



### TECHNICAL SPECIFICATIONS

| Item                         | Performance Characteristics                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Category Temperature Range   | -55 to +125°C (Rated temperature: +85°C)                                                                                                                                                                                                                                                                                                                                                                                                   |
| Capacitance Tolerance        | ±20% (at 120Hz)                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Dissipation Factor           | Refer to next page                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ESR (100kHz)                 | Refer to next page                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Leakage Current              | Refer to next page<br>Provided that<br><ul style="list-style-type: none"> <li>After 5 minute's application of rated voltage, leakage current at 85°C, 10 times or less than 20°C specified value.</li> <li>After 5 minute's application of rated voltage, leakage current at 125°C, 12.5 times or less than 20°C specified value.</li> </ul>                                                                                               |
| Damp Heat (Steady State)     | At 40°C, 90 to 95% R.H., For 500 hours (No voltage applied)<br>Capacitance Change ..... Refer to next page (*1)<br>Dissipation Factor ..... 150% or less of initial specified value<br>Leakage Current ..... 200% or less of initial specified value                                                                                                                                                                                       |
| Temperature Cycles           | -55°C / +125°C, For 30 minutes each, 5 cycles<br>Capacitance Change ..... Refer to next page (*1)<br>Dissipation Factor ..... 150% or less than the initial specified value<br>Leakage Current ..... Initial specified value or less                                                                                                                                                                                                       |
| Resistance to Soldering Heat | 10 seconds reflow at 260°C, 5 seconds immersion at 260°C.<br>Capacitance Change ..... Refer to next page (*1)<br>Dissipation Factor ..... Initial specified value or less<br>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 listed below.<br>Capacitance Change ..... Refer to next page (*1)<br>Dissipation Factor ..... 150% or less than the initial specified value<br>Leakage Current ..... 200% or less than the initial specified value                   |
| Endurance                    | After 1000 hours' application of rated voltage in series with a 3Ω resistor at 85°C, capacitors shall meet the characteristic requirements table below.<br>Capacitance Change ..... Refer to next page (*1)<br>Dissipation Factor ..... 150% or less than the initial specified value<br>Leakage Current ..... 200% or less than the 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.<br><p>5N (0.51 kg · f)<br/>For 10 ± 1 seconds</p>                                                                                                                       |
| 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 the substrate so that substrate may bend by 1mm as illustrated. Then, there shall be found no remarkable abnormality on the capacitor terminals.<br><p>R230<br/>20<br/>45 45<br/>1mm</p> |

### FEATURES

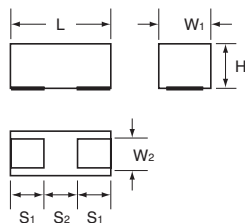
- Compliant to the RoHS2 directive 2011/65/EU
- SMD face down design
- Small and low profile

### APPLICATIONS

- Smartphone
- Mobile phone
- Wireless module
- Hearing aid

### CASE DIMENSIONS: millimeters (inches)

| Code | L                                                     | W <sub>1</sub>                                        | W <sub>2</sub>             | H                          | S <sub>1</sub>             | S <sub>2</sub>             |
|------|-------------------------------------------------------|-------------------------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| M    | 1.60<br>+0.20<br>-0.10<br>(0.063<br>+0.008<br>-0.004) | 0.85<br>+0.20<br>-0.10<br>(0.033<br>+0.008<br>-0.004) | 0.65±0.10<br>(0.026±0.004) | 0.80±0.10<br>(0.031±0.004) | 0.50±0.10<br>(0.020±0.004) | 0.60±0.10<br>(0.024±0.004) |
| S    | 2.00<br>+0.20<br>-0.10<br>(0.079<br>+0.008<br>-0.004) | 1.25<br>+0.20<br>-0.10<br>(0.049<br>+0.008<br>-0.004) | 0.90±0.10<br>(0.035±0.004) | 0.80±0.10<br>(0.031±0.004) | 0.50±0.10<br>(0.020±0.004) | 1.00±0.10<br>(0.039±0.004) |
| U    | 1.10±0.05<br>(0.043±0.002)                            | 0.60±0.05<br>(0.024±0.002)                            | 0.35±0.05<br>(0.014±0.002) | 0.55±0.05<br>(0.022±0.002) | 0.30±0.05<br>(0.012±0.002) | 0.50±0.05<br>(0.020±0.002) |

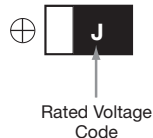


### MARKING

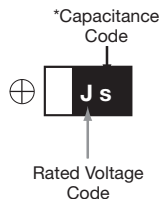
#### U CASE



#### M CASE



#### S CASE



### HOW TO ORDER

**F98**

Type

**0J**

Rated Voltage

**106**

Capacitance Code

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

**M**

Tolerance  
M = ±20%

**M**

Case Size  
See table above

Packaging  
See page 168 for details

**LZT**

Specification Suffix  
Rated temperature 60°C only

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

| Capacitance |      | Rated Voltage |           |          |          |          |          | *Cap Code |
|-------------|------|---------------|-----------|----------|----------|----------|----------|-----------|
| μF          | Code | 4V (0G)       | 6.3V (0J) | 10V (1A) | 16V (1C) | 20V (1D) | 25V (1E) |           |
| 1           | 105  |               |           |          | M        | M        | M        | –         |
| 2.2         | 225  |               |           | M/U      | M        |          |          | –         |
| 4.7         | 475  | U             | M/U       | M/U*     | M        |          |          | –         |
| 10          | 106  | U             | M/U*      | M        | S        |          |          | a         |
| 22          | 226  | M             | M         | M**/S    |          |          |          | J         |
| 33          | 336  | M             | M         | M**/S    |          |          |          | n         |
| 47          | 476  | M             | M/S       | S        |          |          |          | s         |
| 68          | 686  | M/S           |           |          |          |          |          | w         |
| 100         | 107  | M/S           | S         |          |          |          |          | A         |
| 220         | 227  | S             |           |          |          |          |          | J         |

Available Ratings

\*Codes under development – subject to change

\*\*Rated temperature 60°C only. Please contact AVX when you need detail spec.

We can consider the type of compliance to AEC-Q200.

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

### RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Case Size | Cap (μF) | Rated Voltage (V) | *2 Leakage Current (μA) | Dissipation Factor (%@120Hz) | ESR (Ω@100kHz) | *1 ΔC/C (%) |
|-----------------|-----------|----------|-------------------|-------------------------|------------------------------|----------------|-------------|
| <b>4 Volt</b>   |           |          |                   |                         |                              |                |             |
| F980G475MUA     | U         | 4.7      | 4                 | 0.5                     | 20                           | 20             | ±30         |
| F980G106MUA     | U         | 10       | 4                 | 0.8                     | 25                           | 20             | ±30         |
| F980G226MMA     | M         | 22       | 4                 | 0.9                     | 15                           | 7.5            | ±30         |
| F980G336MMA     | M         | 33       | 4                 | 1.3                     | 30                           | 4              | ±30         |
| F980G476MMA     | M         | 47       | 4                 | 1.9                     | 40                           | 8              | ±30         |
| F980G686MMA     | M         | 68       | 4                 | 27.2                    | 50                           | 10             | ±30         |
| F980G686MSA     | S         | 68       | 4                 | 2.7                     | 30                           | 4              | ±30         |
| F980G107MMA     | M         | 100      | 4                 | 80.0                    | 60                           | 10             | ±30         |
| F980G107MSA     | S         | 100      | 4                 | 4.0                     | 35                           | 4              | ±30         |
| F980G227MSA     | S         | 220      | 4                 | 132                     | 80                           | 5              | ±30         |
| <b>6.3 Volt</b> |           |          |                   |                         |                              |                |             |
| F980J475MUA     | U         | 4.7      | 6.3               | 0.6                     | 20                           | 20             | ±30         |
| F980J475MMA     | M         | 4.7      | 6.3               | 0.5                     | 20                           | 7.5            | ±30         |
| F980J106MMA     | M         | 10       | 6.3               | 0.6                     | 8                            | 6              | ±30         |
| F980J226MMA     | M         | 22       | 6.3               | 1.4                     | 20                           | 6              | ±30         |
| F980J336MMA     | M         | 33       | 6.3               | 4.2                     | 35                           | 8              | ±30         |
| F980J476MMA     | M         | 47       | 6.3               | 29.6                    | 45                           | 10             | ±30         |
| F980J476MSA     | S         | 47       | 6.3               | 3.0                     | 25                           | 6              | ±30         |
| F980J107MSA     | S         | 100      | 6.3               | 63.0                    | 50                           | 8              | ±30         |
| <b>10 Volt</b>  |           |          |                   |                         |                              |                |             |
| F981A225MUA     | U         | 2.2      | 10                | 0.5                     | 15                           | 15             | ±30         |
| F981A225MMA     | M         | 2.2      | 10                | 0.5                     | 6                            | 7.5            | ±30         |
| F981A475MMA     | M         | 4.7      | 10                | 0.5                     | 6                            | 6              | ±30         |
| F981A106MMA     | M         | 10       | 10                | 1.0                     | 20                           | 7.5            | ±30         |
| F981A226MMALZT  | M         | 22       | 10                | 11.0                    | 30                           | 8              | ±30         |
| F981A226MSA     | S         | 22       | 10                | 2.2                     | 20                           | 4              | ±30         |
| F981A336MMALZT  | M         | 33       | 10                | 33.0                    | 45                           | 8              | ±30         |
| F981A336MSA     | S         | 33       | 10                | 3.3                     | 30                           | 6              | ±30         |
| F981A476MSA     | S         | 47       | 10                | 9.4                     | 35                           | 5              | ±30         |
| <b>16 Volt</b>  |           |          |                   |                         |                              |                |             |
| F981C105MMA     | M         | 1        | 16                | 0.5                     | 6                            | 10             | ±30         |
| F981C225MMA     | M         | 2.2      | 16                | 0.5                     | 6                            | 10             | ±30         |
| F981C475MMA     | M         | 4.7      | 16                | 0.8                     | 12                           | 12             | ±30         |
| F981C106MSA     | S         | 10       | 16                | 1.6                     | 18                           | 4              | ±30         |
| <b>20 Volt</b>  |           |          |                   |                         |                              |                |             |
| F981D105MMA     | M         | 1        | 20                | 0.5                     | 6                            | 10             | ±30         |
| <b>25 Volt</b>  |           |          |                   |                         |                              |                |             |
| F981E105MMA     | M         | 1        | 25                | 0.5                     | 8                            | 10             | ±30         |

\*1: ΔC/C Marked “\*”

\*2: Leakage Current

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