Multilayer Ceramic Capacitors

Dipped radial lead type
Mid voltage(Edc: 100 to 630V)

FK series

Type: **FK28, FK18**
FK24, FK14
FK26, FK16
FK20, FK11
FK22

Issue date: May 2011

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

TDK

Dipped Radial Ceramic Capacitors Mid Voltage FK Series

Conformity to RoHS Directive

FEATURES

- Due to the technological progress in creating thinner layers of ceramic dielectric and achieving multilayer lamination, this product provides large electrostatic capacity.
- It maintains a high level of reliability under specified environmental conditions.
- Its residual inductance is small and it provides good frequency characteristics.
- The leads are formed with a "kink" to achieve consistent insertion heights and facilitate the release of gases during soldering for dramatically improved solderability.
- Also available are products that meet taping specifications for automatic insertions, which contribute to reducing on-board costs.

PRODUCT IDENTIFICATION

FK	28	C0G	1H	101	J	□□□□
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) Series name

(2) Dimensions and shapes of lead wire

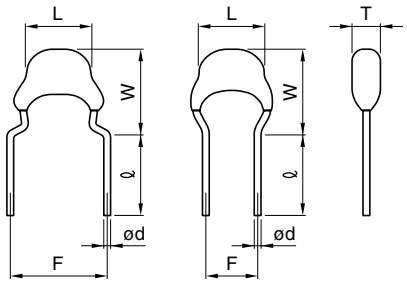

Fig.1 Fig.2

Dimensions in mm

Type	L max.	W max.	T max.	F	ℓ	ød	Fig
28	4.0	5.5	2.5	5.0±1.0	7±2	0.5+0.1,–0.03	1
24	4.5	5.5	2.5	5.0±1.0	7±2	0.5+0.1,–0.03	1
26	5.5	6.0	3.5	5.0±1.0	7±2	0.5+0.1,–0.03	1
20	5.5	7.0	4.0	5.0±1.0	7±2	0.5+0.1,–0.03	1
22	7.5	8.0	4.0	5.0±1.0	7±2	0.5+0.1,–0.03	1
18	4.0	5.5	2.5	2.5±0.8	5+3,–1	0.5+0.1,–0.03	2
14	4.5	5.5	2.5	2.5±0.8	5+3,–1	0.5+0.1,–0.03	2
16	5.5	6.0	3.5	2.5±0.8	5+3, –1	0.5+0.1, –0.03	2
11	5.5	7.0	4.0	2.5±0.8	5+3, –1	0.5+0.1, –0.03	2

(3) Capacitance temperature characteristics

Class 1 (Temperature compensation)

Temperature characteristics	Capacitance change	Temperature range
C0G	0±30ppm/°C	–55 to +125°C

Class 2 (Temperature stable and general purpose)

Temperature characteristics	Capacitance change	Temperature range
X7R	±15%	–55 to +125°C
X7S	±22%	–55 to +125°C

(4) Rated voltage Edc

2A	100V
2E	250V
2J	630V

(5) Nominal capacitance

The capacitance is expressed in three digit codes and in units of pico farads (pF).

The first and second digits identify the first and second significant figures of the capacitance.

The third digit identifies the multiplier.

102	1,000pF
333	33,000pF
474	470,000pF

(6) Capacitance tolerance

Symbol	Tolerance
J	±5%
K	±10%

(7) TDK internal code

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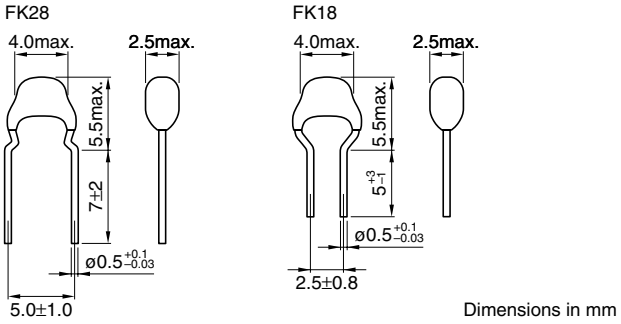
CAPACITANCE RANGES: CLASS 1 (TEMPERATURE COMPENSATION)
FK28 AND FK18 TYPES
SHAPES AND DIMENSIONS



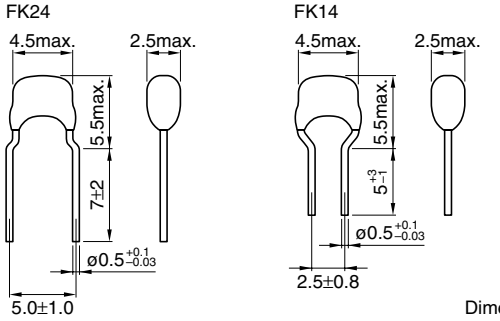
Dimensions in mm

RATED VOLTAGE Edc: 100 to 250V

Temperature characteristics	Capacitance	Tolerance	Rated voltage Edc(V)	Part No.	
				FK28 type	FK18 type
C0G	100pF	±5%	100	FK28C0G2A101J	FK18C0G2A101J
C0G	120pF	±5%	100	FK28C0G2A121J	FK18C0G2A121J
C0G	150pF	±5%	100	FK28C0G2A151J	FK18C0G2A151J
C0G	180pF	±5%	100	FK28C0G2A181J	FK18C0G2A181J
C0G	220pF	±5%	100	FK28C0G2A221J	FK18C0G2A221J
C0G	270pF	±5%	100	FK28C0G2A271J	FK18C0G2A271J
C0G	330pF	±5%	100	FK28C0G2A331J	FK18C0G2A331J
C0G	390pF	±5%	100	FK28C0G2A391J	FK18C0G2A391J
C0G	470pF	±5%	100	FK28C0G2A471J	FK18C0G2A471J
C0G	560pF	±5%	100	FK28C0G2A561J	FK18C0G2A561J
C0G	680pF	±5%	100	FK28C0G2A681J	FK18C0G2A681J
C0G	820pF	±5%	100	FK28C0G2A821J	FK18C0G2A821J
C0G	1000pF	±5%	100	FK28C0G2A102J	FK18C0G2A102J
C0G	1200pF	±5%	100	FK28C0G2A122J	FK18C0G2A122J
C0G	100pF	±5%	250	FK28C0G2E101J	FK18C0G2E101J
C0G	120pF	±5%	250	FK28C0G2E121J	FK18C0G2E121J
C0G	150pF	±5%	250	FK28C0G2E151J	FK18C0G2E151J
C0G	180pF	±5%	250	FK28C0G2E181J	FK18C0G2E181J
C0G	220pF	±5%	250	FK28C0G2E221J	FK18C0G2E221J
C0G	270pF	±5%	250	FK28C0G2E271J	FK18C0G2E271J
C0G	330pF	±5%	250	FK28C0G2E331J	FK18C0G2E331J
C0G	390pF	±5%	250	FK28C0G2E391J	FK18C0G2E391J
C0G	470pF	±5%	250	FK28C0G2E471J	FK18C0G2E471J
C0G	560pF	±5%	250	FK28C0G2E561J	FK18C0G2E561J
C0G	680pF	±5%	250	FK28C0G2E681J	FK18C0G2E681J

FK24 AND FK14 TYPES

SHAPES AND DIMENSIONS

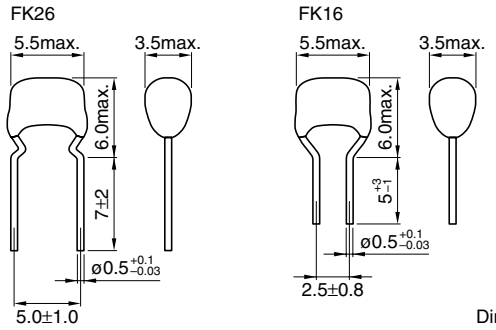


Dimensions in mm

RATED VOLTAGE Edc: 100 to 250V

Temperature characteristics	Capacitance	Tolerance	Rated voltage Edc(V)	Part No. FK24 type	FK14 type
C0G	1000pF	±5%	100	FK24C0G2A102J	FK14C0G2A102J
C0G	1200pF	±5%	100	FK24C0G2A122J	FK14C0G2A122J
C0G	1500pF	±5%	100	FK24C0G2A152J	FK14C0G2A152J
C0G	1800pF	±5%	100	FK24C0G2A182J	FK14C0G2A182J
C0G	2200pF	±5%	100	FK24C0G2A222J	FK14C0G2A222J
C0G	2700pF	±5%	100	FK24C0G2A272J	FK14C0G2A272J
C0G	3300pF	±5%	100	FK24C0G2A332J	FK14C0G2A332J
C0G	3900pF	±5%	100	FK24C0G2A392J	FK14C0G2A392J
C0G	4700pF	±5%	100	FK24C0G2A472J	FK14C0G2A472J
C0G	820pF	±5%	250	FK24C0G2E821J	FK14C0G2E821J
C0G	1000pF	±5%	250	FK24C0G2E102J	FK14C0G2E102J
C0G	1200pF	±5%	250	FK24C0G2E122J	FK14C0G2E122J
C0G	1500pF	±5%	250	FK24C0G2E152J	FK14C0G2E152J
C0G	1800pF	±5%	250	FK24C0G2E182J	FK14C0G2E182J
C0G	2200pF	±5%	250	FK24C0G2E222J	FK14C0G2E222J
C0G	2700pF	±5%	250	FK24C0G2E272J	FK14C0G2E272J

FK26 AND FK16 TYPES
SHAPES AND DIMENSIONS

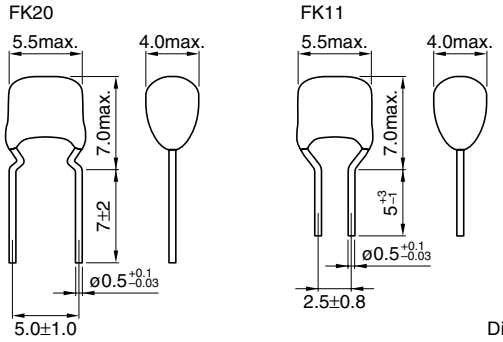


Dimensions in mm

RATED VOLTAGE Edc: 100 to 630V

Temperature characteristics	Capacitance	Tolerance	Rated voltage Edc(V)	Part No. FK26 type	Part No. FK16 type
C0G	3900pF	±5%	100	FK26C0G2A392J	FK16C0G2A392J
C0G	4700pF	±5%	100	FK26C0G2A472J	FK16C0G2A472J
C0G	5600pF	±5%	100	FK26C0G2A562J	FK16C0G2A562J
C0G	6800pF	±5%	100	FK26C0G2A682J	FK16C0G2A682J
C0G	8200pF	±5%	100	FK26C0G2A822J	FK16C0G2A822J
C0G	10000pF	±5%	100	FK26C0G2A103J	FK16C0G2A103J
C0G	3300pF	±5%	250	FK26C0G2E332J	
C0G	3900pF	±5%	250	FK26C0G2E392J	
C0G	4700pF	±5%	250	FK26C0G2E472J	
C0G	5600pF	±5%	250	FK26C0G2E562J	
C0G	6800pF	±5%	250	FK26C0G2E682J	
C0G	8200pF	±5%	250	FK26C0G2E822J	
C0G	100pF	±5%	630	FK26C0G2J101J	
C0G	120pF	±5%	630	FK26C0G2J121J	
C0G	150pF	±5%	630	FK26C0G2J151J	
C0G	180pF	±5%	630	FK26C0G2J181J	
C0G	220pF	±5%	630	FK26C0G2J221J	
C0G	270pF	±5%	630	FK26C0G2J271J	
C0G	330pF	±5%	630	FK26C0G2J331J	
C0G	390pF	±5%	630	FK26C0G2J391J	
C0G	470pF	±5%	630	FK26C0G2J471J	
C0G	560pF	±5%	630	FK26C0G2J561J	
C0G	680pF	±5%	630	FK26C0G2J681J	
C0G	820pF	±5%	630	FK26C0G2J821J	
C0G	1000pF	±5%	630	FK26C0G2J102J	
C0G	1200pF	±5%	630	FK26C0G2J122J	
C0G	1500pF	±5%	630	FK26C0G2J152J	
C0G	1800pF	±5%	630	FK26C0G2J182J	
C0G	2200pF	±5%	630	FK26C0G2J222J	
C0G	2700pF	±5%	630	FK26C0G2J272J	
C0G	3300pF	±5%	630	FK26C0G2J332J	

FK20 AND FK11 TYPES
SHAPES AND DIMENSIONS

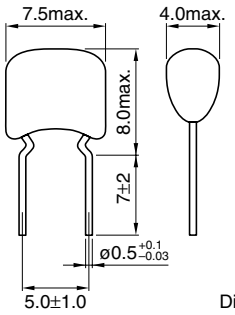


Dimensions in mm

RATED VOLTAGE Edc: 100 to 630V

Temperature characteristics	Capacitance	Tolerance	Rated voltage Edc(V)	Part No.	
				FK20 type	FK11 type
C0G	15000pF	±5%	100	FK20C0G2A153J	FK11C0G2A153J
C0G	22000pF	±5%	100	FK20C0G2A223J	FK11C0G2A223J
C0G	33000pF	±5%	100	FK20C0G2A333J	FK11C0G2A333J
C0G	47000pF	±5%	100	FK20C0G2A473J	FK11C0G2A473J
C0G	10000pF	±5%	250	FK20C0G2E103J	
C0G	15000pF	±5%	250	FK20C0G2E153J	
C0G	3900pF	±5%	630	FK20C0G2J392J	
C0G	4700pF	±5%	630	FK20C0G2J472J	
C0G	5600pF	±5%	630	FK20C0G2J562J	
C0G	6800pF	±5%	630	FK20C0G2J682J	

FK22 TYPE
SHAPES AND DIMENSIONS

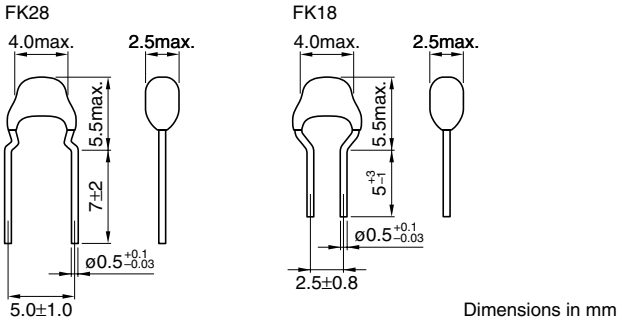


Dimensions in mm

RATED VOLTAGE Edc: 100 to 630V

Temperature characteristics	Capacitance	Tolerance	Rated voltage Edc(V)	Part No.
				FK22 type
C0G	68000pF	±5%	100	FK22C0G2A683J
C0G	0.1µF	±5%	100	FK22C0G2A104J
C0G	22000pF	±5%	250	FK22C0G2E223J
C0G	33000pF	±5%	250	FK22C0G2E333J
C0G	47000pF	±5%	250	FK22C0G2E473J
C0G	8200pF	±5%	630	FK22C0G2J822J
C0G	10000pF	±5%	630	FK22C0G2J103J
C0G	15000pF	±5%	630	FK22C0G2J153J
C0G	22000pF	±5%	630	FK22C0G2J223J

CAPACITANCE RANGES: CLASS 2
FK28 AND FK18 TYPES
SHAPES AND DIMENSIONS



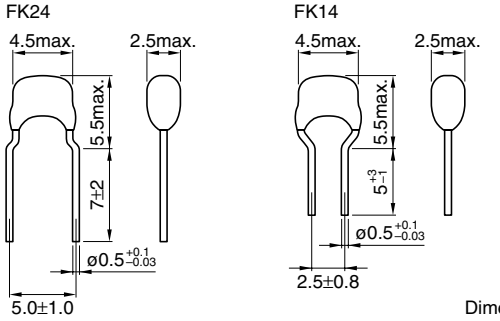
Dimensions in mm

RATED VOLTAGE Edc: 100 to 250V

Temperature characteristics	Capacitance	Tolerance	Rated voltage Edc(V)	Part No.	
				FK28 type	FK18 type
X7R	1000pF	±10%	100	FK28X7R2A102K	FK18X7R2A102K
X7R	1500pF	±10%	100	FK28X7R2A152K	FK18X7R2A152K
X7R	2200pF	±10%	100	FK28X7R2A222K	FK18X7R2A222K
X7R	3300pF	±10%	100	FK28X7R2A332K	FK18X7R2A332K
X7R	4700pF	±10%	100	FK28X7R2A472K	FK18X7R2A472K
X7R	6800pF	±10%	100	FK28X7R2A682K	FK18X7R2A682K
X7R	10000pF	±10%	100	FK28X7R2A103K	FK18X7R2A103K
X7R	15000pF	±10%	100	FK28X7R2A153K	FK18X7R2A153K
X7R	22000pF	±10%	100	FK28X7R2A223K	FK18X7R2A223K
X7S	33000pF	±10%	100	FK28X7S2A333K	FK18X7S2A333K
X7S	47000pF	±10%	100	FK28X7S2A473K	FK18X7S2A473K
X7S	68000pF	±10%	100	FK28X7S2A683K	FK18X7S2A683K
X7S	0.1µF	±10%	100	FK28X7S2A104K	FK18X7S2A104K

FK24 AND FK14 TYPES

SHAPES AND DIMENSIONS

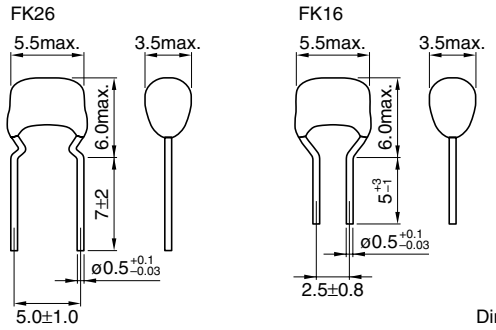


Dimensions in mm

RATED VOLTAGE Edc: 100 to 250V

Temperature characteristics	Capacitance	Tolerance	Rated voltage Edc(V)	Part No. FK24 type	FK14 type
X7R	1000pF	±10%	100	FK24X7R2A102K	FK14X7R2A102K
X7R	1500pF	±10%	100	FK24X7R2A152K	FK14X7R2A152K
X7R	2200pF	±10%	100	FK24X7R2A222K	FK14X7R2A222K
X7R	3300pF	±10%	100	FK24X7R2A332K	FK14X7R2A332K
X7R	4700pF	±10%	100	FK24X7R2A472K	FK14X7R2A472K
X7R	6800pF	±10%	100	FK24X7R2A682K	FK14X7R2A682K
X7R	10000pF	±10%	100	FK24X7R2A103K	FK14X7R2A103K
X7R	15000pF	±10%	100	FK24X7R2A153K	FK14X7R2A153K
X7R	22000pF	±10%	100	FK24X7R2A223K	FK14X7R2A223K
X7R	33000pF	±10%	100	FK24X7R2A333K	FK14X7R2A333K
X7R	47000pF	±10%	100	FK24X7R2A473K	FK14X7R2A473K
X7R	68000pF	±10%	100	FK24X7R2A683K	FK14X7R2A683K
X7R	0.1µF	±10%	100	FK24X7R2A104K	FK14X7R2A104K
X7S	0.15µF	±10%	100	FK24X7S2A154K	FK14X7S2A154K
X7S	0.22µF	±10%	100	FK24X7S2A224K	FK14X7S2A224K
X7S	0.33µF	±10%	100	FK24X7S2A334K	FK14X7S2A334K
X7S	0.47µF	±10%	100	FK24X7S2A474K	FK14X7S2A474K
X7S	0.68µF	±10%	100	FK24X7S2A684K	FK14X7S2A684K
X7S	1µF	±10%	100	FK24X7S2A105K	FK14X7S2A105K
X7R	1000pF	±10%	250	FK24X7R2E102K	FK14X7R2E102K
X7R	1500pF	±10%	250	FK24X7R2E152K	FK14X7R2E152K
X7R	2200pF	±10%	250	FK24X7R2E222K	FK14X7R2E222K
X7R	3300pF	±10%	250	FK24X7R2E332K	FK14X7R2E332K
X7R	4700pF	±10%	250	FK24X7R2E472K	FK14X7R2E472K
X7R	6800pF	±10%	250	FK24X7R2E682K	FK14X7R2E682K
X7R	10000pF	±10%	250	FK24X7R2E103K	FK14X7R2E103K
X7R	15000pF	±10%	250	FK24X7R2E153K	FK14X7R2E153K
X7R	22000pF	±10%	250	FK24X7R2E223K	FK14X7R2E223K

FK26 AND FK16 TYPES
SHAPES AND DIMENSIONS

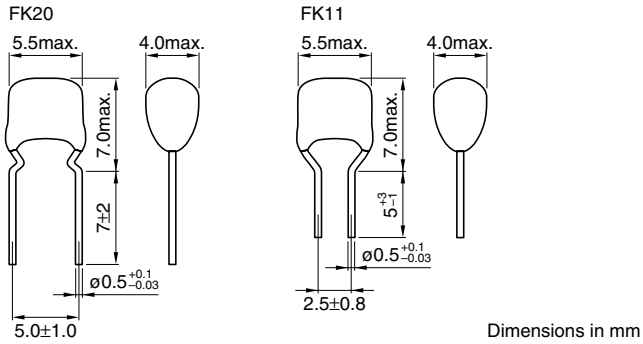


Dimensions in mm

RATED VOLTAGE Edc: 100 to 630V

Temperature characteristics	Capacitance	Tolerance	Rated voltage Edc(V)	Part No. FK26 type	Part No. FK16 type
X7R	33000pF	±10%	100	FK26X7R2A333K	FK16X7R2A333K
X7R	47000pF	±10%	100	FK26X7R2A473K	FK16X7R2A473K
X7R	68000pF	±10%	100	FK26X7R2A683K	FK16X7R2A683K
X7R	0.1µF	±10%	100	FK26X7R2A104K	FK16X7R2A104K
X7R	0.15µF	±10%	100	FK26X7R2A154K	FK16X7R2A154K
X7R	0.22µF	±10%	100	FK26X7R2A224K	FK16X7R2A224K
X7R	0.33µF	±10%	100	FK26X7R2A334K	FK16X7R2A334K
X7R	0.47µF	±10%	100	FK26X7R2A474K	FK16X7R2A474K
X7R	0.68µF	±10%	100	FK26X7R2A684K	FK16X7R2A684K
X7R	1µF	±10%	100	FK26X7R2A105K	FK16X7R2A105K
X7S	1.5µF	±10%	100	FK26X7S2A155K	FK16X7S2A155K
X7S	2.2µF	±10%	100	FK26X7S2A225K	FK16X7S2A225K
X7R	15000pF	±10%	250	FK26X7R2E153K	
X7R	22000pF	±10%	250	FK26X7R2E223K	
X7R	33000pF	±10%	250	FK26X7R2E333K	
X7R	47000pF	±10%	250	FK26X7R2E473K	
X7R	68000pF	±10%	250	FK26X7R2E683K	
X7R	0.1µF	±10%	250	FK26X7R2E104K	
X7R	1000pF	±10%	630	FK26X7R2J102K	
X7R	1500pF	±10%	630	FK26X7R2J152K	
X7R	2200pF	±10%	630	FK26X7R2J222K	
X7R	3300pF	±10%	630	FK26X7R2J332K	
X7R	4700pF	±10%	630	FK26X7R2J472K	
X7R	6800pF	±10%	630	FK26X7R2J682K	
X7R	10000pF	±10%	630	FK26X7R2J103K	
X7R	15000pF	±10%	630	FK26X7R2J153K	
X7R	22000pF	±10%	630	FK26X7R2J223K	
X7R	33000pF	±10%	630	FK26X7R2J333K	

FK20 AND FK11 TYPES
SHAPES AND DIMENSIONS

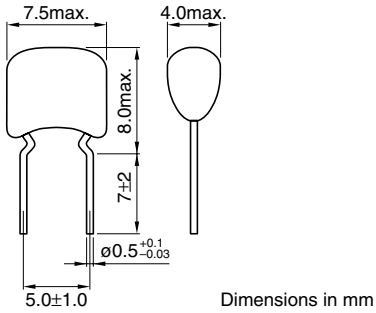


Dimensions in mm

RATED VOLTAGE Edc: 100 to 630V

Temperature characteristics	Capacitance	Tolerance	Rated voltage Edc(V)	Part No.	
				FK20 type	FK11 type
X7R	0.33µF	±10%	100	FK20X7R2A334K	FK11X7R2A334K
X7R	0.47µF	±10%	100	FK20X7R2A474K	FK11X7R2A474K
X7R	0.68µF	±10%	100	FK20X7R2A684K	FK11X7R2A684K
X7R	1µF	±10%	100	FK20X7R2A105K	FK11X7R2A105K
X7R	1.5µF	±10%	100	FK20X7R2A155K	FK11X7R2A155K
X7R	2.2µF	±10%	100	FK20X7R2A225K	FK11X7R2A225K
X7S	3.3µF	±10%	100	FK20X7S2A335K	FK11X7S2A335K
X7S	4.7µF	±10%	100	FK20X7S2A475K	FK11X7S2A475K
X7R	0.1µF	±10%	250	FK20X7R2E104K	
X7R	0.15µF	±10%	250	FK20X7R2E154K	
X7R	0.22µF	±10%	250	FK20X7R2E224K	
X7R	47000pF	±10%	630	FK20X7R2J473K	
X7R	68000pF	±10%	630	FK20X7R2J683K	

FK22 TYPE
SHAPES AND DIMENSIONS



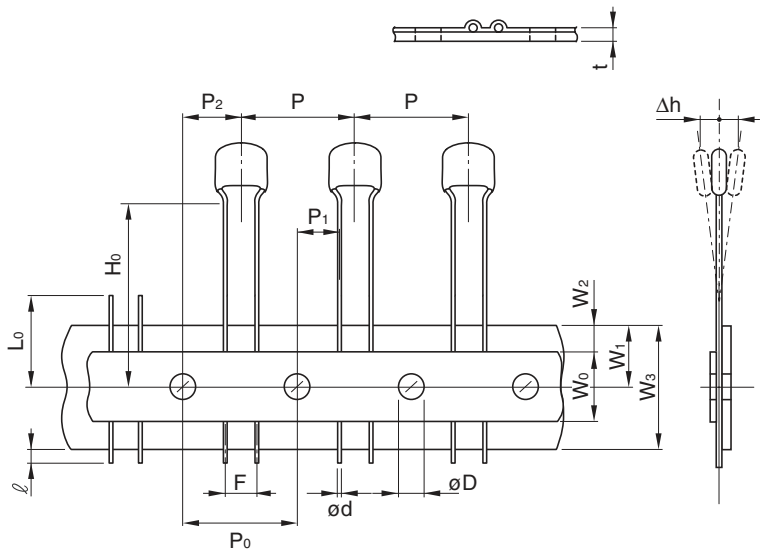
Dimensions in mm

RATED VOLTAGE Edc: 100 to 630V

Temperature characteristics	Capacitance	Tolerance	Rated voltage Edc(V)	Part No.
				FK22 type
X7R	0.68µF	±10%	100	FK22X7R2A684K
X7R	1µF	±10%	100	FK22X7R2A105K
X7R	1.5µF	±10%	100	FK22X7R2A155K
X7R	2.2µF	±10%	100	FK22X7R2A225K
X7R	0.15µF	±10%	250	FK22X7R2E154K
X7R	0.22µF	±10%	250	FK22X7R2E224K
X7R	0.33µF	±10%	250	FK22X7R2E334K
X7R	0.47µF	±10%	250	FK22X7R2E474K
X7R	0.1µF	±10%	630	FK22X7R2J104K

- For more information about products with other capacitance or other data, please contact us.

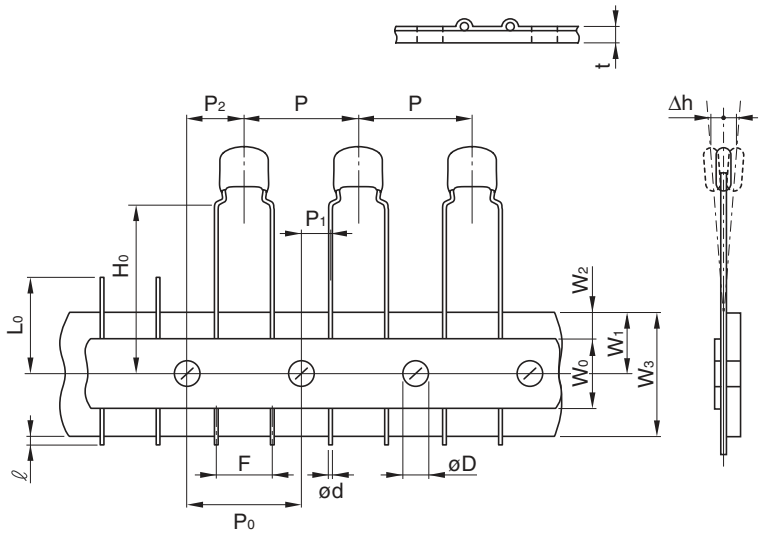
PACKAGING STYLES
TAPING DIMENSIONS
FK1 Series
(FK18/FK14/FK16/FK11 Types)



Symbol	Dimensions(mm)
P	12.7±1.0
P_0*1	12.7±0.3
P_1	5.1±0.7
P_2	6.35±1.3
W_0	12.0±1.0
W_1	9.0±0.5
W_2*2	3.0max.
W_3	18.0+1.0, –0.5
H_0	16.0±0.5
ℓ	1.0max.
t	0.6±0.2
L_0	11.0max.
F	2.5+0.5, –0.2
ød	ø0.5+0.1, –0.03
øD	ø4.0±0.2
Δh	0±2

*1 Accumulated pitch tolerance shall be ±2mm for 20 pitches.
*2 Adhesive tape shall not stick out from carrier tape.

FK2 Series
(FK28/FK24/FK26/FK20/FK22 Types)



Symbol	Dimensions(mm)
P	12.7±1.0
P_0*1	12.7±0.3
P_1	3.85±0.7
P_2	6.35±1.3
W_0	12.0±1.0
W_1	9.0±0.5
W_2*2	3.0max.
W_3	18.0+1.0, –0.5
H_0	16.0±0.5
ℓ	1.0max.
t	0.6±0.2
L_0	11.0max.
F	5.0+0.8, –0.2
ød	ø0.5+0.1, –0.03
øD	ø4.0±0.2
Δh	0±2

*1 Accumulated pitch tolerance shall be ±2mm for 20 pitches.
*2 Adhesive tape shall not stick out from carrier tape.

PACKAGING QUANTITIES

Type	Quantity
FK18, FK28 FK14, FK24 FK16, FK26	2000 pieces/1box
FK11, FK20, K22	1500 pieces/1box