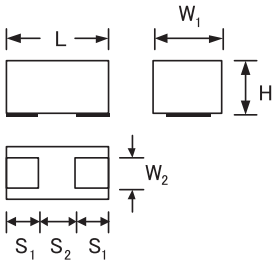
F38 Series

Conductive Polymer, Miniature, Undertab



FEATURES

- Compliant to the RoHS2 directive 2011/65/EU
- SMD facedown
- Small and low profile

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

APPLICATIONS

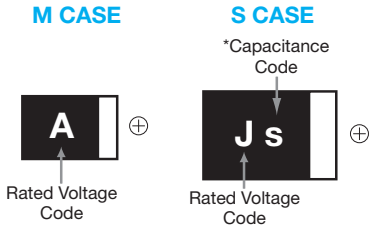
- Smartphone
- Tablet PC
- Wireless module
- Portable game

CASE DIMENSIONS: millimeters (inches)

Code	L	W_1	W_2	H	S_1	S_2
M	1.60 $^{+0.20}_{-0.10}$ (0.063 $^{+0.008}_{-0.004}$)	0.85 $^{+0.20}_{-0.10}$ (0.033 $^{+0.008}_{-0.004}$)	0.65±0.10 (0.026±0.004)	0.80±0.10[*1] (0.031±0.004)	0.50±0.10 (0.020±0.004)	0.60±0.10 (0.024±0.004)
S	2.00 $^{+0.20}_{-0.10}$ (0.079 $^{+0.008}_{-0.004}$)	1.25 $^{+0.20}_{-0.10}$ (0.049 $^{+0.008}_{-0.004}$)	0.90±0.10 (0.035±0.004)	0.80±0.10 (0.031±0.004)	0.50±0.10 (0.020±0.004)	1.00±0.10 (0.039±0.004)

*1 F380J476MMAAXE: 1.0mm Max.

MARKING



HOW TO ORDER

F38	1A	225	M	M	□	□□□
Type	Rated Voltage	Capacitance Code	Tolerance	Case Size	Packaging	Special Code

Capacitance Code
pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)

Tolerance
M = ±20%

Case Size
See table above

Packaging

Reel Dia (ϕ180)	Tape Width (mm)
A	8

Special Code
AXE = Rated temperature 60ºC and H dimension 1.0mm Max.
LZT = Rated temperature 60ºC only

TECHNICAL SPECIFICATIONS

Category Temperature Range:	-55 to +105°C
Rated Temperature:	+85°C (*2)
Capacitance Tolerance:	±20% at 120Hz
Dissipation Factor:	Refer to next page (120Hz)
ESR 100kHz:	Refer to next page (120Hz)
Leakage Current:	Refer to next page At 20ºC after application of rated voltage for 5 minutes Provided that: After 5 minute's application of rated voltage, leakage current at 105°C 10 times or less than 20ºC specified value.

*2 F380J476MMAAXE: Rated temperature +60ºC Surge, endurance test temperature +60ºC

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CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage			*Cap Code
µF	Code	4V (0G)	6.3V (0J)	10V (1A)	
2.2	225			M	–
4.7	475			M	–
10	106		M	M	a
22	226		M/S	S	j
33	336		M**/S		n
47	476		M*4/S		s
68	686		S**		w
100	107	S*			A

Available Ratings

*Codes under development – subject to change

*4 Rated temperature 60℃ and H dimension 1.0mm Max only. Please contact AVX when you need detail spec.

**Rated temperature 60ºC only. Please contact AVX when you need detail spec.

Please contact to your local AVX sales office when these series are being designed in your application.

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Leakage Current (µA)	DF (%) @ 120Hz	ESR (mΩ) @ 100kHz	100kHz RMS Current (mA) 20ºC	*3 ΔC/C (%)
6.3 Volt								
F380J106MMA	M	10	6.3	10.0	8	500	224	*
F380J226MMA	M	22	6.3	13.9	10	500	224	*
F380J226MSA	S	22	6.3	13.9	10	200	474	*
F380J336MMALZT	M	33	6.3	41.6	10	500	224	*
F380J336MSA	S	33	6.3	20.8	10	200	474	*
F380J476MMAAXE*4	M	47	6.3	59.2	10	500	224	*
F380J476MSA	S	47	6.3	29.6	10	200	474	*
F380J686MSALZT	S	68	6.3	86.0	10	200	474	*
10 Volt								
F381A225MMA	M	2.2	10	10.0	6	500	224	*
F381A475MMA	M	4.7	10	10.0	6	500	224	*
F381A106MMA	M	10	10	10.0	15	500	224	*
F381A226MSA	S	22	10	22.0	10	200	474	*

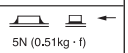
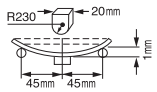
*3: ΔC/C Marked "∗"

Item	All Case (%)
Damp Heat, steady state	-20 to +30
Rapid change of temperature	±20
Resistance soldering heat	±20
Surge	±20
Endurance	±20

THE CORELATIONS AMONG RATED VOLTAGE, SURGE VOLTAGE AND DERATED VOLTAGE

	F38 (Standard)		F38-AXE
Rated Voltage (V)	6.3	10	6.3
60ºC Surge Voltage (V)	-	-	8
85ºC Surge Voltage (V)	8	13	-
85ºC Derated Voltage (V)	-	-	4.5
105ºC Derated Voltage (V)	5	8	3.3

QUALIFICATION TABLE

TEST	F38 series (Temperature range -55ºC to +105ºC) Condition
Damp Heat (Steady State)	At 40°C, 90 to 95% R.H., 500 hours (No voltage applied) Capacitance Change ..... Refer to page 123 (*3) Dissipation Factor ..... 200% or less of initial specified value Leakage Current ..... 300% or less of Initial specified value
Temperature Cycles	At -55°C / +105°C, 30 minutes each, 5 cycles Capacitance Change ..... Refer to page 123 (*3) Dissipation Factor ..... 200% or less of initial specified value Leakage Current ..... 400% or less of initial specified value
Resistance to Soldering Heat	10 seconds reflow at 240°C Capacitance Change ..... Refer to page 123 (*3) Dissipation Factor ..... 200% or less of initial specified value Leakage Current ..... 300% or less of initial specified value
Surge	After application of surge voltage in series with a 1kΩ resistor at the rate of 30 seconds ON, 30 seconds OFF, for 1000 successive test cycles at 85ºC (*2), capacitors shall meet the characteristic requirements in the table above. Capacitance Change ..... Refer to page 123 (*3) Dissipation Factor ..... 200% or less of initial specified value Leakage Current ..... 300% or less of initial specified value
Endurance	After 1000 hours' application of rated voltage in series with a 3Ω resistor at 85°C (*2), capacitors shall meet the characteristic requirements in the table above. Capacitance Change ..... Refer to page 123 (*3) Dissipation Factor ..... 200% or less of initial specified value Leakage Current ..... 400% or less of initial specified value
Shear Test	After applying the pressure load of 5N for 10±1 seconds horizontally to the center of capacitor side body which has no electrode and has been soldered beforehand on a substrate, there shall be found neither exfoliation nor its sign at the terminal electrode.  5N (0.51kg · f) For 10±1 seconds
Terminal Strength	Keeping a capacitor surface-mounted on a substrate upside down and supporting the substrate at both of the opposite bottom points 45mm apart from the center of capacitor, the pressure strength is applied with a specified jig at the center of substrate so that the substrate may bend by 1mm as illustrated. Then, there shall be found no remarkable abnormality on the capacitor terminals. 

*2 F380J476MMAAXE: Rated temperature +60ºC Surge, endurance test temperature +60ºC

NOTICE: DESIGN, SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.