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Overview

The F5D series is a metallized polyester (MKT) film capacitor with an integrated ceramic capacitor, encapsulated in a thermosetting, resin-filled, plastic box with tinned wire leads. Box material is solvent-resistant and flame-retardant, meeting the requirements of UL 94 V–0.

Applications

For worldwide use as EMI/RFI suppressors for automotive motors and other suppression applications such as engine blower fans, central locking systems, heating/air-conditioning blowers, electric sun roofs, electric window regulators, fuel/oil pumps, electric windshield wipers, and electrically operated seats. This through-hole EMI/RFI suppression element is mainly used for automotive applications without a printed circuit board (e.g. motor suppression) or mixed through-hole and surface mount printed circuit boards.

Benefits

- Low inductive MKT capacitors in parallel construction with a ceramic capacitor in a single case that provides superior suppression results
- Approvals: AEC–Q200, ISO7637
- Rated Voltage: 63 VDC
- Capacitance Range: 0.1 – 2.2 µF
- Capacitance Tolerance: ±10%, ±20%
- Climatic Category: 55/125/56 IEC 60068–1
- Tape & Reel packaging in accordance with IEC 60286–2
- RoHS compliance and lead-free terminations
- Operating temperature range: –55˚C to +125˚C



Part Number System

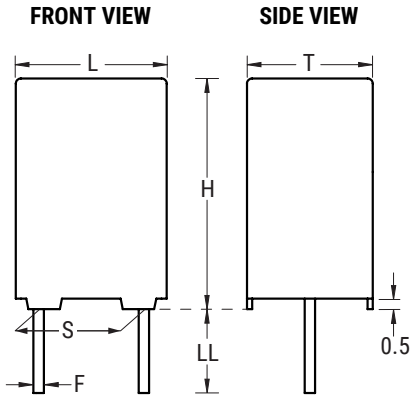
F5D	D	C	3100	DQ	W	5	M
Series	Rated Voltage (VDC)	Lead Spacing (mm)	Capacitance Code (pF)	Lead and Packaging Code	Ceramic Capacitor Value	Size Code	Capacitance Tolerance
Film Capacitor/ Ceramic Capacitor Unit	D = 63	C = 5 mm F= 10 mm	Digits 2 – 4 indicate the first three digits of the capacitance value. The first digit indicates the number of zeros to be added.	See Ordering Options Table	See Ceramic Capacitor Table	See Dimension Table	K = ±10% M = ±20%

Ordering Options Table

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Lead Spacing Nominal (mm)	Type of Leads and Packaging	Lead Length (mm)	Lead and Packaging Code
5	**Standard Lead and Packaging Options**		
	Bulk (Bag) – Short Leads	4 +2/–0	AA
	Ammo Pack	H_0 = 18.5 ±0.5	DQ
	Other Lead and Packaging Options		
	Bulk (Bag) – Long Leads	17 +1/–2	Z3
	Tape & Reel (Standard Reel)	H_0 = 18.5 ±0.5	CK
10	**Standard Lead and Packaging Options**		
	Bulk (Bag) – Short Leads	4 +2/–0	AA
	Ammo Pack	H_0 = 18.5 ±0.5	DQ
	Other Lead and Packaging Options		
	Bulk (Bag) – Long Leads	17 +1/–2	Z3
	Tape & Reel (Large Reel)	H_0 = 18.5 ±0.5	CK

Dimensions – Millimeters

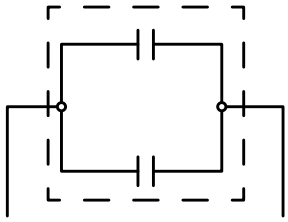


Rated Capacitance	Size Code	S		T		H		L		F	
µF		Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance
0.1 – 0.47	5	5.0	±0.4	4.6	Maximum	9.6	Max	7.4	Maximum	0.6	±0.05
0.56 – 1.5	6	5.0	±0.4	5.1	Maximum	10.1	Max	7.5	Maximum	0.6	±0.05
1.8 – 2.2	7	5.0	±0.4	6.1	Maximum	11.1	Max	7.5	Maximum	0.6	±0.05
0.1 – 1.0	2	10.0	±0.4	5.2	Maximum	11.1	Max	13.4	Maximum	0.75	±0.05
1.2 – 1.5	3	10.0	±0.4	6.2	Maximum	12.1	Max	13.4	Maximum	0.75	±0.05

Note: See the Ordering Options Table for lead length (LL) options.

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Circuit Diagram



Ceramic Capacitor Value

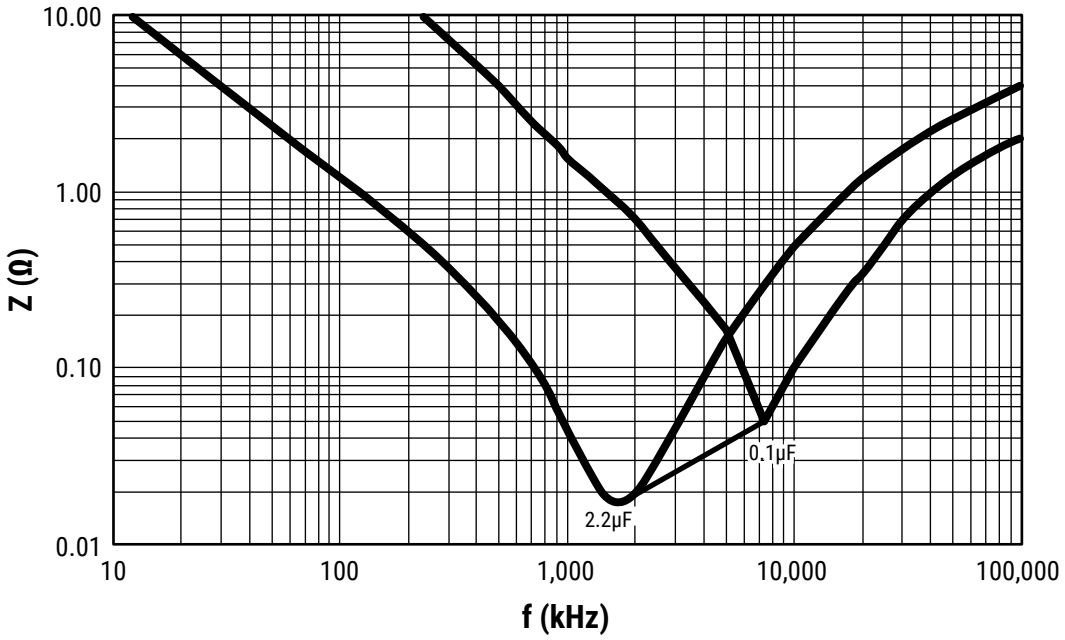
Ceramic Capacitor Value	Digit 12
10 pF	U
22 pF	V
47 pF	W
68 pF	X
100 pF	E
220 pF	G
470 pF	A
680 pF	H
1 nF	C
2.2 nF	F
4.7 nF	B
6.8 nF	N
10 nF	D
47 nF	R
68 nF	T
100 nF	S

Performance Characteristics

Rated Voltage	63 VDC (For temperature over 100°C a decreasing factor of 2% per degree has to be applied on the rated voltage V_R)
Capacitance Range	0.1 – 2.2 µF (See Ceramic Capacitor Value Table)
Capacitance Tolerance	±10%, ±20%
Temperature Range	–55°C to +125°C
Climatic Category	55/125/56, IEC 60068–1
Leakage Current	≤ 10 µA at V_R
Approvals	AEC–Q200, ISO 7637
Dissipation Factor	0.025 (1 kHz at 25°C ±5°C)
Test Voltage Between Terminals	1.6 x V_R
Insulation Resistance	100 MΩ at 50 V

Impedance Graphs

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Environmental Test Data

Test	Conditions	Performance	
Damp Heat Steady State	+40°C ±2°C and 93% ±2% R.H., 56 days	Δ C/C	≤ 5%
		DF Change	≤ 50 x 10^{-4} at 1 kHz
		Leakage Current at V_R	≤ 100 µA
Endurance	+125°C ±2°C/100°C ±2°C, 0.5 x V_R/1.0 x V_R, 1,000 hours	Δ C/C	≤ 10%
		DF Change	≤ 50 x 10^{-4} at 1 kHz
		Leakage Current at V_R	≤ 100 µA
Resistance to Soldering Heat	+260°C ±5°C, 10±1 second	Δ C/C	≤ 3%
		DF Change	≤ 30 x 10^{-4} at 1 kHz
		Leakage Current at V_R	≤ 50 µA
Long-Term Stability (After 2 Years)	−40°C to +80°C, ≤ 70% humidity	Δ C/C	≤ 3%
		DF Change	≤ 20 x 10^{-4} at 1 kHz
		Leakage Current at V_R	≤ 50 µA
Reliability Failure Criteria	Reference MIL HDB 217 +40°C ±2°C, 0.5 x V_R, ≤ 5 FIT	Δ C/C	> 10%
		DF Change	≤ 20 x 10^{-4} at 1 kHz
		Leakage Current at V_R	≤ 200 µA

Environmental Compliance

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All KEMET EMI capacitors are RoHS compliant.

Table 1 – Ratings & Part Number Reference

Capacitance Value (µF)	VDC	Max Dimensions in mm			Lead Spacing (S)	Ceramic Cap (µF)	KEMET Part Number	Legacy Part Number
		T	H	L				
0.10	63	4.6	9.6	7.4	5.0	0.00001	5DDC3100(1)U5(2)	F5DDC3100(1)U5(2)
0.10	63	4.6	9.6	7.4	5.0	0.000022	5DDC3100(1)V5(2)	F5DDC3100(1)V5(2)
0.10	63	4.6	9.6	7.4	5.0	0.000047	5DDC3100(1)W5(2)	F5DDC3100(1)W5(2)
0.10	63	4.6	9.6	7.4	5.0	0.000068	5DDC3100(1)X5(2)	F5DDC3100(1)X5(2)
0.10	63	4.6	9.6	7.4	5.0	0.0001	5DDC3100(1)E5(2)	F5DDC3100(1)E5(2)
0.10	63	4.6	9.6	7.4	5.0	0.00022	5DDC3100(1)G5(2)	F5DDC3100(1)G5(2)
0.10	63	4.6	9.6	7.4	5.0	0.00047	5DDC3100(1)A5(2)	F5DDC3100(1)A5(2)
0.10	63	4.6	9.6	7.4	5.0	0.00068	5DDC3100(1)H5(2)	F5DDC3100(1)H5(2)
0.10	63	4.6	9.6	7.4	5.0	0.001	5DDC3100(1)C5(2)	F5DDC3100(1)C5(2)
0.10	63	4.6	9.6	7.4	5.0	0.0022	5DDC3100(1)F5(2)	F5DDC3100(1)F5(2)
0.10	63	4.6	9.6	7.4	5.0	0.0047	5DDC3100(1)B5(2)	F5DDC3100(1)B5(2)
0.10	63	4.6	9.6	7.4	5.0	0.0068	5DDC3100(1)N5(2)	F5DDC3100(1)N5(2)
0.10	63	4.6	9.6	7.4	5.0	0.01	5DDC3100(1)D5(2)	F5DDC3100(1)D5(2)
0.10	63	4.6	9.6	7.4	5.0	0.047	5DDC3100(1)R5(2)	F5DDC3100(1)R5(2)
0.10	63	4.6	9.6	7.4	5.0	0.068	5DDC3100(1)T5(2)	F5DDC3100(1)T5(2)
0.10	63	4.6	9.6	7.4	5.0	0.1	5DDC3100(1)S5(2)	F5DDC3100(1)S5(2)
0.22	63	4.6	9.6	7.4	5.0	0.00001	5DDC3220(1)U5(2)	F5DDC3220(1)U5(2)
0.22	63	4.6	9.6	7.4	5.0	0.000022	5DDC3220(1)V5(2)	F5DDC3220(1)V5(2)
0.22	63	4.6	9.6	7.4	5.0	0.000047	5DDC3220(1)W5(2)	F5DDC3220(1)W5(2)
0.22	63	4.6	9.6	7.4	5.0	0.000068	5DDC3220(1)X5(2)	F5DDC3220(1)X5(2)
0.22	63	4.6	9.6	7.4	5.0	0.0001	5DDC3220(1)E5(2)	F5DDC3220(1)E5(2)
0.22	63	4.6	9.6	7.4	5.0	0.00022	5DDC3220(1)G5(2)	F5DDC3220(1)G5(2)
0.22	63	4.6	9.6	7.4	5.0	0.00047	5DDC3220(1)A5(2)	F5DDC3220(1)A5(2)
0.22	63	4.6	9.6	7.4	5.0	0.00068	5DDC3220(1)H5(2)	F5DDC3220(1)H5(2)
0.22	63	4.6	9.6	7.4	5.0	0.001	5DDC3220(1)C5(2)	F5DDC3220(1)C5(2)
0.22	63	4.6	9.6	7.4	5.0	0.0022	5DDC3220(1)F5(2)	F5DDC3220(1)F5(2)
0.22	63	4.6	9.6	7.4	5.0	0.0047	5DDC3220(1)B5(2)	F5DDC3220(1)B5(2)
0.22	63	4.6	9.6	7.4	5.0	0.0068	5DDC3220(1)N5(2)	F5DDC3220(1)N5(2)
0.22	63	4.6	9.6	7.4	5.0	0.01	5DDC3220(1)D5(2)	F5DDC3220(1)D5(2)
0.22	63	4.6	9.6	7.4	5.0	0.047	5DDC3220(1)R5(2)	F5DDC3220(1)R5(2)
0.22	63	4.6	9.6	7.4	5.0	0.068	5DDC3220(1)T5(2)	F5DDC3220(1)T5(2)
0.22	63	4.6	9.6	7.4	5.0	0.1	5DDC3220(1)S5(2)	F5DDC3220(1)S5(2)
0.33	63	4.6	9.6	7.4	5.0	0.00001	5DDC3330(1)U5(2)	F5DDC3330(1)U5(2)
0.33	63	4.6	9.6	7.4	5.0	0.000022	5DDC3330(1)V5(2)	F5DDC3330(1)V5(2)
0.33	63	4.6	9.6	7.4	5.0	0.000047	5DDC3330(1)W5(2)	F5DDC3330(1)W5(2)
0.33	63	4.6	9.6	7.4	5.0	0.000068	5DDC3330(1)X5(2)	F5DDC3330(1)X5(2)
Capacitance Value (µF)	**VDC**	**T (mm)**	**H (mm)**	**L (mm)**	**Lead Spacing (S)**	**Ceramic Cap (µF)**	**KEMET Part Number**	**Legacy Part Number**

(1) Insert lead and packaging code. See Ordering Options Table for available options.
(2) K = 10%, M = 20%.

Table 1 – Ratings & Part Number Reference cont.

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Capacitance Value (µF)	VDC	Max Dimensions in mm			Lead Spacing (S)	Ceramic Cap (µF)	KEMET Part Number	Legacy Part Number
		T	H	L				
0.33	63	4.6	9.6	7.4	5.0	0.0001	5DDC3330(1)E5(2)	F5DDC3330(1)E5(2)
0.33	63	4.6	9.6	7.4	5.0	0.00022	5DDC3330(1)G5(2)	F5DDC3330(1)G5(2)
0.33	63	4.6	9.6	7.4	5.0	0.00047	5DDC3330(1)A5(2)	F5DDC3330(1)A5(2)
0.33	63	4.6	9.6	7.4	5.0	0.00068	5DDC3330(1)H5(2)	F5DDC3330(1)H5(2)
0.33	63	4.6	9.6	7.4	5.0	0.001	5DDC3330(1)C5(2)	F5DDC3330(1)C5(2)
0.33	63	4.6	9.6	7.4	5.0	0.0022	5DDC3330(1)F5(2)	F5DDC3330(1)F5(2)
0.33	63	4.6	9.6	7.4	5.0	0.0047	5DDC3330(1)B5(2)	F5DDC3330(1)B5(2)
0.33	63	4.6	9.6	7.4	5.0	0.0068	5DDC3330(1)N5(2)	F5DDC3330(1)N5(2)
0.33	63	4.6	9.6	7.4	5.0	0.01	5DDC3330(1)D5(2)	F5DDC3330(1)D5(2)
0.33	63	4.6	9.6	7.4	5.0	0.047	5DDC3330(1)R5(2)	F5DDC3330(1)R5(2)
0.33	63	4.6	9.6	7.4	5.0	0.068	5DDC3330(1)T5(2)	F5DDC3330(1)T5(2)
0.33	63	4.6	9.6	7.4	5.0	0.1	5DDC3330(1)S5(2)	F5DDC3330(1)S5(2)
0.47	63	4.6	9.6	7.4	5.0	0.00001	5DDC3470(1)U5(2)	F5DDC3470(1)U5(2)
0.47	63	4.6	9.6	7.4	5.0	0.000022	5DDC3470(1)V5(2)	F5DDC3470(1)V5(2)
0.47	63	4.6	9.6	7.4	5.0	0.000047	5DDC3470(1)W5(2)	F5DDC3470(1)W5(2)
0.47	63	4.6	9.6	7.4	5.0	0.000068	5DDC3470(1)X5(2)	F5DDC3470(1)X5(2)
0.47	63	4.6	9.6	7.4	5.0	0.0001	5DDC3470(1)E5(2)	F5DDC3470(1)E5(2)
0.47	63	4.6	9.6	7.4	5.0	0.00022	5DDC3470(1)G5(2)	F5DDC3470(1)G5(2)
0.47	63	4.6	9.6	7.4	5.0	0.00047	5DDC3470(1)A5(2)	F5DDC3470(1)A5(2)
0.47	63	4.6	9.6	7.4	5.0	0.00068	5DDC3470(1)H5(2)	F5DDC3470(1)H5(2)
0.47	63	4.6	9.6	7.4	5.0	0.001	5DDC3470(1)C5(2)	F5DDC3470(1)C5(2)
0.47	63	4.6	9.6	7.4	5.0	0.0022	5DDC3470(1)F5(2)	F5DDC3470(1)F5(2)
0.47	63	4.6	9.6	7.4	5.0	0.0047	5DDC3470(1)B5(2)	F5DDC3470(1)B5(2)
0.47	63	4.6	9.6	7.4	5.0	0.0068	5DDC3470(1)N5(2)	F5DDC3470(1)N5(2)
0.47	63	4.6	9.6	7.4	5.0	0.01	5DDC3470(1)D5(2)	F5DDC3470(1)D5(2)
0.47	63	4.6	9.6	7.4	5.0	0.047	5DDC3470(1)R5(2)	F5DDC3470(1)R5(2)
0.47	63	4.6	9.6	7.4	5.0	0.068	5DDC3470(1)T5(2)	F5DDC3470(1)T5(2)
0.47	63	4.6	9.6	7.4	5.0	0.1	5DDC3470(1)S5(2)	F5DDC3470(1)S5(2)
0.56	63	5.1	10.1	7.5	5.0	0.00001	5DDC3560(1)U6(2)	F5DDC3560(1)U6(2)
0.56	63	5.1	10.1	7.5	5.0	0.000022	5DDC3560(1)V6(2)	F5DDC3560(1)V6(2)
0.56	63	5.1	10.1	7.5	5.0	0.000047	5DDC3560(1)W6(2)	F5DDC3560(1)W6(2)
0.56	63	5.1	10.1	7.5	5.0	0.000068	5DDC3560(1)X6(2)	F5DDC3560(1)X6(2)
0.56	63	5.1	10.1	7.5	5.0	0.0001	5DDC3560(1)E6(2)	F5DDC3560(1)E6(2)
0.56	63	5.1	10.1	7.5	5.0	0.00022	5DDC3560(1)G6(2)	F5DDC3560(1)G6(2)
0.56	63	5.1	10.1	7.5	5.0	0.00047	5DDC3560(1)A6(2)	F5DDC3560(1)A6(2)
0.56	63	5.1	10.1	7.5	5.0	0.00068	5DDC3560(1)H6(2)	F5DDC3560(1)H6(2)
0.56	63	5.1	10.1	7.5	5.0	0.001	5DDC3560(1)C6(2)	F5DDC3560(1)C6(2)
0.56	63	5.1	10.1	7.5	5.0	0.0022	5DDC3560(1)F6(2)	F5DDC3560(1)F6(2)
0.56	63	5.1	10.1	7.5	5.0	0.0047	5DDC3560(1)B6(2)	F5DDC3560(1)B6(2)
0.56	63	5.1	10.1	7.5	5.0	0.0068	5DDC3560(1)N6(2)	F5DDC3560(1)N6(2)
0.56	63	5.1	10.1	7.5	5.0	0.01	5DDC3560(1)D6(2)	F5DDC3560(1)D6(2)
0.56	63	5.1	10.1	7.5	5.0	0.047	5DDC3560(1)R6(2)	F5DDC3560(1)R6(2)
Capacitance Value (µF)	**VDC**	**T (mm)**	**H (mm)**	**L (mm)**	**Lead Spacing (S)**	**Ceramic Cap (µF)**	**KEMET Part Number**	**Legacy Part Number**

(1) Insert lead and packaging code. See Ordering Options Table for available options.
(2) K = 10%, M = 20%.

Table 1 – Ratings & Part Number Reference cont.

OBSOLETE

Capacitance Value (µF)	VDC	Max Dimensions in mm			Lead Spacing (S)	Ceramic Cap (µF)	KEMET Part Number	Legacy Part Number
		T	H	L				
0.56	63	5.1	10.1	7.5	5.0	0.068	5DDC3560(1)T6(2)	F5DDC3560(1)T6(2)
0.56	63	5.1	10.1	7.5	5.0	0.1	5DDC3560(1)S6(2)	F5DDC3560(1)S6(2)
0.68	63	5.1	10.1	7.5	5.0	0.00001	5DDC3680(1)U6(2)	F5DDC3680(1)U6(2)
0.68	63	5.1	10.1	7.5	5.0	0.000022	5DDC3680(1)V6(2)	F5DDC3680(1)V6(2)
0.68	63	5.1	10.1	7.5	5.0	0.000047	5DDC3680(1)W6(2)	F5DDC3680(1)W6(2)
0.68	63	5.1	10.1	7.5	5.0	0.000068	5DDC3680(1)X6(2)	F5DDC3680(1)X6(2)
0.68	63	5.1	10.1	7.5	5.0	0.0001	5DDC3680(1)E6(2)	F5DDC3680(1)E6(2)
0.68	63	5.1	10.1	7.5	5.0	0.00022	5DDC3680(1)G6(2)	F5DDC3680(1)G6(2)
0.68	63	5.1	10.1	7.5	5.0	0.00047	5DDC3680(1)A6(2)	F5DDC3680(1)A6(2)
0.68	63	5.1	10.1	7.5	5.0	0.00068	5DDC3680(1)H6(2)	F5DDC3680(1)H6(2)
0.68	63	5.1	10.1	7.5	5.0	0.001	5DDC3680(1)C6(2)	F5DDC3680(1)C6(2)
0.68	63	5.1	10.1	7.5	5.0	0.0022	5DDC3680(1)F6(2)	F5DDC3680(1)F6(2)
0.68	63	5.1	10.1	7.5	5.0	0.0047	5DDC3680(1)B6(2)	F5DDC3680(1)B6(2)
0.68	63	5.1	10.1	7.5	5.0	0.0068	5DDC3680(1)N6(2)	F5DDC3680(1)N6(2)
0.68	63	5.1	10.1	7.5	5.0	0.01	5DDC3680(1)D6(2)	F5DDC3680(1)D6(2)
0.68	63	5.1	10.1	7.5	5.0	0.047	5DDC3680(1)R6(2)	F5DDC3680(1)R6(2)
0.68	63	5.1	10.1	7.5	5.0	0.068	5DDC3680(1)T6(2)	F5DDC3680(1)T6(2)
0.68	63	5.1	10.1	7.5	5.0	0.1	5DDC3680(1)S6(2)	F5DDC3680(1)S6(2)
1.00	63	5.1	10.1	7.5	5.0	0.00001	5DDC4100(1)U6(2)	F5DDC4100(1)U6(2)
1.00	63	5.1	10.1	7.5	5.0	0.000022	5DDC4100(1)V6(2)	F5DDC4100(1)V6(2)
1.00	63	5.1	10.1	7.5	5.0	0.000047	5DDC4100(1)W6(2)	F5DDC4100(1)W6(2)
1.00	63	5.1	10.1	7.5	5.0	0.000068	5DDC4100(1)X6(2)	F5DDC4100(1)X6(2)
1.00	63	5.1	10.1	7.5	5.0	0.0001	5DDC4100(1)E6(2)	F5DDC4100(1)E6(2)
1.00	63	5.1	10.1	7.5	5.0	0.00022	5DDC4100(1)G6(2)	F5DDC4100(1)G6(2)
1.00	63	5.1	10.1	7.5	5.0	0.00047	5DDC4100(1)A6(2)	F5DDC4100(1)A6(2)
1.00	63	5.1	10.1	7.5	5.0	0.00068	5DDC4100(1)H6(2)	F5DDC4100(1)H6(2)
1.00	63	5.1	10.1	7.5	5.0	0.001	5DDC4100(1)C6(2)	F5DDC4100(1)C6(2)
1.00	63	5.1	10.1	7.5	5.0	0.0022	5DDC4100(1)F6(2)	F5DDC4100(1)F6(2)
1.00	63	5.1	10.1	7.5	5.0	0.0047	5DDC4100(1)B6(2)	F5DDC4100(1)B6(2)
1.00	63	5.1	10.1	7.5	5.0	0.0068	5DDC4100(1)N6(2)	F5DDC4100(1)N6(2)
1.00	63	5.1	10.1	7.5	5.0	0.01	5DDC4100(1)D6(2)	F5DDC4100(1)D6(2)
1.00	63	5.1	10.1	7.5	5.0	0.047	5DDC4100(1)R6(2)	F5DDC4100(1)R6(2)
1.00	63	5.1	10.1	7.5	5.0	0.068	5DDC4100(1)T6(2)	F5DDC4100(1)T6(2)
1.00	63	5.1	10.1	7.5	5.0	0.1	5DDC4100(1)S6(2)	F5DDC4100(1)S6(2)
1.50	63	6.1	11.1	7.5	5.0	0.00001	5DDC4150(1)U7(2)	F5DDC4150(1)U7(2)
1.50	63	6.1	11.1	7.5	5.0	0.000022	5DDC4150(1)V7(2)	F5DDC4150(1)V7(2)
1.50	63	6.1	11.1	7.5	5.0	0.000047	5DDC4150(1)W7(2)	F5DDC4150(1)W7(2)
1.50	63	6.1	11.1	7.5	5.0	0.000068	5DDC4150(1)X7(2)	F5DDC4150(1)X7(2)
1.50	63	6.1	11.1	7.5	5.0	0.0001	5DDC4150(1)E7(2)	F5DDC4150(1)E7(2)
1.50	63	6.1	11.1	7.5	5.0	0.00022	5DDC4150(1)G7(2)	F5DDC4150(1)G7(2)
1.50	63	6.1	11.1	7.5	5.0	0.00047	5DDC4150(1)A7(2)	F5DDC4150(1)A7(2)
1.50	63	6.1	11.1	7.5	5.0	0.00068	5DDC4150(1)H7(2)	F5DDC4150(1)H7(2)
Capacitance Value (µF)	**VDC**	**T (mm)**	**H (mm)**	**L (mm)**	**Lead Spacing (S)**	**Ceramic Cap (µF)**	**KEMET Part Number**	**Legacy Part Number**

(1) Insert lead and packaging code. See Ordering Options Table for available options.
(2) K = 10%, M = 20%.

Table 1 – Ratings & Part Number Reference cont.

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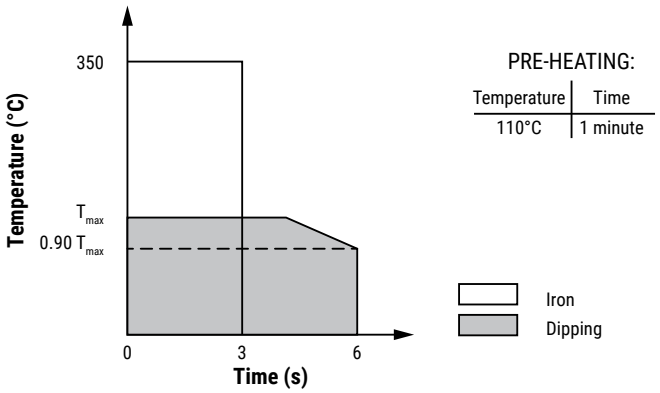
Capacitance Value (µF)	VDC	Max Dimensions in mm			Lead Spacing (S)	Ceramic Cap (µF)	KEMET Part Number	Legacy Part Number
		T	H	L				
1.50	63	6.1	11.1	7.5	5.0	0.001	5DDC4150(1)C7(2)	F5DDC4150(1)C7(2)
1.50	63	6.1	11.1	7.5	5.0	0.0022	5DDC4150(1)F7(2)	F5DDC4150(1)F7(2)
1.50	63	6.1	11.1	7.5	5.0	0.0047	5DDC4150(1)B7(2)	F5DDC4150(1)B7(2)
1.50	63	6.1	11.1	7.5	5.0	0.0068	5DDC4150(1)N7(2)	F5DDC4150(1)N7(2)
1.50	63	6.1	11.1	7.5	5.0	0.01	5DDC4150(1)D7(2)	F5DDC4150(1)D7(2)
1.50	63	6.1	11.1	7.5	5.0	0.047	5DDC4150(1)R7(2)	F5DDC4150(1)R7(2)
1.50	63	6.1	11.1	7.5	5.0	0.068	5DDC4150(1)T7(2)	F5DDC4150(1)T7(2)
1.50	63	6.1	11.1	7.5	5.0	0.1	5DDC4150(1)S7(2)	F5DDC4150(1)S7(2)
1.80	63	6.1	11.1	7.5	5.0	0.1	5DDC4180(1)S7(2)	F5DDC4180(1)S7(2)
1.80	63	6.1	11.1	7.5	5.0	0.000022	5DDC4180(1)V7(2)	F5DDC4180(1)V7(2)
1.80	63	6.1	11.1	7.5	5.0	0.000047	5DDC4180(1)W7(2)	F5DDC4180(1)W7(2)
1.80	63	6.1	11.1	7.5	5.0	0.000068	5DDC4180(1)X7(2)	F5DDC4180(1)X7(2)
1.80	63	6.1	11.1	7.5	5.0	0.0001	5DDC4180(1)E7(2)	F5DDC4180(1)E7(2)
1.80	63	6.1	11.1	7.5	5.0	0.00022	5DDC4180(1)G7(2)	F5DDC4180(1)G7(2)
1.80	63	6.1	11.1	7.5	5.0	0.00047	5DDC4180(1)A7(2)	F5DDC4180(1)A7(2)
1.80	63	6.1	11.1	7.5	5.0	0.00068	5DDC4180(1)H7(2)	F5DDC4180(1)H7(2)
1.80	63	6.1	11.1	7.5	5.0	0.001	5DDC4180(1)C7(2)	F5DDC4180(1)C7(2)
1.80	63	6.1	11.1	7.5	5.0	0.0022	5DDC4180(1)F7(2)	F5DDC4180(1)F7(2)
1.80	63	6.1	11.1	7.5	5.0	0.0047	5DDC4180(1)B7(2)	F5DDC4180(1)B7(2)
1.80	63	6.1	11.1	7.5	5.0	0.0068	5DDC4180(1)N7(2)	F5DDC4180(1)N7(2)
1.80	63	6.1	11.1	7.5	5.0	0.01	5DDC4180(1)D7(2)	F5DDC4180(1)D7(2)
1.80	63	6.1	11.1	7.5	5.0	0.047	5DDC4180(1)R7(2)	F5DDC4180(1)R7(2)
1.80	63	6.1	11.1	7.5	5.0	0.068	5DDC4180(1)T7(2)	F5DDC4180(1)T7(2)
1.80	63	6.1	11.1	7.5	5.0	0.00001	5DDC4180(1)U7(2)	F5DDC4180(1)U7(2)
2.20	63	6.1	11.1	7.5	5.0	0.1	5DDC4220(1)S7(2)	F5DDC4220(1)S7(2)
2.20	63	6.1	11.1	7.5	5.0	0.000022	5DDC4220(1)V7(2)	F5DDC4220(1)V7(2)
2.20	63	6.1	11.1	7.5	5.0	0.000047	5DDC4220(1)W7(2)	F5DDC4220(1)W7(2)
2.20	63	6.1	11.1	7.5	5.0	0.000068	5DDC4220(1)X7(2)	F5DDC4220(1)X7(2)
2.20	63	6.1	11.1	7.5	5.0	0.0001	5DDC4220(1)E7(2)	F5DDC4220(1)E7(2)
2.20	63	6.1	11.1	7.5	5.0	0.00022	5DDC4220(1)G7(2)	F5DDC4220(1)G7(2)
2.20	63	6.1	11.1	7.5	5.0	0.00047	5DDC4220(1)A7(2)	F5DDC4220(1)A7(2)
2.20	63	6.1	11.1	7.5	5.0	0.00068	5DDC4220(1)H7(2)	F5DDC4220(1)H7(2)
2.20	63	6.1	11.1	7.5	5.0	0.001	5DDC4220(1)C7(2)	F5DDC4220(1)C7(2)
2.20	63	6.1	11.1	7.5	5.0	0.0022	5DDC4220(1)F7(2)	F5DDC4220(1)F7(2)
2.20	63	6.1	11.1	7.5	5.0	0.0047	5DDC4220(1)B7(2)	F5DDC4220(1)B7(2)
2.20	63	6.1	11.1	7.5	5.0	0.0068	5DDC4220(1)N7(2)	F5DDC4220(1)N7(2)
2.20	63	6.1	11.1	7.5	5.0	0.01	5DDC4220(1)D7(2)	F5DDC4220(1)D7(2)
2.20	63	6.1	11.1	7.5	5.0	0.047	5DDC4220(1)R7(2)	F5DDC4220(1)R7(2)
2.20	63	6.1	11.1	7.5	5.0	0.068	5DDC4220(1)T7(2)	F5DDC4220(1)T7(2)
2.20	63	6.1	11.1	7.5	5.0	0.00001	5DDC4220(1)U7(2)	F5DDC4220(1)U7(2)
Capacitance Value (µF)	**VDC**	**T (mm)**	**H (mm)**	**L (mm)**	**Lead Spacing (S)**	**Ceramic Cap (µF)**	**KEMET Part Number**	**Legacy Part Number**

(1) Insert lead and packaging code. See Ordering Options Table for available options.
(2) K = 10%, M = 20%.

Maximum Soldering Temperature OBSOLETE

In order to achieve optimal solderability, we suggest the following:

- Set the temperature so that the maximum temperature inside the element is below 160°C.
- Solder within the following temperature profiles, especially for iron soldering:

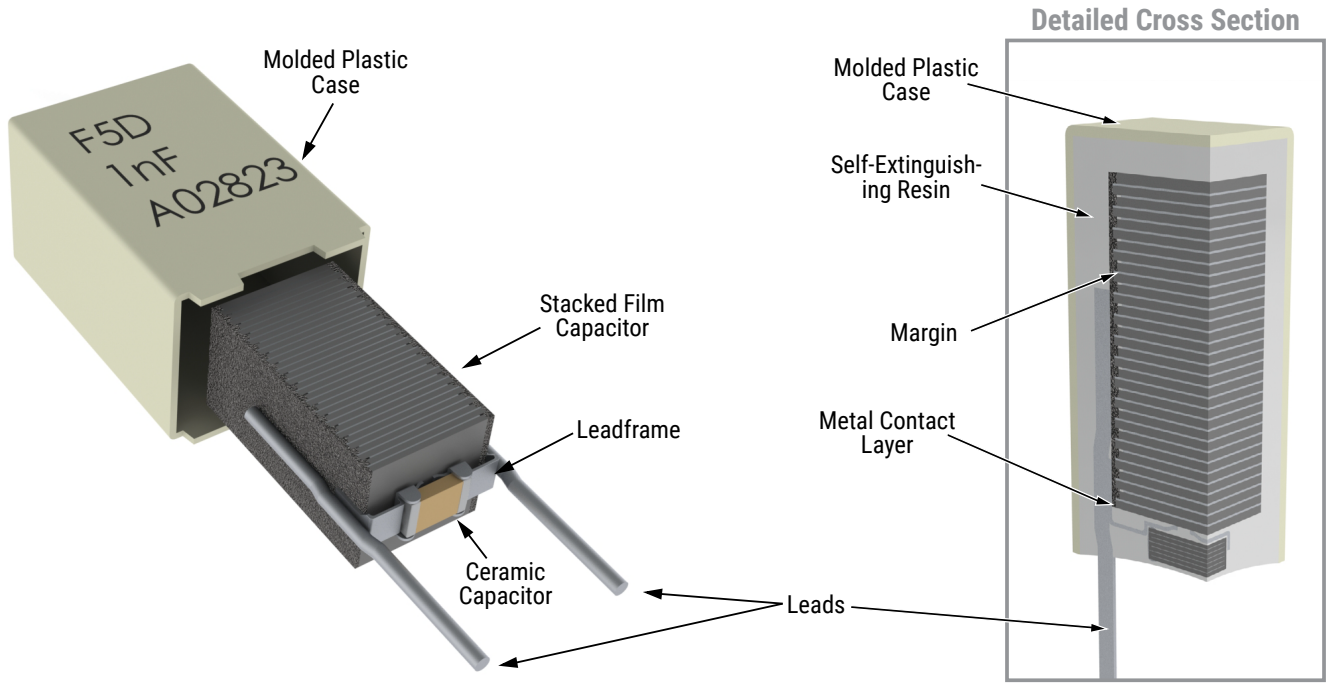


Box series: T_{max} = 275°C for 4 seconds

General Conditions

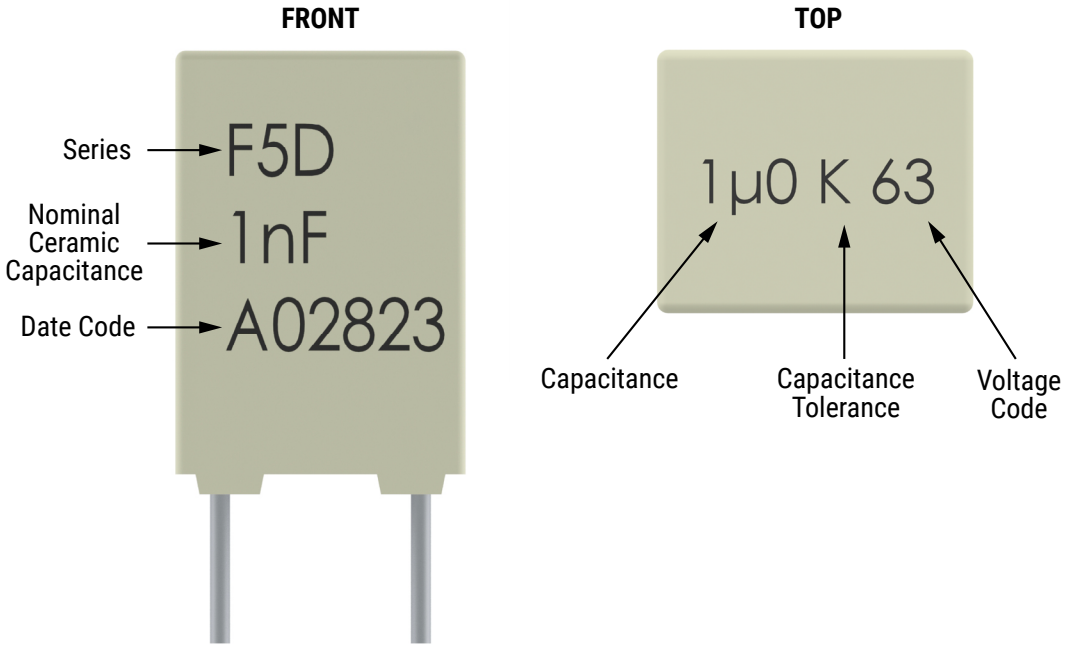
- If two solderings are required, allow for recovery time until the temperature on the capacitor surface is below 50°C.
- Avoid passing through the adhesive curing oven when fixing surface-mount parts in combination with through-hole parts. Insert through-hole parts only after curing the surface-mount parts.
- Avoid reflow soldering by combining the lead type with surface-mount parts.

Construction



Marking

OBSOLETE



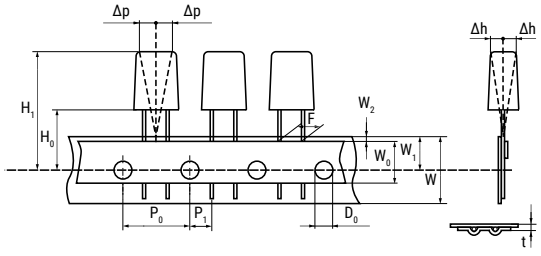
Packaging Quantities

Lead Spacing	Thickness (mm)	Height (mm)	Length (mm)	Bulk Short Leads	Bulk Long Leads	Standard Reel 355 mm	Large Reel 500 mm	Ammo
5	4.6	9.6	7.4	1,500	2,000	1,400		1,900
	5.1	10.1	7.5	1,000	1,500	1,200		1,700
	6.1	11.1	7.5	2,000	1,000	1,000		1,400
	7.3	13.1	7.5	1,500	750	800		1,150
10	5.2	11.1	13.4	1,300	2,000	600	1,250	800
	6.2	12.1	13.4	1,000	1,800	500	1,000	680

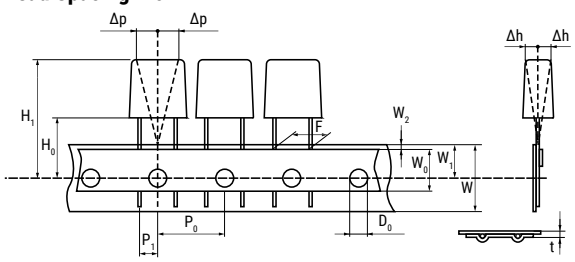
Lead Taping & Packaging (IEC 60286–2)

OBSOLETE

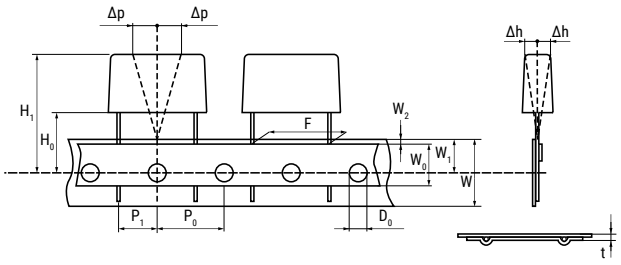
Lead Spacing 5 mm



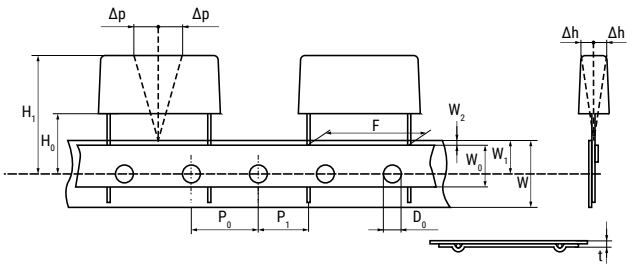
Lead Spacing 7.5 mm



Lead Spacing 10 – 15 mm



Lead Spacing 22.5 – 27.5 mm



Taping Specification

Dimensions in mm									Standard IEC 60286–2
Lead Spacing	+0.6/−0.1	F	5.0	7.5	10.0	15.0	22.5	27.5	F
Carrier Tape Width	+1/−0.5	W	18.0	18.0	18.0	18.0	18.0	18.0	$18^{+1/-0.5}$
Hold-Down Tape Width	Minimum	W_0	6.0	6.0	9.0	10.0	10.0	10.0	
Position of Sprocket Hole	±0.5	W_1	9.0	9.0	9.0	9.0	9.0	9.0	$9^{+0.75/-0.5}$
Distance Between Tapes	Maximum	W_2	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Sprocket Hole Diameter	±0.2	D_0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Feed Hole Lead Spacing	±0.2(1)	P_0(3)	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Distance Lead – Feed Hole	±0.7	P_1	3.85	3.75	7.7	5.2	7.8	5.3	P1
Deviation Tape – Plane	Maximum	Δp	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Lateral Deviation	±2	Δh	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Total Thickness	±0.2	t	0.7	0.7	0.7	0.7	0.9^{MAX}	0.9^{MAX}	0.9^{MAX}
Sprocket Hole/Cap Body	±0.5	H_0(2)	$18.5^{\pm0.5}$	$18.5^{\pm0.5}$	$18.5^{\pm0.5}$	$18.5^{\pm0.5}$	$18.5^{\pm0.5}$	$18.5^{\pm0.5}$	$18^{+2/-0}$

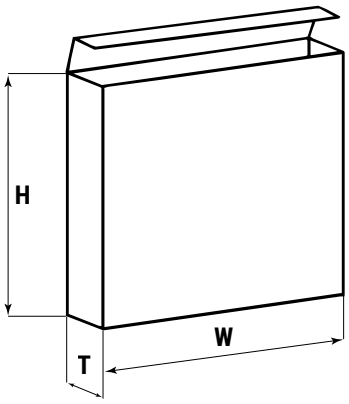
(1) Maximum cumulative feed hole error, 1 mm per 20 parts.
(2) 16.5 mm available on request.
(3) 15 mm available on request (F ≥ 10 mm).

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Lead Taping & Packaging (IEC 60286-2) cont.

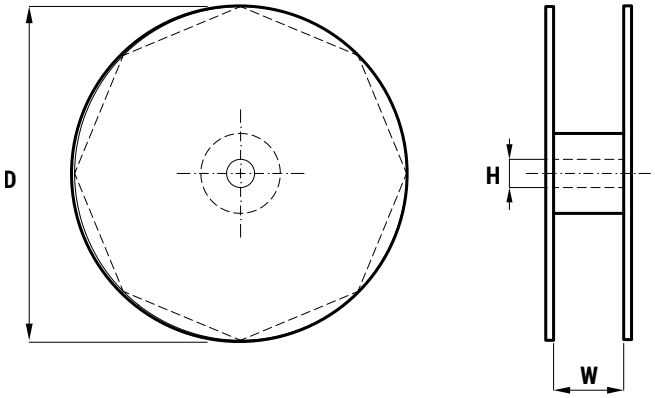
Ammo Specifications

Series	Dimensions (mm)		
	H	W	T
F5A, F5B, F5D F6xx, F8xx	360	340	59
PHExxx, PMExxx, PMRxxx	330	330	50



Reel Specifications

Series	Dimensions (mm)		
	D	H	W
F5A, F5B, F5D	355 500	30 25	55 (Max)
F6xx, F8xx			
PHExxx, PMExxx, PMRxxx	360 500	30	46 (Max)



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Although all product–related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

Additional information about production site flexibility can be found <here>

Warning: The component F5D is a combined passive suppression component. Overloading with high voltage or voltage transients can strongly damage the component with the risk of fire.

Note: For technical reasons, the ceramic capacitor may not be covered fully by resin. This does not constitute grounds for complaint. The ceramic capacitors are specified for the same range of temperature and climate as the combined elements. They do not require protection by the resin.

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