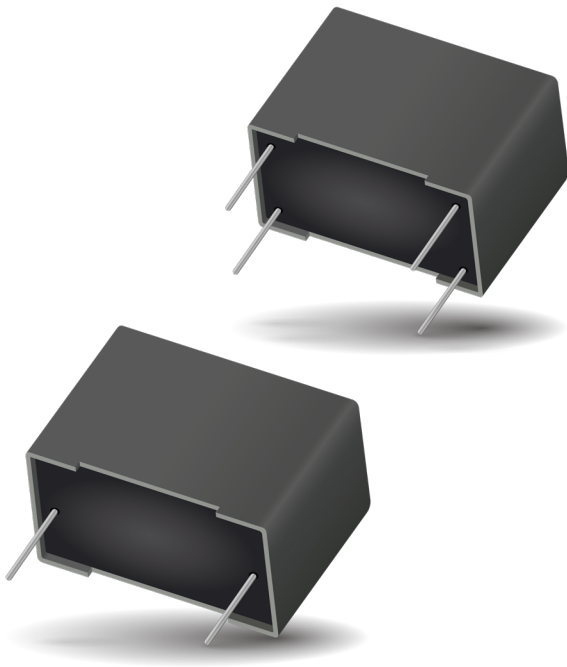


# DC FILTERING

## FW - X2 AEC-Q200 \*RoHS Compliant



### GENERAL DESCRIPTION

The FW series are non-inductively wound with metallized polypropylene film as dielectric and electrode, encapsulated in solvent resistant and self-extinguishing UL94 V-0 thermoplastic case, with epoxy resin sealed. They provide interference suppression with safety approvals; capacitance value range from 0.01  $\mu$ F to 20  $\mu$ F.

FW series meets Automotive Electronics Council's AEC- Q200 qualification requirements and passed the THB test at 85°C, 85% relative humidity with a rated voltage applied for 1000 hours.

### FEATURES & BENEFITS

- AEC-Q200 Qualified
- High Moisture Resistance
- Over Voltage Stress Withstanding
- Excellent Active and Passive Flame Resistant Abilities
- Automotive Grade (AEC-Q200)

### APPLICATIONS

They are suitable for Across-the-line Capacitors, EMI Filters, Spark-Killer, Main-Connected Circuits.

- UPS Systems
- AC Drive
- Industrial Power Supply
- Battery Charger
- Home Appliance & Induction Cooking

### STANDARDS

- UL60384-14
- IEC60384-14
- IEC 60068-1
- AEC-Q200D

### OPERATING TEMPERATURE RANGE

- Operating temperature range: -40°C to +110°C

### HOW TO ORDER

<b>FW</b>	<b>C*</b>	<b>6</b>	<b>H</b>	<b>0224</b>	<b>K</b>	<b>02</b>	<b>C</b>
Series	Case	Type	Voltage	Cap	Tolerance	Lead Type	Lead Type
FW	A* for P=10mm C* for P=15mm D* for P=22.5mm E* for P=27.5mm F* for P=37.5mm G* for P=52.5mm	6 = Polypropylene	H = 305Vac	$\mu$ F Code	J = $\pm$ 5% K = $\pm$ 10% M = $\pm$ 20%	02 = 2 Leads 04 = 4 Leads	C = 2pins Short Lead L = 2pins Long Lead A = 4 pins P2 = 10.2mm B = 4 pins P2 = 20.3mm

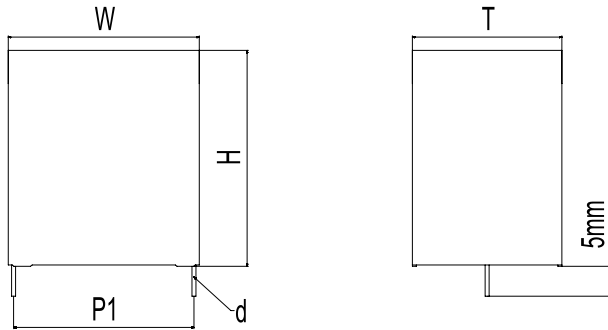
\*Lead length for 2pins short lead & 4pins is 5mm, 20mm min for long lead

# DC FILTERING

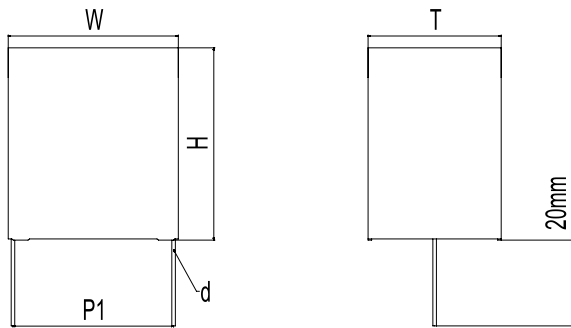
FW - X2 AEC-Q200 \*RoHS Compliant

## DIMENSIONS

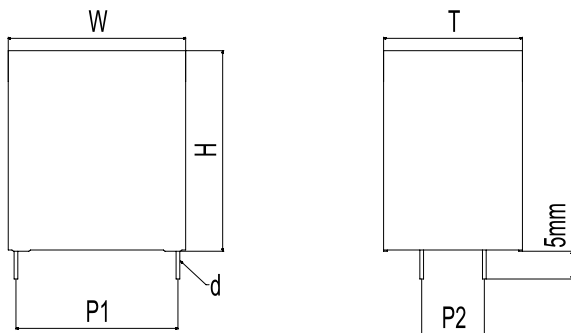
### 2 PIN



### 2 PIN - 20mm LEAD LENGTH



### 4 PIN



## CASE CODE

mm

Case Code	Dimensions				
	W ± 0.5	H ± 0.5	T ± 0.5	P1 ± 1.0	d ± 0.05
	mm	mm	mm	mm	mm
A1	13.0	11.0	5.0	10	0.6
A2	13.0	12.0	6.0	10	0.6
A4	13.0	14.0	8.0	10	0.6
C2	18.0	13.0	7.0	15	0.6
C3	18.0	12.0	6.0	15	0.6
C5	18.0	14.5	8.5	15	0.8
C6	18.0	16.0	10.0	15	0.8
C9	18.0	19.0	11.0	15	0.8
CA	18.0	22.0	12.5	15	0.8
D1	26.0	17.0	8.5	22.5	0.8
D2	26.0	19.0	10.0	22.5	0.8
D3	26.0	20.0	11.0	22.5	0.8
D4	26.0	22.0	12.0	22.5	0.8
D5	26.0	23.0	13.0	22.5	0.8
D6	26.0	25.0	15.0	22.5	0.8
D8	26.0	16.5	7.0	22.5	0.8
D9	26.0	24.0	14.0	22.5	0.8
E1	32.0	20.0	11.0	27.5	0.8
E2	32.0	22.0	13.0	27.5	0.8
E3	32.0	28.0	14.0	27.5	0.8
E6	32.0	33.0	18.0	27.5	0.8
E9	32.0	37.0	22.0	27.5	0.8
EJ	32.0	24.5	13.0	27.5	0.8
F3	42.5	32.0	19.0	37.5	1.0
F8	42.5	44.0	24.0	37.5	1.0
F9	42.5	45.0	30.0	37.5	1.0
GA	57.5	45.0	30.0	52.5	1.2
GC	57.5	50.0	35.0	52.5	1.2
GM	57.5	60.0	45.0	52.5	1.2

# DC FILTERING

## FW - X2 AEC-Q200 \*RoHS Compliant

### ELECTRICAL CHARACTERISTICS

Items	Characteristics
Reference Standard	IEC 60384-14, UL 60384-14, AEC-Q200D
Climatic Category	40/110/56 IEC60068-1
Passive Flammability Class	B
Operating Temperature Range	-40~ +110°C
Capacitance Range	0.01μF ~ 20μF
Capacitance Tolerance	±10% or ±20% at +25°C
Dissipation Factor (DF)	<= 0.001 (0.10%) at 1 KHz. at +25°C
Test Voltage Between Terminals	1.5 x rated voltage for 10s (terminal to terminal)
Test Voltage Terminal to Case	2.0kVrms 50 Hz for 10 sec at +25°C
Insulation Resistance	>15,000 MΩ (C<0.33μF) at 100VDC 1 minute at +25°C
	>5,000 MΩ x uF (C>0.33μF) at 100VDC 1 minute at +25°C
Life Expectancy	100,000 hours at Un @ Hot-Spot temperature T=+70°C
Protection	Solvent resistant plastic case UL94 V-0
	Thermosetting resin sealing UL 94 V-0 compliant
Installation	Any position
Leads	Tinned copper wires or Copper-clad Steel Wire
Packaging	Packed in cardboard boxes with protection for the terminals
RoHS Compliant	Compliant with the restricted substance requirements of Directive 2002/95/EC
Storage Conditions	Storage time: ≤ 24 months from the date marked on the label package
	Temperature and relative humidity should be -10°C ~ +40°C and not more than 75%RH.
	RH ≤ 85% for 30 days randomly distributed throughout the year
Humidity Test	Test conditions & performance:
	Temperature: +40°C±2°C Relative humidity (RH) :93% ±2%
	Test duration: 56 days
	Capacitance change: ≤5% DF change (Δtgδ): ≤50 X 10 <sup>-4</sup> at 1KHz
Endurance Test	Insulation resistance: ≥50% of initial limit
	Test conditions & performance:
	Temperature: +110°C±2°C Voltage applied: 1.25 X V <sub>R</sub> (a.c.)
	Test duration: 1000 hours
THB Test (Damp heat test with loading)	Capacitance change: ≤10% DF change (Δ tgδ): ≤50 X 10 <sup>-4</sup> at 1KHz
	Insulation resistance: ≥50% of initial limit
	Test conditions & performance:
	Temperature: +85°C±2°C Relative humidity (RH): 85% ±2%
	Loading Voltage: Rated Voltage (DC)
	Test duration: 1000 hours
	Capacitance change: ≤10%

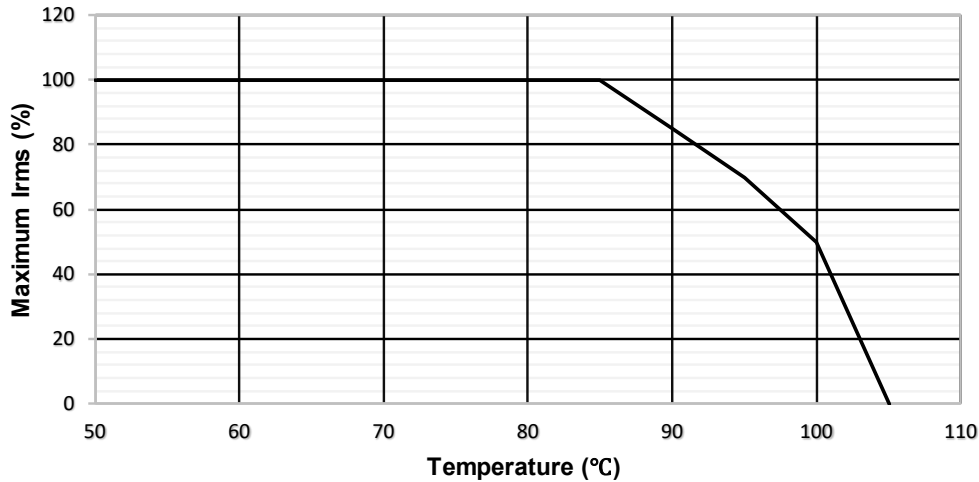
# DC FILTERING

FW - X2 AEC-Q200 \*RoHS Compliant



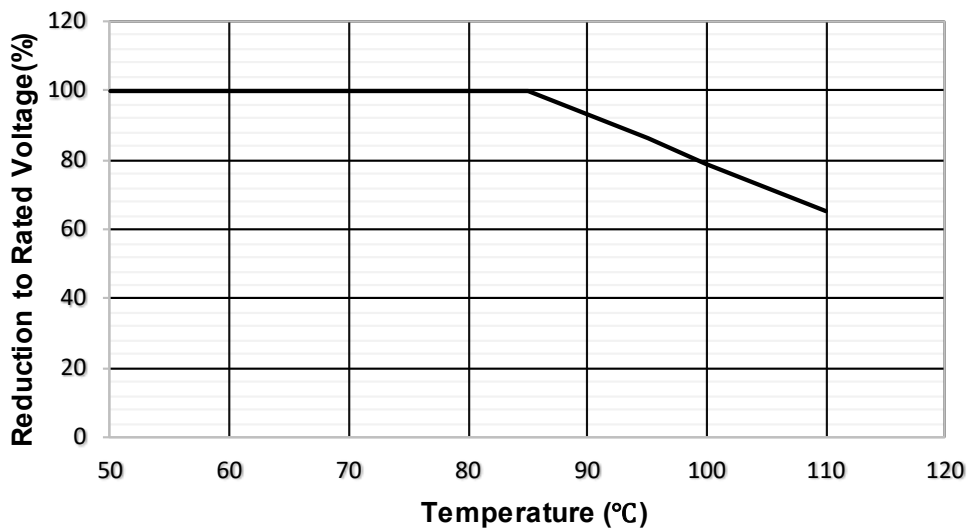
## MAXIMUM IRMS VS TEMPERATURE

Maximum Irms VS Temperature ( $T_h$ )



## VOLTAGE OR TEMPERATURE

Derating of rated voltage VS Temperature ( $T_h$ )



## RATING & PART NUMBER REFERENCE

Cap	Rated Voltage	AVX PN	Voltage Code	Case Code	Dimensions					dv/dt	Peak Current	SPQ
					W ± 0.5 mm	H ± 0.5 mm	T ± 0.5 mm	P1 ± 1.0 mm	d ± 0.05 mm			
					Voltage Vndc 305Vac					Voltage Code H		
0.010	305	FWA16H0103*02°	H	A1	13.0	11.0	5.0	10	0.6	500	5	825
0.022	305	FWA16H0223*02°	H	A1	13.0	11.0	5.0	10	0.6	500	11	825
0.033	305	FWA16H0333*02°	H	A1	13.0	11.0	5.0	10	0.6	500	17	825
0.047	305	FWA26H0473*02°	H	A2	13.0	12.0	6.0	10	0.6	500	24	675
0.068	305	FWA26H0683*02°	H	A2	13.0	12.0	6.0	10	0.6	500	34	675

\* Please choose lead type from the four options in "How to Order"



# DC FILTERING

FW - X2 AEC-Q200 \*RoHS Compliant



## RATING & PART NUMBER REFERENCE

Cap uF	Rated Voltage V	AVX PN	Voltage Code	Case Code	Dimensions					dv/dt V/us	Peak Current A	SPQ pcs
					W ± 0.5 mm	H ± 0.5 mm	T ± 0.5 mm	P1 ± 1.0 mm	d ± 0.05 mm			
0.082	305	FWA26H0823*02°	H	A2	13.0	12.0	6.0	10	0.6	500	41	675
0.10	305	FWA26H0104*02°	H	A2	13.0	12.0	6.0	10	0.6	500	50	675
0.15	305	FWA46H0154*02°	H	A4	13.0	14.0	8.0	10	0.6	500	75	500
0.047	305	FWC36H0473*02°	H	C3	18.0	12.0	6.0	15	0.6	400	19	486
0.068	305	FWC36H0683*02°	H	C3	18.0	12.0	6.0	15	0.6	400	27	486
0.082	305	FWC36H0823*02°	H	C3	18.0	12.0	6.0	15	0.6	400	33	486
0.10	305	FWC36H0104*02°	H	C3	18.0	12.0	6.0	15	0.6	400	40	486
0.15	305	FWC36H0154*02°	H	C3	18.0	12.0	6.0	15	0.6	400	60	486
0.15	305	FWC26H0154*02°	H	C2	18.0	13.0	7.0	15	0.6	400	60	414
0.22	305	FWC56H0224*02°	H	C5	18.0	14.5	8.5	15	0.8	400	88	342
0.27	305	FWC56H0274*02°	H	C5	18.0	14.5	8.5	15	0.8	400	108	342
0.33	305	FWC66H0334*02°	H	C6	18.0	16.0	10.0	15	0.8	400	132	288
0.47	305	FWC96H0474*02°	H	C9	18.0	19.0	11.0	15	0.8	400	188	252
0.56	305	FWC96H0564*02°	H	C9	18.0	19.0	11.0	15	0.8	400	224	252
0.68	305	FWCA6H0684*02°	H	CA	18.0	22.0	12.5	15	0.8	400	272	234
0.82	305	FWCA6H0824*02°	H	CA	18.0	22.0	12.5	15	0.8	400	328	234
0.22	305	FWD86H0224*02°	H	D8	26.0	16.5	7.0	22.5	0.8	200	44	276
0.27	305	FWD86H0274*02°	H	D8	26.0	16.5	7.0	22.5	0.8	200	54	276
0.33	305	FWD16H0334*02°	H	D1	26.0	17.0	8.5	22.5	0.8	200	66	228
0.47	305	FWD26H0474*02°	H	D2	26.0	19.0	10.0	22.5	0.8	200	94	192
0.56	305	FWD26H0564*02°	H	D2	26.0	19.0	10.0	22.5	0.8	200	112	192
0.68	305	FWD36H0684*02°	H	D3	26.0	20.0	11.0	22.5	0.8	200	136	180
0.82	305	FWD36H0824*02°	H	D3	26.0	20.0	11.0	22.5	0.8	200	164	180
1.0	305	FWD46H0105*02°	H	D4	26.0	22.0	12.0	22.5	0.8	200	200	156
1.2	305	FWD56H0125*02°	H	D5	26.0	23.0	13.0	22.5	0.8	200	240	144
1.5	305	FWD96H0155*02°	H	D9	26.0	24.0	14.0	22.5	0.8	200	300	132
1.5	305	FWD66H0155*02°	H	D6	26.0	25.0	15.0	22.5	0.8	200	300	132
1.0	305	FWE16H0105*02°	H	E1	32.0	20.0	11.0	27.5	0.8	150	150	150
1.2	305	FWE26H0125*02°	H	E2	32.0	22.0	13.0	27.5	0.8	150	180	120
1.5	305	FWEJ6H0155*02°	H	EJ	32.0	24.5	13.0	27.5	0.8	150	225	120
2.2	305	FWE36H0225*02°	H	E3	32.0	28.0	14.0	27.5	0.8	150	330	110
3.3	305	FWE66H0335*02°	H	E6	32.0	33.0	18.0	27.5	0.8	150	495	90
4.7	305	FWE96H0475*02°	H	E9	32.0	37.0	22.0	27.5	0.8	150	705	70
4.7	305	FWF36H0475*02°	H	F3	42.5	32.0	19.0	37.5	1.0	100	470	56
6.8	305	FWF86H0685*02°	H	F8	42.5	44.0	24.0	37.5	1.0	100	680	49
10	305	FWF96H0106*02°	H	F9	42.5	45.0	30.0	37.5	1.0	100	1000	35
12	305	FWF96H0126*02°	H	F9	42.5	45.0	30.0	37.5	1.0	100	1200	35
12	305	FWGA6H0126*02°	H	GA	57.5	45.0	30.0	52.5	1.2	100	1200	25
15	305	FWF96H0156*02°	H	F9	42.5	45.0	30.0	37.5	1.0	100	1500	35
15	305	FWGA6H0156*02°	H	GA	57.5	45.0	30.0	52.5	1.2	100	1500	25
18	305	FWGA6H0186*02°	H	GA	57.5	45.0	30.0	52.5	1.2	100	1800	25
20	305	FWGA6H0206*02°	H	GA	57.5	45.0	30.0	52.5	1.2	100	2000	25
22	305	FWGA6H0226*02°	H	GA	57.5	45.0	30.0	52.5	1.2	100	2200	25
25	305	FWGA6H0256*02°	H	GA	57.5	45.0	30.0	52.5	1.2	100	2500	25
30	305	FWGA6H0306*02°	H	GA	57.5	45.0	30.0	52.5	1.2	100	3000	25
33	305	FWGC6H0336*02°	H	GC	57.5	50.0	35.0	52.5	1.2	100	3300	20
39	305	FWGC6H0396*02°	H	GC	57.5	50.0	35.0	52.5	1.2	100	3900	20
40	305	FWGC6H0406*02°	H	GC	57.5	50.0	35.0	52.5	1.2	100	4000	20
45	305	FWGM6H0456*02°	H	GM	57.5	60.0	45.0	52.5	1.2	100	4500	15

\* Please choose lead type from the four options in "How to Order"



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