J = ±5% K = ±10%	E1
FCP	1206	C C = 16 Vdc H = 50 Vdc	393 393 = 0.039 µF	J J = ±5% K = ±10%	H3
FCA	1206	A A = 10 Vdc C = 16 Vdc	105 105 = 1.0 µF	M M = ±20%	H3

(See Reel Quantity Table for an explanation of the Packaging Code)

