

# F161 Series Encapsulated Stacked, Size 2220 – 6560, 50 – 400 VDC

## Overview

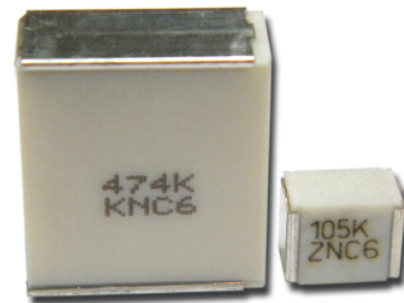
KEMET's F161 Series polyester (PET) film capacitor for surface mounting is encapsulated in self-extinguishing material meeting the requirements of UL 94 V-0.

## Applications

Typical applications include bypassing and signal coupling. F161 is a general purpose series designed for the highest reliability.

## Benefits

- Rated voltage: 50 – 400 VDC
- Rated voltage: 30 – 200 VAC
- Capacitance range: 0.01 – 12  $\mu$ F
- EIA size: 2220 – 6560
- Capacitance tolerance:  $\pm$ 5%,  $\pm$ 10%, other tolerances on request
- Climatic category: 55/125/56
- RoHS Compliant and lead-free terminations
- Operating temperature range of -55°C to +125°C



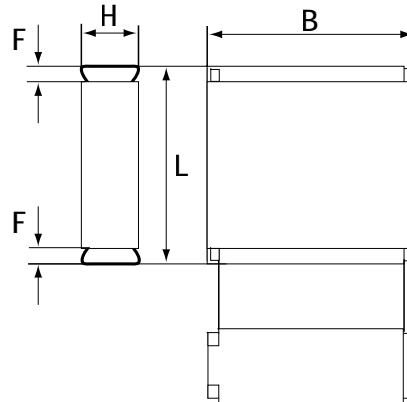
## Part Number System

F	161	P	L	102	K	050	V
Capacitor Class	Series	Chip Size	Size Code	Capacitance Code (pF)	Capacitance Tolerance	Rated Voltage (VDC)	Packaging Code
F = Film	Metallized Polyester Stacked Technology	P = 2220 S = 2824 W = 4036 Y = 5045 Z = 6560	See Dimension Table	First two digits indicate the two most significant digits of the capacitance value in picofarads. The third digit is the number of following zeros.	J = $\pm$ 5 K = $\pm$ 10% Other tolerances on request	050 = 50 063 = 63 100 = 100 250 = 250 400 = 400	See Ordering Options Table

## Ordering Options Table

Chip Size (EIA)	Packaging Type	Packaging Code
2220	<b>Standard Packaging Options</b>	
	Tape & Reel (Standard Reel)	V
	Bulk (Bag)	A
2824	<b>Standard Packaging Options</b>	
	Tape & Reel (Standard Reel)	V
	Bulk (Bag)	A
4036	<b>Standard Packaging Options</b>	
	Tape & Reel (Standard Reel)	V
	Bulk (Bag)	A
	<b>Other Packaging Options</b>	
	Tape & Reel (Vertical Orientation Standard Reel)	Y
5045	<b>Standard Packaging Options</b>	
	Tape & Reel (Standard Reel)	V
	Bulk (Bag)	A
	<b>Other Packaging Options</b>	
	Tape & Reel (Vertical Orientation Standard Reel)	Y
6560	<b>Standard Packaging Options</b>	
	Tape & Reel (Standard Reel)	V
	Bulk (Bag)	A
	<b>Other Packaging Options</b>	
	Tape & Reel (Vertical Orientation Standard Reel)	Y

## Dimensions – Millimeters



Size Code	Chip Size (EIA)	B		H		L		F	
		Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance
PL	2220	5.0	+/-0.2	2.5	+/-0.2	5.7	+/-0.2	0.5	Nominal
PP	2220	5.0	+/-0.2	3.0	+/-0.2	5.7	+/-0.2	0.5	Nominal
PU	2220	5.0	+/-0.2	4.0	+/-0.2	5.7	+/-0.2	0.5	Nominal
SG	2824	6.0	+/-0.2	2.5	+/-0.2	7.3	+/-0.2	0.5	Nominal
SL	2824	6.0	+/-0.2	3.0	+/-0.2	7.3	+/-0.2	0.5	Nominal
SP	2824	6.0	+/-0.2	3.5	+/-0.2	7.3	+/-0.2	0.5	Nominal
ST	2824	6.0	+/-0.2	4.5	+/-0.2	7.3	+/-0.2	0.5	Nominal
WP	4036	9.1	+/-0.2	5.5	+/-0.2	10.2	+/-0.2	0.5	Nominal
YR	5045	11.5	+/-0.2	6.5	+/-0.2	12.7	+/-0.2	0.5	Nominal
ZS	6560	15	+/-0.2	7.0	+/-0.2	16.5	+/-0.2	0.5	Nominal

## Environmental Compliance

All KEMET surface mount capacitors are RoHS Compliant.

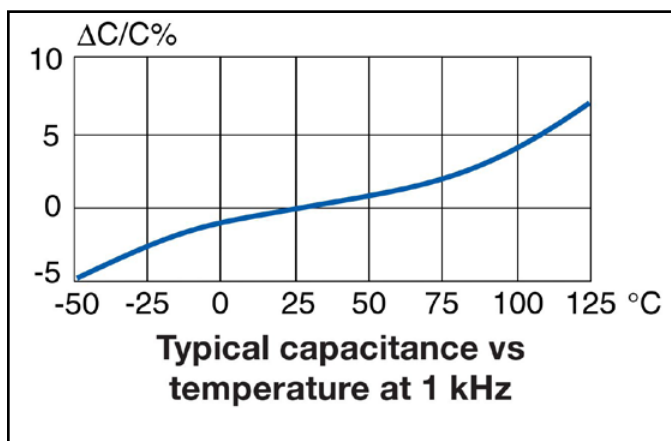


RoHS Compliant

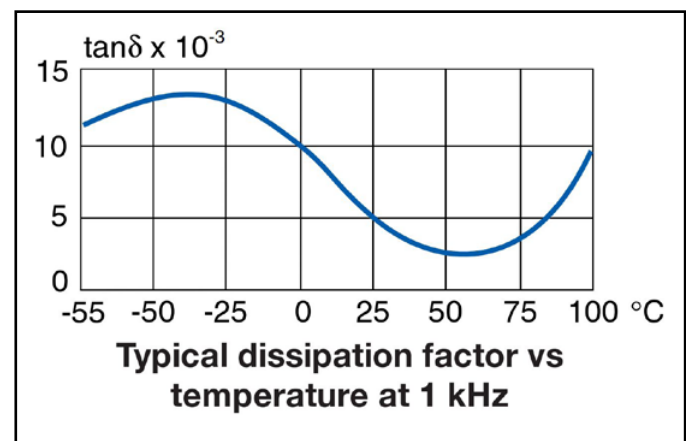
## Performance Characteristics

Rated Voltage (VDC)	50	63	100	250	400	
Rated Voltage (VAC)	30	40	63	160	200	
Capacitance Range (µF)	0.01 – 12	0.01 – 4.7	0.01 – 3.3	0.01 – 1	0.022 – 0.47	
Chip Size (EIA)	2220 – 6560					
Capacitance Tolerance	±5%, ±10%, other tolerances on request					
Category Temperature Range	-55°C to +125°C					
Rated Temperature	+85°C					
Voltage Derating	The rated voltage is decreased with 1.25%/°C from +85°C					
Climatic Category	55/125/56					
Test Voltage	1.6 x V <sub>R</sub> , 60 seconds					
Insulation Resistance	Measured at +20°C, Charging Time 1 Minute					
	Minimum Values Between Terminals					
	Charging Voltage	C ≤ 0.33 µF		C > 0.33 µF		
	10 V for V <sub>R</sub> ≤ 100	1,000 MΩ		400 MΩ · µF		
100 v for V <sub>R</sub> > 100	1,000 MΩ		400 MΩ · µF			
Dissipation Factor	Maximum Values at +23°C					
		C ≤ 0.1 µF	0.1 < C < 1 µF	1 ≤ C ≤ 10 µF	C > 10 µF	
	1 kHz	0.8%	0.8%	0.8%	0.8%	
	10 kHz	1.2%	1.2%	1.5%	3.0%	
100 kHz	2.5%	3.0%				
Maximum Pulse Rise Time	The capacitors can withstand an unlimited number of pulses with a dV/dt according to Table below.					
	Voltage Range	50 VDC	63 VDC	100 VDC	250 VDC	400 VDC
	dV/dt (V/µs)	40	40	50	150	200

## Capacitance vs. Temperature



## Dissipation Factor vs. Temperature



**Table 1 – Ratings & Part Number Reference**

VDC	VAC	Capacitance Value (µF)	Size Code	Dimensions in mm			Chip Size	dV/dt (V/µs)	Part Number
				B	H	L			
50	30	0.01	PL	5.0	2.5	5.7	2220	40	F161PL103(1)050(2)
50	30	0.012	PL	5.0	2.5	5.7	2220	40	F161PL123(1)050(2)
50	30	0.015	PL	5.0	2.5	5.7	2220	40	F161PL153(1)050(2)
50	30	0.018	PL	5.0	2.5	5.7	2220	40	F161PL183(1)050(2)
50	30	0.022	PL	5.0	2.5	5.7	2220	40	F161PL223(1)050(2)
50	30	0.027	PL	5.0	2.5	5.7	2220	40	F161PL273(1)050(2)
50	30	0.033	PL	5.0	2.5	5.7	2220	40	F161PL333(1)050(2)
50	30	0.039	PL	5.0	2.5	5.7	2220	40	F161PL393(1)050(2)
50	30	0.047	PL	5.0	2.5	5.7	2220	40	F161PL473(1)050(2)
50	30	0.056	PL	5.0	2.5	5.7	2220	40	F161PL563(1)050(2)
50	30	0.068	PL	5.0	2.5	5.7	2220	40	F161PL683(1)050(2)
50	30	0.082	PL	5.0	2.5	5.7	2220	40	F161PL823(1)050(2)
50	30	0.1	PL	5.0	2.5	5.7	2220	40	F161PL104(1)050(2)
50	30	0.12	PP	5.0	3.0	5.7	2220	40	F161PP124(1)050(2)
50	30	0.15	PP	5.0	3.0	5.7	2220	40	F161PP154(1)050(2)
50	30	0.18	PU	5.0	4.0	5.7	2220	40	F161PU184(1)050(2)
50	30	0.22	PU	5.0	4.0	5.7	2220	40	F161PU224(1)050(2)
50	30	0.01	SG	6.0	2.5	7.3	2824	40	F161SG103(1)050(2)
50	30	0.012	SG	6.0	2.5	7.3	2824	40	F161SG123(1)050(2)
50	30	0.015	SG	6.0	2.5	7.3	2824	40	F161SG153(1)050(2)
50	30	0.018	SG	6.0	2.5	7.3	2824	40	F161SG183(1)050(2)
50	30	0.022	SG	6.0	2.5	7.3	2824	40	F161SG223(1)050(2)
50	30	0.027	SG	6.0	2.5	7.3	2824	40	F161SG273(1)050(2)
50	30	0.033	SG	6.0	2.5	7.3	2824	40	F161SG333(1)050(2)
50	30	0.039	SG	6.0	2.5	7.3	2824	40	F161SG393(1)050(2)
50	30	0.047	SG	6.0	2.5	7.3	2824	40	F161SG473(1)050(2)
50	30	0.056	SG	6.0	2.5	7.3	2824	40	F161SG563(1)050(2)
50	30	0.068	SG	6.0	2.5	7.3	2824	40	F161SG683(1)050(2)
50	30	0.082	SG	6.0	2.5	7.3	2824	40	F161SG823(1)050(2)
50	30	0.1	SG	6.0	2.5	7.3	2824	40	F161SG104(1)050(2)
50	30	0.12	SG	6.0	2.5	7.3	2824	40	F161SG124(1)050(2)
50	30	0.15	SG	6.0	2.5	7.3	2824	40	F161SG154(1)050(2)
50	30	0.18	SL	6.0	3.0	7.3	2824	40	F161SL184(1)050(2)
50	30	0.22	SL	6.0	3.0	7.3	2824	40	F161SL224(1)050(2)
50	30	0.27	SP	6.0	3.5	7.3	2824	40	F161SP274(1)050(2)
50	30	0.33	SP	6.0	3.5	7.3	2824	40	F161SP334(1)050(2)
50	30	0.39	SP	6.0	3.5	7.3	2824	40	F161SP394(1)050(2)
50	30	0.47	SP	6.0	3.5	7.3	2824	40	F161SP474(1)050(2)
50	30	0.56	ST	6.0	4.5	7.3	2824	40	F161ST564(1)050(2)
50	30	0.68	ST	6.0	4.5	7.3	2824	40	F161ST684(1)050(2)
50	30	0.82	ST	6.0	4.5	7.3	2824	40	F161ST824(1)050(2)
50	30	1	ST	6.0	4.5	7.3	2824	40	F161ST105(1)050(2)
50	30	0.022	WP	9.1	5.5	10.2	4036	40	F161WP223(1)050(2)
50	30	0.027	WP	9.1	5.5	10.2	4036	40	F161WP273(1)050(2)
50	30	0.033	WP	9.1	5.5	10.2	4036	40	F161WP333(1)050(2)
50	30	0.039	WP	9.1	5.5	10.2	4036	40	F161WP393(1)050(2)
50	30	0.047	WP	9.1	5.5	10.2	4036	40	F161WP473(1)050(2)
50	30	0.056	WP	9.1	5.5	10.2	4036	40	F161WP563(1)050(2)
50	30	0.068	WP	9.1	5.5	10.2	4036	40	F161WP683(1)050(2)
50	30	0.082	WP	9.1	5.5	10.2	4036	40	F161WP823(1)050(2)
50	30	0.1	WP	9.1	5.5	10.2	4036	40	F161WP104(1)050(2)
50	30	0.12	WP	9.1	5.5	10.2	4036	40	F161WP124(1)050(2)
50	30	0.15	WP	9.1	5.5	10.2	4036	40	F161WP154(1)050(2)
50	30	0.18	WP	9.1	5.5	10.2	4036	40	F161WP184(1)050(2)
50	30	0.22	WP	9.1	5.5	10.2	4036	40	F161WP224(1)050(2)
50	30	0.27	WP	9.1	5.5	10.2	4036	40	F161WP274(1)050(2)
50	30	0.33	WP	9.1	5.5	10.2	4036	40	F161WP334(1)050(2)
50	30	0.39	WP	9.1	5.5	10.2	4036	40	F161WP394(1)050(2)
50	30	0.47	WP	9.1	5.5	10.2	4036	40	F161WP474(1)050(2)

(1) J = ±5%, K = ±10%, other tolerances on request.

(2) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.

**Table 1 – Ratings & Part Number Reference cont'd**

VDC	VAC	Capacitance Value (µF)	Size Code	Dimensions in mm			Chip Size	dV/dt (V/µs)	Part Number
				B	H	L			
50	30	0.56	WP	9.1	5.5	10.2	4036	40	F161WP564(1)050(2)
50	30	0.68	WP	9.1	5.5	10.2	4036	40	F161WP684(1)050(2)
50	30	0.82	WP	9.1	5.5	10.2	4036	40	F161WP824(1)050(2)
50	30	1	WP	9.1	5.5	10.2	4036	40	F161WP105(1)050(2)
50	30	1.2	WP	9.1	5.5	10.2	4036	40	F161WP125(1)050(2)
50	30	1.5	WP	9.1	5.5	10.2	4036	40	F161WP155(1)050(2)
50	30	1.8	WP	9.1	5.5	10.2	4036	40	F161WP185(1)050(2)
50	30	2.2	WP	9.1	5.5	10.2	4036	40	F161WP225(1)050(2)
50	30	2.7	YR	11.5	6.5	12.7	5045	40	F161YR275(1)050(2)
50	30	3.3	YR	11.5	6.5	12.7	5045	40	F161YR335(1)050(2)
50	30	3.9	YR	11.5	6.5	12.7	5045	40	F161YR395(1)050(2)
50	30	4.7	YR	11.5	6.5	12.7	5045	40	F161YR475(1)050(2)
50	30	5.6	ZS	15.0	7.0	16.5	6560	40	F161ZS565(1)050(2)
50	30	6.8	ZS	15.0	7.0	16.5	6560	40	F161ZS685(1)050(2)
50	30	8.2	ZS	15.0	7.0	16.5	6560	40	F161ZS825(1)050(2)
50	30	10.0	ZS	15.0	7.0	16.5	6560	40	F161ZS106(1)050(2)
50	30	12.0	ZS	15.0	7.0	16.5	6560	40	F161ZS126(1)050(2)
63	40	0.01	SG	6.0	2.5	7.3	2824	40	F161SG103(1)063(2)
63	40	0.012	SG	6.0	2.5	7.3	2824	40	F161SG123(1)063(2)
63	40	0.015	SG	6.0	2.5	7.3	2824	40	F161SG153(1)063(2)
63	40	0.018	SG	6.0	2.5	7.3	2824	40	F161SG183(1)063(2)
63	40	0.022	SG	6.0	2.5	7.3	2824	40	F161SG223(1)063(2)
63	40	0.027	SG	6.0	2.5	7.3	2824	40	F161SG273(1)063(2)
63	40	0.033	SG	6.0	2.5	7.3	2824	40	F161SG333(1)063(2)
63	40	0.039	SG	6.0	2.5	7.3	2824	40	F161SG393(1)063(2)
63	40	0.047	SG	6.0	2.5	7.3	2824	40	F161SG473(1)063(2)
63	40	0.056	SG	6.0	2.5	7.3	2824	40	F161SG563(1)063(2)
63	40	0.068	SG	6.0	2.5	7.3	2824	40	F161SG683(1)063(2)
63	40	0.082	SG	6.0	2.5	7.3	2824	40	F161SG823(1)063(2)
63	40	0.1	SG	6.0	2.5	7.3	2824	40	F161SG104(1)063(2)
63	40	0.12	SG	6.0	2.5	7.3	2824	40	F161SG124(1)063(2)
63	40	0.15	SG	6.0	2.5	7.3	2824	40	F161SG154(1)063(2)
63	40	0.18	SL	6.0	3.0	7.3	2824	40	F161SL184(1)063(2)
63	40	0.22	SL	6.0	3.0	7.3	2824	40	F161SL224(1)063(2)
63	40	0.27	SP	6.0	3.5	7.3	2824	40	F161SP274(1)063(2)
63	40	0.33	SP	6.0	3.5	7.3	2824	40	F161SP334(1)063(2)
63	40	0.39	SP	6.0	3.5	7.3	2824	40	F161SP394(1)063(2)
63	40	0.47	SP	6.0	3.5	7.3	2824	40	F161SP474(1)063(2)
63	40	0.022	WP	9.1	5.5	10.2	4036	40	F161WP223(1)063(2)
63	40	0.027	WP	9.1	5.5	10.2	4036	40	F161WP273(1)063(2)
63	40	0.033	WP	9.1	5.5	10.2	4036	40	F161WP333(1)063(2)
63	40	0.039	WP	9.1	5.5	10.2	4036	40	F161WP393(1)063(2)
63	40	0.047	WP	9.1	5.5	10.2	4036	40	F161WP473(1)063(2)
63	40	0.056	WP	9.1	5.5	10.2	4036	40	F161WP563(1)063(2)
63	40	0.068	WP	9.1	5.5	10.2	4036	40	F161WP683(1)063(2)
63	40	0.082	WP	9.1	5.5	10.2	4036	40	F161WP823(1)063(2)
63	40	0.1	WP	9.1	5.5	10.2	4036	40	F161WP104(1)063(2)
63	40	0.12	WP	9.1	5.5	10.2	4036	40	F161WP124(1)063(2)
63	40	0.15	WP	9.1	5.5	10.2	4036	40	F161WP154(1)063(2)
63	40	0.18	WP	9.1	5.5	10.2	4036	40	F161WP184(1)063(2)
63	40	0.22	WP	9.1	5.5	10.2	4036	40	F161WP224(1)063(2)
63	40	0.27	WP	9.1	5.5	10.2	4036	40	F161WP274(1)063(2)
63	40	0.33	WP	9.1	5.5	10.2	4036	40	F161WP334(1)063(2)
63	40	0.39	WP	9.1	5.5	10.2	4036	40	F161WP394(1)063(2)
63	40	0.47	WP	9.1	5.5	10.2	4036	40	F161WP474(1)063(2)
63	40	0.56	WP	9.1	5.5	10.2	4036	40	F161WP564(1)063(2)
63	40	0.68	WP	9.1	5.5	10.2	4036	40	F161WP684(1)063(2)
63	40	0.82	WP	9.1	5.5	10.2	4036	40	F161WP824(1)063(2)
63	40	1	WP	9.1	5.5	10.2	4036	40	F161WP105(1)063(2)
VDC	VAC	Capacitance Value (µF)	Size Code	B (mm)	H (mm)	L (mm)	Chip Size	dV/dt (Vµs)	Part Number

(1) J = ±5%, K = ±10%, other tolerances on request.

(2) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.

**Table 1 – Ratings & Part Number Reference cont'd**

VDC	VAC	Capacitance Value (µF)	Size Code	Dimensions in mm			Chip Size	dV/dt (V/µs)	Part Number
				B	H	L			
63	40	1.2	WP	9.1	5.5	10.2	4036	40	F161WP125(1)063(2)
63	40	1.5	WP	9.1	5.5	10.2	4036	40	F161WP155(1)063(2)
63	40	1.8	YR	11.5	6.5	12.7	5045	40	F161YR185(1)063(2)
63	40	2.2	YR	11.5	6.5	12.7	5045	40	F161YR225(1)063(2)
63	40	2.7	YR	11.5	6.5	12.7	5045	40	F161YR275(1)063(2)
63	40	3.3	YR	11.5	6.5	12.7	5045	40	F161YR335(1)063(2)
63	40	3.9	ZS	15.0	7.0	16.5	6560	40	F161ZS395(1)063(2)
63	40	4.7	ZS	15.0	7.0	16.5	6560	40	F161ZS475(1)063(2)
100	63	0.01	PL	5.0	2.5	5.7	2220	50	F161PL103(1)100(2)
100	63	0.012	PL	5.0	2.5	5.7	2220	50	F161PL123(1)100(2)
100	63	0.015	PL	5.0	2.5	5.7	2220	50	F161PL153(1)100(2)
100	63	0.018	PL	5.0	2.5	5.7	2220	50	F161PL183(1)100(2)
100	63	0.022	PL	5.0	2.5	5.7	2220	50	F161PL223(1)100(2)
100	63	0.027	PL	5.0	2.5	5.7	2220	50	F161PL273(1)100(2)
100	63	0.033	PL	5.0	2.5	5.7	2220	50	F161PL333(1)100(2)
100	63	0.039	PL	5.0	2.5	5.7	2220	50	F161PL393(1)100(2)
100	63	0.047	PL	5.0	2.5	5.7	2220	50	F161PL473(1)100(2)
100	63	0.056	PP	5.0	3.0	5.7	2220	50	F161PP563(1)100(2)
100	63	0.068	PP	5.0	3.0	5.7	2220	50	F161PP683(1)100(2)
100	63	0.082	PU	5.0	4.0	5.7	2220	50	F161PU823(1)100(2)
100	63	0.1	PU	5.0	4.0	5.7	2220	50	F161PU104(1)100(2)
100	63	0.01	SG	6.0	2.5	7.3	2824	50	F161SG103(1)100(2)
100	63	0.012	SG	6.0	2.5	7.3	2824	50	F161SG123(1)100(2)
100	63	0.015	SG	6.0	2.5	7.3	2824	50	F161SG153(1)100(2)
100	63	0.018	SG	6.0	2.5	7.3	2824	50	F161SG183(1)100(2)
100	63	0.022	SG	6.0	2.5	7.3	2824	50	F161SG223(1)100(2)
100	63	0.027	SG	6.0	2.5	7.3	2824	50	F161SG273(1)100(2)
100	63	0.033	SG	6.0	2.5	7.3	2824	50	F161SG333(1)100(2)
100	63	0.039	SG	6.0	2.5	7.3	2824	50	F161SG393(1)100(2)
100	63	0.047	SG	6.0	2.5	7.3	2824	50	F161SG473(1)100(2)
100	63	0.056	SG	6.0	2.5	7.3	2824	50	F161SG563(1)100(2)
100	63	0.068	SG	6.0	2.5	7.3	2824	50	F161SG683(1)100(2)
100	63	0.082	SG	6.0	2.5	7.3	2824	50	F161SG823(1)100(2)
100	63	0.1	SG	6.0	2.5	7.3	2824	50	F161SG104(1)100(2)
100	63	0.12	SL	6.0	3.0	7.3	2824	50	F161SL124(1)100(2)
100	63	0.15	SP	6.0	3.5	7.3	2824	50	F161SP154(1)100(2)
100	63	0.18	SP	6.0	3.5	7.3	2824	50	F161SP184(1)100(2)
100	63	0.22	ST	6.0	4.5	7.3	2824	50	F161ST224(1)100(2)
100	63	0.022	WP	9.1	5.5	10.2	4036	50	F161WP223(1)100(2)
100	63	0.027	WP	9.1	5.5	10.2	4036	50	F161WP273(1)100(2)
100	63	0.033	WP	9.1	5.5	10.2	4036	50	F161WP333(1)100(2)
100	63	0.039	WP	9.1	5.5	10.2	4036	50	F161WP393(1)100(2)
100	63	0.047	WP	9.1	5.5	10.2	4036	50	F161WP473(1)100(2)
100	63	0.056	WP	9.1	5.5	10.2	4036	50	F161WP563(1)100(2)
100	63	0.068	WP	9.1	5.5	10.2	4036	50	F161WP683(1)100(2)
100	63	0.082	WP	9.1	5.5	10.2	4036	50	F161WP823(1)100(2)
100	63	0.1	WP	9.1	5.5	10.2	4036	50	F161WP104(1)100(2)
100	63	0.12	WP	9.1	5.5	10.2	4036	50	F161WP124(1)100(2)
100	63	0.15	WP	9.1	5.5	10.2	4036	50	F161WP154(1)100(2)
100	63	0.18	WP	9.1	5.5	10.2	4036	50	F161WP184(1)100(2)
100	63	0.22	WP	9.1	5.5	10.2	4036	50	F161WP224(1)100(2)
100	63	0.27	WP	9.1	5.5	10.2	4036	50	F161WP274(1)100(2)
100	63	0.33	WP	9.1	5.5	10.2	4036	50	F161WP334(1)100(2)
100	63	0.39	WP	9.1	5.5	10.2	4036	50	F161WP394(1)100(2)
100	63	0.47	WP	9.1	5.5	10.2	4036	50	F161WP474(1)100(2)
100	63	0.56	YR	11.5	6.5	12.7	5045	50	F161YR564(1)100(2)
100	63	0.68	YR	11.5	6.5	12.7	5045	50	F161YR684(1)100(2)
100	63	0.82	YR	11.5	6.5	12.7	5045	50	F161YR824(1)100(2)
100	63	1	YR	11.5	6.5	12.7	5045	50	F161YR105(1)100(2)
VDC	VAC	Capacitance Value (µF)	Size Code	B (mm)	H (mm)	L (mm)	Chip Size	dV/dt (Vµs)	Part Number

(1) J = ±5%, K = ±10%, other tolerances on request.

(2) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.

**Table 1 – Ratings & Part Number Reference cont'd**

VDC	VAC	Capacitance Value (µF)	Size Code	Dimensions in mm			Chip Size	dV/dt (V/µs)	Part Number
				B	H	L			
100	63	1.2	ZS	15.0	7.0	16.5	6560	50	F161ZS125(1)100(2)
100	63	1.5	ZS	15.0	7.0	16.5	6560	50	F161ZS155(1)100(2)
100	63	1.8	ZS	15.0	7.0	16.5	6560	50	F161ZS185(1)100(2)
100	63	2.2	ZS	15.0	7.0	16.5	6560	50	F161ZS225(1)100(2)
100	63	2.7	ZS	15.0	7.0	16.5	6560	50	F161ZS275(1)100(2)
100	63	3.3	ZS	15.0	7.0	16.5	6560	50	F161ZS335(1)100(2)
250	160	0.01	SG	6.0	2.5	7.3	2824	150	F161SG103(1)250(2)
250	160	0.012	SG	6.0	2.5	7.3	2824	150	F161SG123(1)250(2)
250	160	0.015	SG	6.0	2.5	7.3	2824	150	F161SG153(1)250(2)
250	160	0.018	SL	6.0	3.0	7.3	2824	150	F161SL183(1)250(2)
250	160	0.022	SL	6.0	3.0	7.3	2824	150	F161SL223(1)250(2)
250	160	0.027	SP	6.0	3.5	7.3	2824	150	F161SP273(1)250(2)
250	160	0.033	SP	6.0	3.5	7.3	2824	150	F161SP333(1)250(2)
250	160	0.039	SP	6.0	3.5	7.3	2824	150	F161SP393(1)250(2)
250	160	0.047	ST	6.0	4.5	7.3	2824	150	F161ST473(1)250(2)
250	160	0.022	WP	9.1	5.5	10.2	4036	150	F161WP223(1)250(2)
250	160	0.027	WP	9.1	5.5	10.2	4036	150	F161WP273(1)250(2)
250	160	0.033	WP	9.1	5.5	10.2	4036	150	F161WP333(1)250(2)
250	160	0.039	WP	9.1	5.5	10.2	4036	150	F161WP393(1)250(2)
250	160	0.047	WP	9.1	5.5	10.2	4036	150	F161WP473(1)250(2)
250	160	0.056	WP	9.1	5.5	10.2	4036	150	F161WP563(1)250(2)
250	160	0.068	WP	9.1	5.5	10.2	4036	150	F161WP683(1)250(2)
250	160	0.082	WP	9.1	5.5	10.2	4036	150	F161WP823(1)250(2)
250	160	0.1	WP	9.1	5.5	10.2	4036	150	F161WP104(1)250(2)
250	160	0.12	WP	9.1	5.5	10.2	4036	150	F161WP124(1)250(2)
250	160	0.15	WP	9.1	5.5	10.2	4036	150	F161WP154(1)250(2)
250	160	0.18	YR	11.5	6.5	12.7	5045	150	F161YR184(1)250(2)
250	160	0.22	YR	11.5	6.5	12.7	5045	150	F161YR224(1)250(2)
250	160	0.27	YR	11.5	6.5	12.7	5045	150	F161YR274(1)250(2)
250	160	0.33	YR	11.5	6.5	12.7	5045	150	F161YR334(1)250(2)
250	160	0.39	YR	11.5	6.5	12.7	5045	150	F161YR394(1)250(2)
250	160	0.47	YR	11.5	6.5	12.7	5045	150	F161YR474(1)250(2)
250	160	0.56	ZS	15.0	7.0	16.5	6560	150	F161ZS564(1)250(2)
250	160	0.68	ZS	15.0	7.0	16.5	6560	150	F161ZS684(1)250(2)
250	160	0.82	ZS	15.0	7.0	16.5	6560	150	F161ZS824(1)250(2)
250	160	1	ZS	15.0	7.0	16.5	6560	150	F161ZS105(1)250(2)
400	200	0.022	WP	9.1	5.5	10.2	4036	200	F161WP223(1)400(2)
400	200	0.027	WP	9.1	5.5	10.2	4036	200	F161WP273(1)400(2)
400	200	0.033	WP	9.1	5.5	10.2	4036	200	F161WP333(1)400(2)
400	200	0.039	WP	9.1	5.5	10.2	4036	200	F161WP393(1)400(2)
400	200	0.047	WP	9.1	5.5	10.2	4036	200	F161WP473(1)400(2)
400	200	0.056	WP	9.1	5.5	10.2	4036	200	F161WP563(1)400(2)
400	200	0.068	WP	9.1	5.5	10.2	4036	200	F161WP683(1)400(2)
400	200	0.082	YR	11.5	6.5	12.7	5045	200	F161YR823(1)400(2)
400	200	0.1	YR	11.5	6.5	12.7	5045	200	F161YR104(1)400(2)
400	200	0.12	YR	11.5	6.5	12.7	5045	200	F161YR124(1)400(2)
400	200	0.15	YR	11.5	6.5	12.7	5045	200	F161YR154(1)400(2)
400	200	0.18	ZS	15.0	7.0	16.5	6560	200	F161ZS184(1)400(2)
400	200	0.22	ZS	15.0	7.0	16.5	6560	200	F161ZS224(1)400(2)
400	200	0.27	ZS	15.0	7.0	16.5	6560	200	F161ZS274(1)400(2)
400	200	0.33	ZS	15.0	7.0	16.5	6560	200	F161ZS334(1)400(2)
400	200	0.39	ZS	15.0	7.0	16.5	6560	200	F161ZS394(1)400(2)
400	200	0.47	ZS	15.0	7.0	16.5	6560	200	F161ZS474(1)400(2)
VDC	VAC	Capacitance Value (µF)	Size Code	B (mm)	H (mm)	L (mm)	Chip Size	dV/dt (Vµs)	Part Number

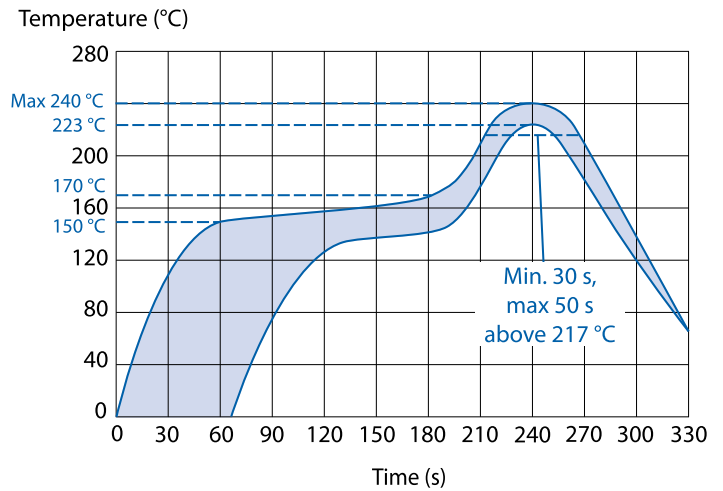
(1) J = ±5%, K = ±10%, other tolerances on request.

(2) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.



## Soldering Process

Reflow soldering temperature is measured on the top body surface of the component. Preheating temperature should be less than 170°C. The time above 217°C should be less than 50 seconds. The peak temperature must not exceed 240°C.



## Marking

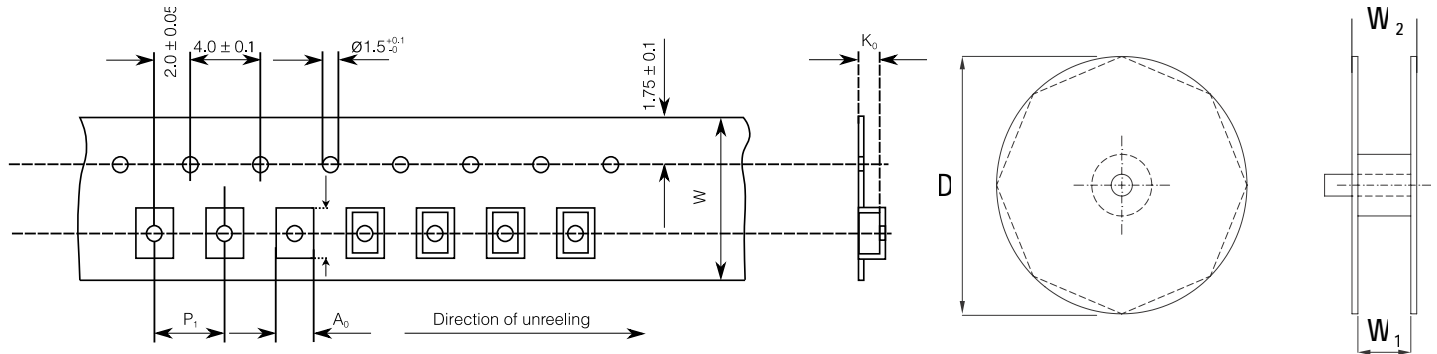
- Capacitance
- Capacitance tolerance code
- Rated voltage code
- Capacitor type N for F161
- Manufacturing date code

## Packaging Quantities

Chip Size (EIA)	Base (mm)	Height (mm)	Length (mm)	Bulk	Reel Horizontal Orientation	Reel Vertical Orientation
2220	5	2.5	5.7	2000	3100	
2220	5	3	5.7	2000	2400	
2220	5	4	5.7	2000	2100	
2824	6	2.5	7.3	2000	3100	
2824	6	3	7.3	2000	2500	
2824	6	3.5	7.3	2000	2300	
2824	6	4.5	7.3	1000	1700	
4036	9.1	5.5	10.2	1000	800	500
5045	11.5	6.5	12.7	1000	600	400
6560	15	7	16.5	800	500	200

## Carrier Taping & Packaging (IEC 60286–2)

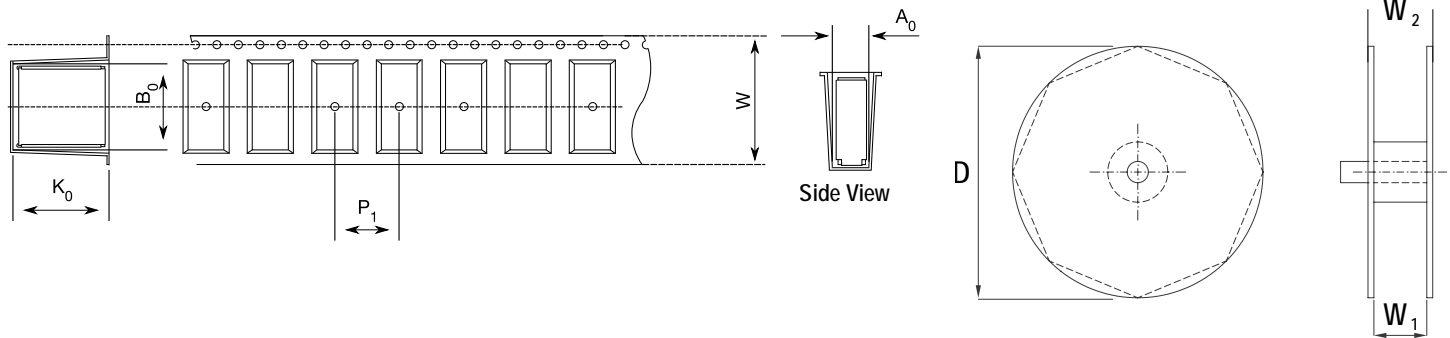
### Horizontal Taping Orientation



EIA Size Code Horizontal Mounting	Dimensions in mm			Taping Specification							
	B	H	L	W	P <sub>1</sub>	A <sub>0</sub>	B <sub>0</sub>	K <sub>0</sub>	D	W <sub>1</sub>	W <sub>2</sub>
	Nominal	Nominal	Nominal	-0/+0.3	+/-0.1	Nominal	Nominal	Nominal	-/+2.0	-0/+2	Maximum
2220	5.0	2.5	5.7	12.0	8.0	5.5	6.0	2.8	330	12.4	22.0
2220	5.0	3.0	5.7	12.0	8.0	5.5	6.0	3.3	330	12.4	22.0
2220	5.0	4.0	5.7	12.0	8.0	5.5	6.0	4.3	330	12.4	22.0
2824	6.0	2.5	7.3	12.0	8.0	6.5	7.5	2.8	330	12.4	22.0
2824	6.0	3.0	7.3	12.0	8.0	6.5	7.5	3.3	330	12.4	22.0
2824	6.0	3.5	7.3	12.0	8.0	6.5	7.5	3.8	330	12.4	22.0
2824	6.0	4.5	7.3	12.0	8.0	6.5	7.5	4.8	330	12.4	22.0
4036	9.1	5.5	10.2	16.0	16.0	9.5	10.5	5.8	330	16.4	22.0
5045	11.5	6.5	12.7	24.0	16.0	11.9	13.1	6.8	330	24.4	30.0
6560	15.0	7.0	16.5	24.0	20.0	15.4	16.8	7.3	330	24.4	30.0

## Carrier Taping & Packaging (IEC 60286–2) cont'd

### Vertical Taping Orientation



Size Code Vertical Mounting	Dimensions in mm			Taping Specification							
	B	H	L	W	P <sub>1</sub>	A <sub>0</sub>	B <sub>0</sub>	K <sub>0</sub>	D	W <sub>1</sub>	W <sub>2</sub>
	Nominal	Nominal	Nominal	-0/+0.3	+/-0.1	Nominal	Nominal	Nominal	-/+2.0	-0/+2	Maximum
4022	5.5	9.1	10.2	24.0	16.0	6.0	10.5	9.3	330	24.4	30.0
5026	6.5	11.5	12.7	24.0	16.0	6.9	13.1	11.8	330	24.4	30.0
6528	7.0	15.0	16.5	44.0	20.0	7.5	17.0	15.3	330	44.5	49.5

**Note: Chip dimensions B and H correspond to dimensions H and B in the horizontal mounting table.**

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Beijing, China  
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Shanghai, China  
Tel: 86-21-6447-0707

Taipei, Taiwan  
Tel: 886-2-27528585

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Singapore  
Tel: 65-6586-1900

Penang, Malaysia  
Tel: 60-4-6430200

Bangalore, India  
Tel: 91-806-53-76817

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## Other KEMET Resources

Tools	
Resource	Location
Configure A Part: CapEdge	<a href="http://capacitoredge.kemet.com">http://capacitoredge.kemet.com</a>
SPICE & FIT Software	<a href="http://www.kemet.com/spice">http://www.kemet.com/spice</a>
Search Our FAQs: KnowledgeEdge	<a href="http://www.kemet.com/keask">http://www.kemet.com/keask</a>

Product Information	
Resource	Location
Products	<a href="http://www.kemet.com/products">http://www.kemet.com/products</a>
Technical Resources (Including Soldering Techniques)	<a href="http://www.kemet.com/technicalpapers">http://www.kemet.com/technicalpapers</a>
RoHS Statement	<a href="http://www.kemet.com/rohs">http://www.kemet.com/rohs</a>
Quality Documents	<a href="http://www.kemet.com/qualitydocuments">http://www.kemet.com/qualitydocuments</a>

Product Request	
Resource	Location
Sample Request	<a href="http://www.kemet.com/sample">http://www.kemet.com/sample</a>
Engineering Kit Request	<a href="http://www.kemet.com/kits">http://www.kemet.com/kits</a>

Contact	
Resource	Location
Website	<a href="http://www.kemet.com">www.kemet.com</a>
Contact Us	<a href="http://www.kemet.com/contact">http://www.kemet.com/contact</a>
Investor Relations	<a href="http://www.kemet.com/ir">http://www.kemet.com/ir</a>
Call Us	1-877-MyKEMET
Twitter	<a href="http://twitter.com/kemetcapacitors">http://twitter.com/kemetcapacitors</a>

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