

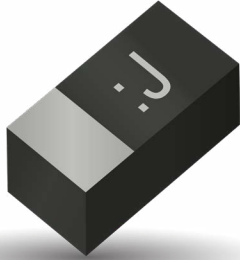


**THE DATASHEET OF
F981A226MMALZT**



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

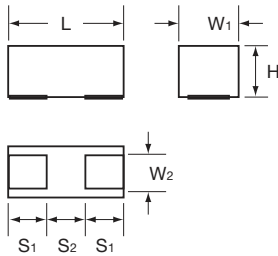


CASE DIMENSIONS:

millimeters (inches)

| Code | EIA Code | EIA Metric | L | W ₁ | W ₂ | H | S ₁ | S ₂ |
|------|----------|------------|--|--|----------------------------|------------------------------|----------------------------|----------------------------|
| M | 0603 | 1608-09 | 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*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 ^{+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) |
| 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.

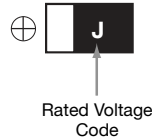


MARKING

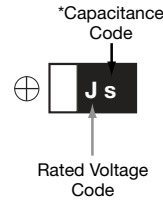
U CASE



M CASE



S CASE



HOW TO ORDER

| | | | | | | |
|------------|---------------|--|-----------------------|------------------------------|--|---|
| F98 | 0J | 106 | M | M | | |
| 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: | Refer to next page |
| | Provided that: |
| | 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 | | |
| 2.5 Volt | | | | | | | | | | | | |
| F980E476MMA | M | 47 | 2.5 | 1.2 | 30 | 4 | 79 | - | 71 | 32 | ±30 | 3 |
| 4 Volt | | | | | | | | | | | | |
| 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 |
| 6.3 Volt | | | | | | | | | | | | |
| 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 |
| 10 Volt | | | | | | | | | | | | |
| 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 |
| 16 Volt | | | | | | | | | | | | |
| 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 |
| 20 Volt | | | | | | | | | | | | |
| F981D105MMA | M | 1 | 20 | 0.5 | 6 | 10 | 50 | - | 45 | 20 | ±30 | 3 |
| 25 Volt | | | | | | | | | | | | |
| F981E105MMA | M | 1 | 25 | 0.5 | 8 | 10 | 50 | - | 45 | 20 | ±30 | 3 |
| 35 Volt | | | | | | | | | | | | |
| F981V105MSA | S | 1 | 35 | 0.7 | 20 | 8 | 75 | - | 68 | 30 | ±30 | 3 |

*2: Leakage Current

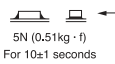
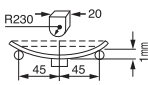
Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

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

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QUALIFICATION TABLE

| TEST | F98 series (Temperature range -55°C to +125°C) | |
|-------------------------------------|--|---|
| | Condition | |
| Damp Heat (Steady State) | 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 | |
| Temperature Cycles | -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 | |
| Resistance to Soldering Heat | 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 | |
| Surge | 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 | |
| Endurance | 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 | |
| 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. |  |
| 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. |  |

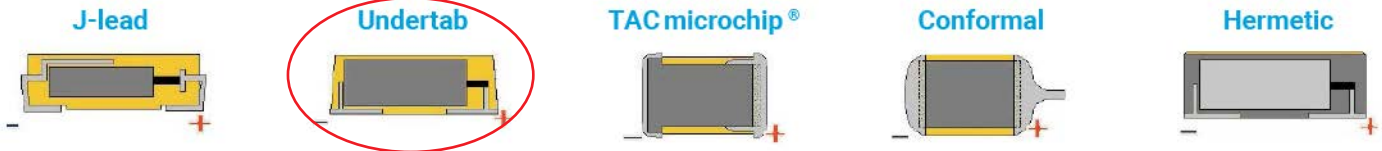
F98 Series

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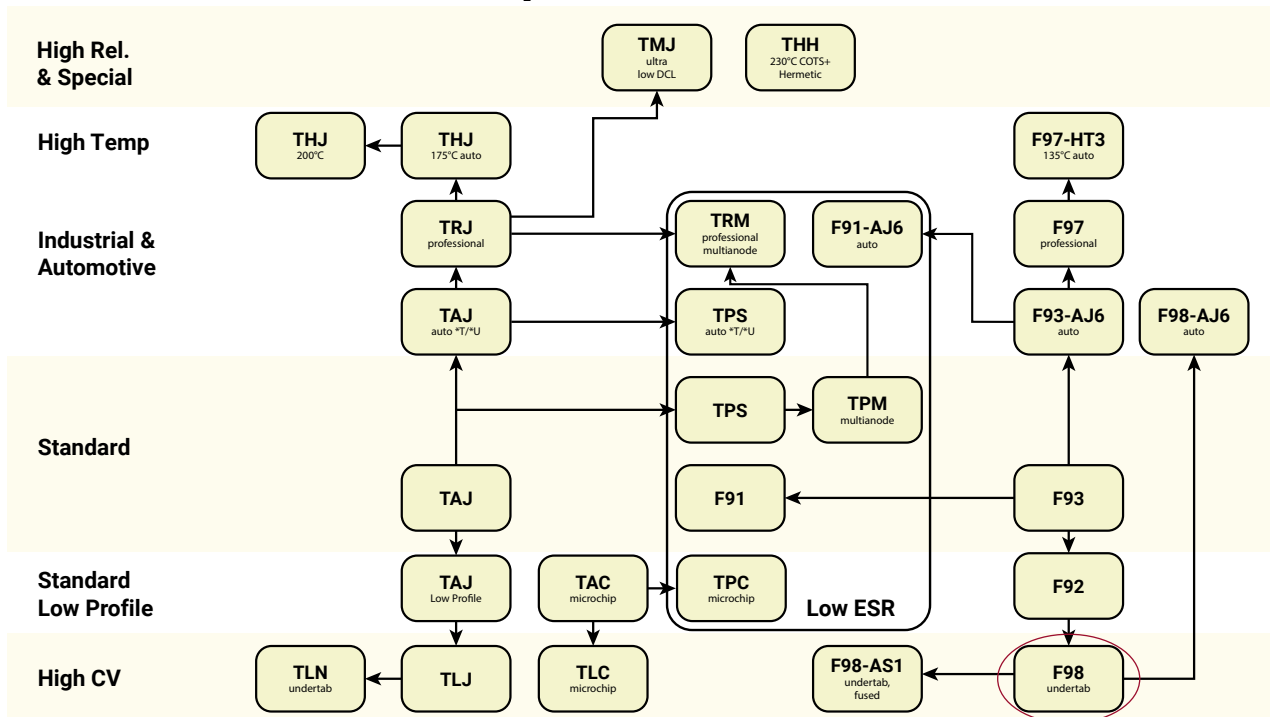
SOLID ELECTROLYTIC CAPACITOR ROADMAP



FIVE CAPACITOR CONSTRUCTION STYLES





SERIES LINE UP : CONVENTIONAL SMD MnO₂



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