

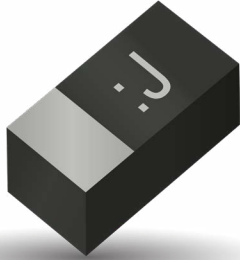


**THE DATASHEET OF  
F981A226MMALZT**



# F98 Series

## Resin-Molded Chip, High CV Undertab



### FEATURES

- Compliant to the RoHS3 directive 2015/863/EU
- SMD Face Down Design
- Small and Low Profile
- 100% Surge Current Tested



### APPLICATIONS

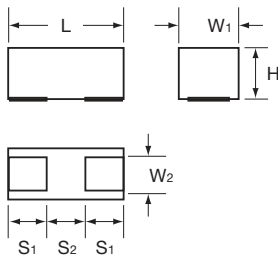
- Smartphone
- Mobile Phone
- Wireless Module
- Hearing Aid

### CASE DIMENSIONS:

millimeters (inches)

Code	EIA Code	EIA Metric	L	W <sub>1</sub>	W <sub>2</sub>	H	S <sub>1</sub>	S <sub>2</sub>
M	0603	1608-09	1.60 <sup>+0.20</sup> <sub>-0.10</sub> (0.063 <sup>+0.008</sup> <sub>-0.004</sub> )	0.85 <sup>+0.20</sup> <sub>-0.10</sub> (0.033 <sup>+0.008</sup> <sub>-0.004</sub> )	0.65±0.10 (0.026±0.004)	0.80±0.10*3 (0.031±0.004)	0.50±0.10 (0.020±0.004)	0.60±0.10 (0.024±0.004)
S	0805	2012-09	2.00 <sup>+0.20</sup> <sub>-0.10</sub> (0.079 <sup>+0.008</sup> <sub>-0.004</sub> )	1.25 <sup>+0.20</sup> <sub>-0.10</sub> (0.049 <sup>+0.008</sup> <sub>-0.004</sub> )	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)
U	0402	1106-06	1.10±0.05 (0.043±0.002)	0.60±0.05 (0.024±0.002)	0.35±0.05 (0.014±0.002)	0.55±0.05 (0.022±0.002)	0.30±0.05 (0.012±0.002)	0.50±0.05 (0.020±0.002)

\*3 F980J107MMAAXE: 1.0mm Max.

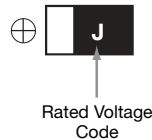


### MARKING

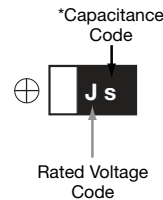
#### U CASE



#### M CASE



#### S CASE



### HOW TO ORDER

<b>F98</b>	<b>0J</b>	<b>106</b>	<b>M</b>	<b>M</b>		
Type	Rated Voltage	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 See Tape & Reel Packaging Section	Specification Suffix LZT = Rated temperature 60°C AXE = Rated temperature 60°C and H dimension 1.0mm Max AH1 = Low ESR

### TECHNICAL SPECIFICATIONS

Category Temperature Range:	-55 to +125°C
Rated Temperature:	+85°C or +60°C
Capacitance Tolerance:	±20% at 120Hz
Dissipation Factor:	Refer to next page
ESR 100kHz:	Refer to next page
Leakage Current:	After 5 minute's application of rated voltage, leakage current at 85°C or +60°C 10 times or less than 20°C specified value. After 5 minute's application of rated voltage, leakage current at 125°C 12.5 times or less than 20°C specified value.
Termination Finish:	M, S case: Gold Plating (standard), U case: Sn Plating (standard)

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### CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage								*Cap Code
µF	Code	2.5 (0e)	4V (0G)	6.3V (0J)	10V (1A)	16V (1C)	20V (1D)	25V (1E)	35V (1V)	
0.47	474					U				N
1.0	105					M	M	M	S	A
2.2	225				M/U	M				J
4.7	475		U	M/U	M/U**	M				S
10	106		U	M/U**	M	S				a
15	156		U							e
22	226		M/U**	M	M**/S					J
33	336		M	M	M**/S					n
47	476	M	M	M/S(S(AH1))	S					s
68	686		M/S							w
100	107		M/M(AH1)/S	M*4/S						A
150	157	M*								
220	227	S*	S							J

Released ratings

\*4 (AXE) Rated temperature 60°C and H dimension 1.0mm Max. Please contact KYOCERA AVX when you need detail spec.

\*\* (LZT) Rated temperature 60°C. Please contact KYOCERA AVX when you need detail spec.

\*Codes under development - subject to change.

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

### RATINGS & PART NUMBER REFERENCE

Part Number	Case Size	Capacitance (µF)	Rated Voltage (V)	DCL (µA)	DF@ 120Hz (%)	ESR@ 100kHz (Ω)	100kHz RMS Current (mA)				*1 ΔC/C (%)	MSL
							25°C	60°C	85°C	125°C		
<b>2.5 Volt</b>												
F980E476MMA	M	47	2.5	1.2	30	4	79	-	71	32	±30	3
<b>4 Volt</b>												
F980G475MUA	U	4.7	4	0.5	20	20	27	-	25	11	±30	3
F980G106MUA	U	10	4	0.8	25	20	27	-	25	11	±30	3
F980G156MUA	U	15	4	9.0	40	25	24	-	22	10	±30	3
F980G226MMA	M	22	4	0.9	15	7.5	58	-	52	23	±30	3
F980G226MUALZT	U	22	4	25.0	40	20	27	25	-	11	±30	3
F980G336MMA	M	33	4	1.3	30	4	79	-	71	32	±30	3
F980G476MMA	M	47	4	1.9	40	8	56	-	50	22	±30	3
F980G686MMA	M	68	4	27.2	50	10	50	-	45	20	±30	3
F980G686MSA	S	68	4	2.7	30	4	106	-	95	42	±30	3
F980G107MMA	M	100	4	80.0	60	10	50	-	45	20	±30	3
F980G107MMAAH1	M	100	4	80.0	60	2	112	-	101	45	±30	3
F980G107MSA	S	100	4	4.0	35	4	106	-	95	42	±30	3
F980G227MSA	S	220	4	132	80	5	95	-	85	38	±30	3
<b>6.3 Volt</b>												
F980J475MMA	M	4.7	6.3	0.5	20	7.5	58	-	52	23	±30	3
F980J475MUA	U	4.7	6.3	0.6	20	20	27	-	25	11	±30	3
F980J106MMA	M	10	6.3	0.6	8	6	65	-	58	26	±30	3
F980J106MUALZT	U	10	6.3	6.3	30	30	22	20	-	9	±30	3
F980J226MMA	M	22	6.3	1.4	20	6	65	-	58	26	±30	3
F980J336MMA	M	33	6.3	4.2	35	8	56	-	50	22	±30	3
F980J476MMA	M	47	6.3	29.6	45	10	50	-	45	20	±30	3
F980J476MSA	S	47	6.3	3.0	25	6	87	-	78	35	±30	3
F980J476MSAAH1	S	47	6.3	3.0	25	1	212	-	191	85	±30	3
F980J107MMAAXE	M	100	6.3	126	80	10	50	45	-	20	±30	3
F980J107MSA	S	100	6.3	63.0	50	8	75	-	68	30	±30	3
<b>10 Volt</b>												
F981A225MMA	M	2.2	10	0.5	6	7.5	58	-	52	23	±30	3
F981A225MUA	U	2.2	10	0.5	15	15	32	-	28	13	±30	3
F981A475MMA	M	4.7	10	0.5	6	6	65	-	58	26	±30	3
F981A475MUALZT	U	4.7	10	4.7	25	25	24	22	-	10	±30	3
F981A106MMA	M	10	10	1.0	20	7.5	58	-	52	23	±30	3
F981A226MMALZT	M	22	10	11.0	30	8	56	50	-	22	±30	3
F981A226MSA	S	22	10	2.2	20	4	106	-	95	42	±30	3
F981A336MMALZT	M	33	10	33.0	45	8	56	50	-	22	±30	3
F981A336MSA	S	33	10	3.3	30	6	87	-	78	35	±30	3
F981A476MSA	S	47	10	9.4	35	5	95	-	85	38	±30	3
<b>16 Volt</b>												
F981C474MUA	U	0.47	16	0.5	6	25	24	-	22	10	±20	3
F981C105MMA	M	1	16	0.5	6	10	50	-	45	20	±30	3
F981C225MMA	M	2.2	16	0.5	6	10	50	-	45	20	±30	3
F981C475MMA	M	4.7	16	0.8	12	12	46	-	41	18	±30	3
F981C106MSA	S	10	16	1.6	18	4	106	-	95	42	±30	3
<b>20 Volt</b>												
F981D105MMA	M	1	20	0.5	6	10	50	-	45	20	±30	3
<b>25 Volt</b>												
F981E105MMA	M	1	25	0.5	8	10	50	-	45	20	±30	3
<b>35 Volt</b>												
F981V105MSA	S	1	35	0.7	20	8	75	-	68	30	±30	3

\*2: Leakage Current

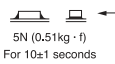
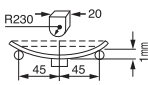
Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

After 5 minute's application of rated voltage, leakage current at 20°C.

# F98 Series

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### QUALIFICATION TABLE

TEST	F98 series (Temperature range -55°C to +125°C)	
	Condition	
<b>Damp Heat (Steady State)</b>	At 40°C, 90 to 95% R.H., 500 hours (No voltage applied) Capacitance Change ..... Refer to the table above (*1) Dissipation Factor ..... 150% or less of initial specified value Leakage Current ..... 200% or less of initial specified value	
<b>Temperature Cycles</b>	-55°C / +125°C, 30 minutes each, 5 cycles Capacitance Change ..... Refer to the table above (*1) Dissipation Factor ..... 150% or less of initial specified value Leakage Current ..... 200% or less of initial specified value	
<b>Resistance to Soldering Heat</b>	10 seconds reflow at 260°C, 5 seconds immersion at 260°C. Capacitance Change ..... Refer to the table above (*1) Dissipation Factor ..... Initial specified value or less Leakage Current ..... Initial specified value or less	
<b>Surge</b>	After application of surge in series with a 1kΩ resistor at the rate of 30 seconds ON, 30 seconds OFF, for 1000 successive test cycles at 85°C, capacitors shall meet the characteristic requirements in the table above. (Not applied to LZT and AXE.) Capacitance Change ..... Refer to the table above (*1) Dissipation Factor ..... 150% or less of initial specified value Leakage Current ..... 200% or less of initial specified value	
<b>Endurance</b>	After 1000 hours' application of rated voltage in series with a 3Ω resistor at 85°C or +60°C, capacitors shall meet the characteristic requirements in the table above. Capacitance Change ..... Refer to the table above (*1) Dissipation Factor ..... 150% or less of initial specified value Leakage Current ..... 200% or less of initial specified value	
<b>Shear Test</b>	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
<b>Terminal Strength</b>	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.	 R230 20 45 45

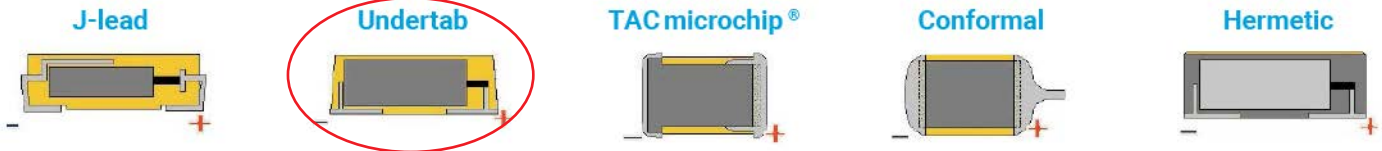
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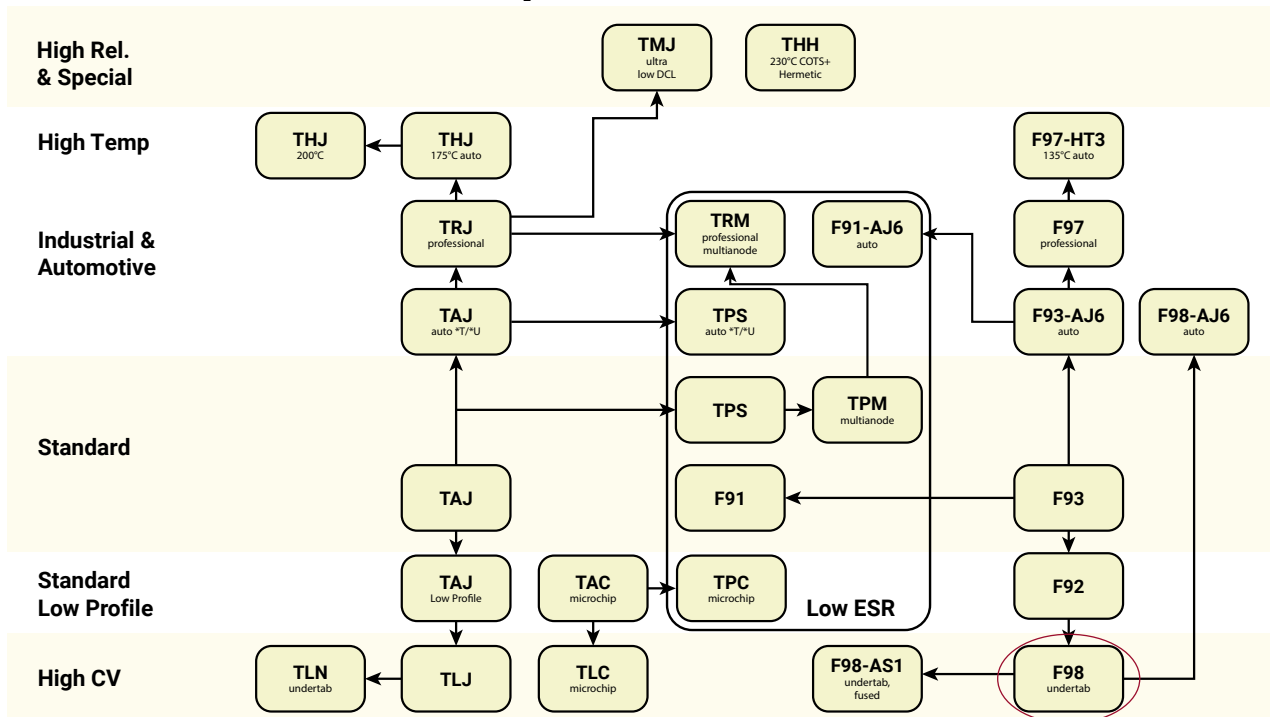
### SOLID ELECTROLYTIC CAPACITOR ROADMAP



### FIVE CAPACITOR CONSTRUCTION STYLES



### SERIES LINE UP : CONVENTIONAL SMD MnO<sub>2</sub>



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