



**THE DATASHEET OF  
F931E475MBA**



# F93 Series



## Resin-Molded Chip, Standard Tantalum J-Lead



### FEATURES

- Compliant to the RoHS2 directive 2011/65/EU
- SMD J-lead

### APPLICATIONS

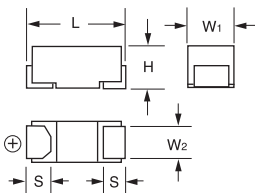
- Low power DC/DC



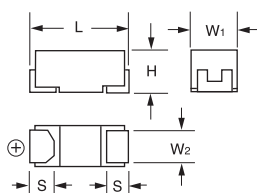
### CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | EIA Metric | L                              | W <sub>1</sub>                 | W <sub>2</sub>                 | H                              | S                              |
|------|----------|------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| A    | 1206     | 3216-18    | 3.20 ± 0.20<br>(0.126 ± 0.008) | 1.60 ± 0.20<br>(0.063 ± 0.008) | 1.20 ± 0.10<br>(0.047 ± 0.004) | 1.60 ± 0.20<br>(0.063 ± 0.008) | 0.80 ± 0.20<br>(0.031 ± 0.008) |
| B    | 1210     | 3528-21    | 3.50 ± 0.20<br>(0.138 ± 0.008) | 2.80 ± 0.20<br>(0.110 ± 0.008) | 2.20 ± 0.10<br>(0.087 ± 0.004) | 1.90 ± 0.20<br>(0.075 ± 0.008) | 0.80 ± 0.20<br>(0.031 ± 0.008) |
| C    | 2312     | 6032-27    | 6.00 ± 0.20<br>(0.236 ± 0.008) | 3.20 ± 0.20<br>(0.126 ± 0.008) | 2.20 ± 0.10<br>(0.087 ± 0.004) | 2.50 ± 0.20<br>(0.098 ± 0.008) | 1.30 ± 0.20<br>(0.051 ± 0.008) |
| N    | 2917     | 7343-30    | 7.30 ± 0.20<br>(0.287 ± 0.008) | 4.30 ± 0.20<br>(0.169 ± 0.008) | 2.40 ± 0.10<br>(0.094 ± 0.004) | 2.80 ± 0.20<br>(0.110 ± 0.008) | 1.30 ± 0.20<br>(0.051 ± 0.008) |

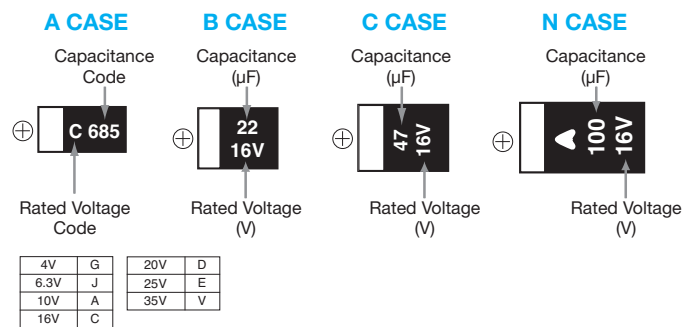
#### A, B CASE



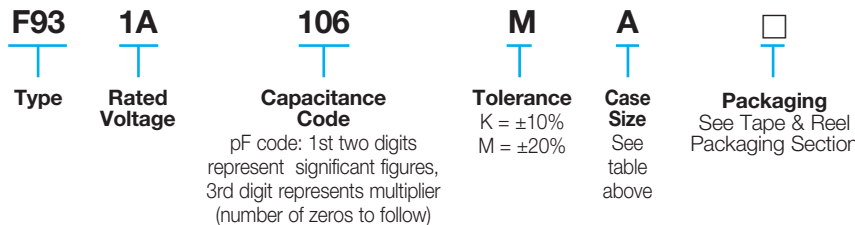
#### C, N CASE



### MARKING



### HOW TO ORDER



### TECHNICAL SPECIFICATIONS

|                                   |   |
|-----------------------------------|---|
| Category Temperature Range:       | -55 to +125°C   |
| Rated Temperature:                | +85°C   |
| Capacitance Tolerance:            | ±20%, ±10% at 120Hz   |
| Dissipation Factor:               | Refer to next page  |
| ESR 100kHz:                       | Refer to next page  |
| Leakage Current:                  | After 1 minute's application of rated voltage, leakage current at 20°C is not more than 0.01CV or 0.5µA, whichever is greater.<br>After 1 minute's application of rated voltage, leakage current at 85°C is not more than 0.1CV or 5µA, whichever is greater.<br>After 1 minute's application of derated voltage, leakage current at 125°C is not more than 0.125CV or 6.3µA, whichever is greater. |
| Capacitance Change By Temperature | +15% Max. at +125°C<br>+10% Max. at +85°C<br>-10% Max. at -55°C   |

# F93 Series



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

| Capacitance |      | Rated Voltage |           |          |          |          |          |          |
|-------------|------|---------------|-----------|----------|----------|----------|----------|----------|
| µF          | Code | 4V (0G)       | 6.3V (0J) | 10V (1A) | 16V (1C) | 20V (1D) | 25V (1E) | 35V (1V) |
| 0.33        | 334  |               |           |          |          |          |          | A        |
| 0.47        | 474  |               |           |          |          |          |          | A        |
| 0.68        | 684  |               |           |          |          |          |          | A        |
| 1.0         | 105  |               |           |          | A        |          | A        | A        |
| 1.5         | 155  |               |           |          | A        |          | A        | A        |
| 2.2         | 225  |               |           |          | A        | A        | A        | A/B      |
| 3.3         | 335  |               |           |          | A        | A        | A        | B        |
| 4.7         | 475  |               |           | A        | A        | A/B      | A/B      | B/C      |
| 6.8         | 685  |               |           | A        | A        | A/B      |          | C        |
| 10          | 106  |               | A         | A        | A/B      | A/B      | B/C      | C        |
| 15          | 156  |               | A         | A        | A/B      | C        | C        | N        |
| 22          | 226  | A             | A         | A/B      | A/B/C    | B/C      | C/N      | N        |
| 33          | 336  | A             | A         | A/B      | B/C      | C/N      | N        | N        |
| 47          | 476  | A             | A/B       | A/B/C    | B/C/N    | C/N      | N        |          |
| 68          | 686  | A             | A/B       | B/C      | C/N      |          |          |          |
| 100         | 107  | A/B           | A/B/C     | B/C/N    | C/N      |          |          |          |
| 150         | 157  | B             | B/C       | C/N      | N        |          |          |          |
| 220         | 227  | B/C           | B/C/N     | C/N      | N        |          |          |          |
| 330         | 337  | C             | N         | N        |          |          |          |          |
| 470         | 477  | N             | N         |          |          |          |          |          |
| 680         | 687  | N             | N         |          |          |          |          |          |

Released ratings

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) | DCL (µA) | DF @ 120Hz (%) | ESR @ 100kHz (Ω) | 100kHz RMS Current (mA) |      |       | *1 ΔC/C (%) | MSL |
|-----------------|-----------|------------------|-------------------|----------|----------------|------------------|-------------------------|------|-------|-------------|-----|
|                 |           |                  |                   |          |                |                  | 25°C                    | 85°C | 125°C |             |     |
| <b>4 Volt</b>   |           |                  |                   |          |                |                  |                         |      |       |             |     |
| F930G226#AA     | A         | 22               | 4                 | 0.9      | 6              | 2.5              | 173                     | 156  | 69    | *           | 1   |
| F930G336#AA     | A         | 33               | 4                 | 1.3      | 8              | 2.5              | 173                     | 156  | 69    | *           | 1   |
| F930G476#AA     | A         | 47               | 4                 | 1.9      | 18             | 2.5              | 173                     | 156  | 69    | *           | 1   |
| F930G686#AA     | A         | 68               | 4                 | 2.7      | 24             | 2.5              | 173                     | 156  | 69    | *           | 1   |
| F930G107#AA     | A         | 100              | 4                 | 4.0      | 30             | 2.0              | 194                     | 174  | 77    | *           | 1   |
| F930G107#BA     | B         | 100              | 4                 | 4.0      | 14             | 0.9              | 307                     | 277  | 123   | *           | 1   |
| F930G157#BA     | B         | 150              | 4                 | 6.0      | 16             | 0.7              | 348                     | 314  | 139   | *           | 1   |
| F930G227#BA     | B         | 220              | 4                 | 8.8      | 18             | 0.7              | 348                     | 314  | 139   | *           | 1   |
| F930G227#CC     | C         | 220              | 4                 | 8.8      | 12             | 0.7              | 396                     | 357  | 159   | *           | 1   |
| F930G337#CC     | C         | 330              | 4                 | 13.2     | 14             | 0.7              | 396                     | 357  | 159   | *           | 1   |
| F930G477#NC     | N         | 470              | 4                 | 18.8     | 16             | 0.3              | 707                     | 636  | 283   | *           | 1   |
| F930G687#NC     | N         | 680              | 4                 | 27.2     | 18             | 0.3              | 707                     | 636  | 283   | *           | 1   |
| <b>6.3 Volt</b> |           |                  |                   |          |                |                  |                         |      |       |             |     |
| F930J106#AA     | A         | 10               | 6.3               | 0.6      | 6              | 3.0              | 158                     | 142  | 63    | *           | 1   |
| F930J156#AA     | A         | 15               | 6.3               | 0.9      | 6              | 2.9              | 161                     | 145  | 64    | *           | 1   |
| F930J226#AA     | A         | 22               | 6.3               | 1.4      | 8              | 2.5              | 173                     | 156  | 69    | *           | 1   |
| F930J336#AA     | A         | 33               | 6.3               | 2.1      | 8              | 2.5              | 173                     | 156  | 69    | *           | 1   |
| F930J476#AA     | A         | 47               | 6.3               | 3.0      | 18             | 2.5              | 173                     | 156  | 69    | *           | 1   |
| F930J476#BA     | B         | 47               | 6.3               | 3.0      | 6              | 1.0              | 292                     | 262  | 117   | *           | 1   |
| F930J686#AA     | A         | 68               | 6.3               | 4.3      | 20             | 2.0              | 194                     | 174  | 77    | *           | 1   |
| F930J686#BA     | B         | 68               | 6.3               | 4.3      | 8              | 1.0              | 292                     | 262  | 117   | *           | 1   |
| F930J107#AA     | A         | 100              | 6.3               | 6.3      | 35             | 2.0              | 194                     | 174  | 77    | ±15         | 1   |
| F930J107#BA     | B         | 100              | 6.3               | 6.3      | 14             | 0.9              | 307                     | 277  | 123   | *           | 1   |
| F930J107#CC     | C         | 100              | 6.3               | 6.3      | 8              | 0.7              | 396                     | 357  | 159   | *           | 1   |
| F930J157#BA     | B         | 150              | 6.3               | 9.5      | 18             | 0.9              | 307                     | 277  | 123   | *           | 1   |
| F930J157#CC     | C         | 150              | 6.3               | 9.5      | 12             | 0.7              | 396                     | 357  | 159   | *           | 1   |
| F930J227#BA     | B         | 220              | 6.3               | 13.9     | 30             | 1.2              | 266                     | 240  | 106   | ±15         | 3   |
| F930J227#CC     | C         | 220              | 6.3               | 13.9     | 14             | 0.7              | 396                     | 357  | 159   | *           | 1   |
| F930J227#NC     | N         | 220              | 6.3               | 13.9     | 10             | 0.5              | 548                     | 493  | 219   | *           | 1   |
| F930J337#NC     | N         | 330              | 6.3               | 20.8     | 14             | 0.5              | 548                     | 493  | 219   | *           | 1   |
| F930J477#NC     | N         | 470              | 6.3               | 29.6     | 16             | 0.3              | 707                     | 636  | 283   | *           | 1   |
| F930J687#NC     | N         | 680              | 6.3               | 42.8     | 40             | 0.3              | 707                     | 636  | 283   | ±15         | 3   |

# F93 Series



## Resin-Molded Chip, Standard Tantalum J-Lead

### RATINGS & PART NUMBER REFERENCE

| AVX Part No.   | Case Size | Capacitance (µF) | Rated Voltage (V) | DCL (µA) | DF @ 120Hz (%) | ESR @ 100kHz (Ω) | 100kHz RMS Current (mA) |      |       | *1 ΔC/C (%) | MSL |
|----------------|-----------|------------------|-------------------|----------|----------------|------------------|-------------------------|------|-------|-------------|-----|
|                |           |                  |                   |          |                |                  | 25°C                    | 85°C | 125°C |             |     |
| <b>10 Volt</b> |           |                  |                   |          |                |                  |                         |      |       |             |     |
| F931A475#AA    | A         | 4.7              | 10                | 0.5      | 6              | 4.0              | 137                     | 123  | 55    | *           | 1   |
| F931A685#AA    | A         | 6.8              | 10                | 0.7      | 6              | 3.5              | 146                     | 132  | 59    | *           | 1   |
| F931A106#AA    | A         | 10               | 10                | 1.0      | 6              | 3.0              | 158                     | 142  | 63    | *           | 1   |
| F931A156#AA    | A         | 15               | 10                | 1.5      | 8              | 2.9              | 161                     | 145  | 64    | *           | 1   |
| F931A226#AA    | A         | 22               | 10                | 2.2      | 12             | 2.5              | 173                     | 156  | 69    | *           | 1   |
| F931A226#BA    | B         | 22               | 10                | 2.2      | 6              | 1.9              | 212                     | 190  | 85    | *           | 1   |
| F931A336#AA    | A         | 33               | 10                | 3.3      | 18             | 2.5              | 173                     | 156  | 69    | *           | 1   |
| F931A336#BA    | B         | 33               | 10                | 3.3      | 8              | 1.4              | 246                     | 222  | 99    | *           | 1   |
| F931A476#AA    | A         | 47               | 10                | 4.7      | 40             | 2.0              | 194                     | 174  | 77    | ±15         | 1   |
| F931A476#BA    | B         | 47               | 10                | 4.7      | 8              | 1.0              | 292                     | 262  | 117   | *           | 1   |
| F931A476#CC    | C         | 47               | 10                | 4.7      | 6              | 0.9              | 350                     | 315  | 140   | *           | 1   |
| F931A686#BA    | B         | 68               | 10                | 6.8      | 12             | 0.9              | 307                     | 277  | 123   | ±15         | 1   |
| F931A686#CC    | C         | 68               | 10                | 6.8      | 8              | 0.8              | 371                     | 334  | 148   | *           | 1   |
| F931A107#BA    | B         | 100              | 10                | 10.0     | 18             | 1.2              | 266                     | 240  | 106   | ±15         | 1   |
| F931A107#CC    | C         | 100              | 10                | 10.0     | 10             | 0.7              | 396                     | 357  | 159   | *           | 1   |
| F931A107#NC    | N         | 100              | 10                | 10.0     | 8              | 0.6              | 500                     | 450  | 200   | *           | 3   |
| F931A157#CC    | C         | 150              | 10                | 15.0     | 14             | 0.7              | 396                     | 357  | 159   | *           | 1   |
| F931A157#NC    | N         | 150              | 10                | 15.0     | 10             | 0.6              | 500                     | 450  | 200   | *           | 1   |
| F931A227#CC    | C         | 220              | 10                | 22.0     | 40             | 0.9              | 350                     | 315  | 140   | ±15         | 1   |
| F931A227#NC    | N         | 220              | 10                | 22.0     | 12             | 0.5              | 548                     | 493  | 219   | *           | 3   |
| F931A337#NC    | N         | 330              | 10                | 33.0     | 18             | 0.5              | 548                     | 493  | 219   | *           | 1   |
| <b>16 Volt</b> |           |                  |                   |          |                |                  |                         |      |       |             |     |
| F931C105#AA    | A         | 1                | 16                | 0.5      | 4              | 7.5              | 100                     | 90   | 40    | *           | 1   |
| F931C155#AA    | A         | 1.5              | 16                | 0.5      | 4              | 6.0              | 112                     | 101  | 45    | *           | 1   |
| F931C225#AA    | A         | 2.2              | 16                | 0.5      | 4              | 5.0              | 122                     | 110  | 49    | *           | 1   |
| F931C335#AA    | A         | 3.3              | 16                | 0.5      | 4              | 4.5              | 129                     | 116  | 52    | *           | 1   |
| F931C475#AA    | A         | 4.7              | 16                | 0.8      | 6              | 4.0              | 137                     | 123  | 55    | *           | 1   |
| F931C685#AA    | A         | 6.8              | 16                | 1.1      | 6              | 3.5              | 146                     | 132  | 59    | *           | 1   |
| F931C106#AA    | A         | 10               | 16                | 1.6      | 6              | 3.0              | 158                     | 142  | 63    | *           | 1   |
| F931C106#BA    | B         | 10               | 16                | 1.6      | 6              | 2.0              | 206                     | 186  | 82    | *           | 1   |
| F931C156#AA    | A         | 15               | 16                | 2.4      | 10             | 3.0              | 158                     | 142  | 63    | *           | 1   |
| F931C156#BA    | B         | 15               | 16                | 2.4      | 6              | 2.0              | 206                     | 186  | 82    | *           | 1   |
| F931C226#AA    | A         | 22               | 16                | 3.5      | 15             | 3.0              | 158                     | 142  | 63    | ±15         | 1   |
| F931C226#BA    | B         | 22               | 16                | 3.5      | 8              | 1.9              | 212                     | 190  | 85    | *           | 1   |
| F931C226#CC    | C         | 22               | 16                | 3.5      | 6              | 1.1              | 316                     | 285  | 126   | *           | 1   |
| F931C336#BA    | B         | 33               | 16                | 5.3      | 8              | 1.9              | 212                     | 190  | 85    | *           | 1   |
| F931C336#CC    | C         | 33               | 16                | 5.3      | 6              | 1.1              | 316                     | 285  | 126   | *           | 1   |
| F931C476#BA    | B         | 47               | 16                | 7.5      | 16             | 2.0              | 206                     | 186  | 82    | ±15         | 1   |
| F931C476#CC    | C         | 47               | 16                | 7.5      | 8              | 0.9              | 350                     | 315  | 140   | *           | 1   |
| F931C476#NC    | N         | 47               | 16                | 7.5      | 6              | 0.7              | 463                     | 417  | 185   | *           | 1   |
| F931C686#CC    | C         | 68               | 16                | 10.9     | 10             | 0.8              | 371                     | 334  | 148   | ±10         | 1   |
| F931C686#NC    | N         | 68               | 16                | 10.9     | 6              | 0.6              | 500                     | 450  | 200   | *           | 1   |
| F931C107#CC    | C         | 100              | 16                | 16.0     | 15             | 0.7              | 396                     | 357  | 159   | ±10         | 1   |
| F931C107#NC    | N         | 100              | 16                | 16.0     | 10             | 0.6              | 500                     | 450  | 200   | *           | 3   |
| F931C157#NC    | N         | 150              | 16                | 24.0     | 15             | 0.6              | 500                     | 450  | 200   | *           | 1   |
| F931C227#NC    | N         | 220              | 16                | 35.2     | 25             | 0.7              | 463                     | 417  | 185   | ±10         | 3   |
| <b>20 Volt</b> |           |                  |                   |          |                |                  |                         |      |       |             |     |
| F931D225#AA    | A         | 2.2              | 20                | 0.5      | 4              | 5.0              | 122                     | 110  | 49    | *           | 1   |
| F931D335#AA    | A         | 3.3              | 20                | 0.7      | 4              | 4.5              | 129                     | 116  | 52    | *           | 1   |
| F931D475#AA    | A         | 4.7              | 20                | 0.9      | 6              | 3.0              | 158                     | 142  | 63    | *           | 1   |
| F931D475#BA    | B         | 4.7              | 20                | 0.9      | 6              | 2.8              | 174                     | 157  | 70    | *           | 1   |
| F931D685#AA    | A         | 6.8              | 20                | 1.4      | 6              | 3.5              | 146                     | 132  | 59    | *           | 1   |
| F931D685#BA    | B         | 6.8              | 20                | 1.4      | 6              | 2.5              | 184                     | 166  | 74    | *           | 1   |
| F931D106#AA    | A         | 10               | 20                | 2.0      | 8              | 3.5              | 146                     | 132  | 59    | *           | 1   |
| F931D106#BA    | B         | 10               | 20                | 2.0      | 6              | 2.1              | 201                     | 181  | 80    | *           | 1   |
| F931D156#CC    | C         | 15               | 20                | 3.0      | 6              | 1.2              | 303                     | 272  | 121   | *           | 1   |
| F931D226#BA    | B         | 22               | 20                | 4.4      | 8              | 1.9              | 212                     | 190  | 85    | *           | 1   |
| F931D226#CC    | C         | 22               | 20                | 4.4      | 8              | 1.1              | 316                     | 285  | 126   | *           | 1   |
| F931D336#CC    | C         | 33               | 20                | 6.6      | 8              | 1.1              | 316                     | 285  | 126   | *           | 1   |
| F931D336#NC    | N         | 33               | 20                | 6.6      | 6              | 0.7              | 463                     | 417  | 185   | *           | 1   |
| F931D476#CC    | C         | 47               | 20                | 9.4      | 10             | 1.1              | 316                     | 285  | 126   | *           | 1   |
| F931D476#NC    | N         | 47               | 20                | 9.4      | 8              | 0.7              | 463                     | 417  | 185   | *           | 1   |
| <b>25 Volt</b> |           |                  |                   |          |                |                  |                         |      |       |             |     |
| F931E105#AA    | A         | 1                | 25                | 0.5      | 4              | 7.5              | 100                     | 90   | 40    | *           | 1   |
| F931E155#AA    | A         | 1.5              | 25                | 0.5      | 4              | 6.7              | 106                     | 95   | 42    | *           | 1   |
| F931E225#AA    | A         | 2.2              | 25                | 0.6      | 6              | 6.3              | 109                     | 98   | 44    | *           | 1   |
| F931E335#AA    | A         | 3.3              | 25                | 0.8      | 6              | 6.0              | 112                     | 101  | 45    | *           | 1   |
| F931E475#AA    | A         | 4.7              | 25                | 1.2      | 8              | 4.0              | 137                     | 123  | 55    | *           | 1   |
| F931E475#BA    | B         | 4.7              | 25                | 1.2      | 6              | 2.8              | 174                     | 157  | 70    | *           | 1   |
| F931E106#BA    | B         | 10               | 25                | 2.5      | 12             | 1.9              | 212                     | 190  | 85    | *           | 1   |
| F931E106#CC    | C         | 10               | 25                | 2.5      | 6              | 1.5              | 271                     | 244  | 108   | *           | 1   |
| F931E156#CC    | C         | 15               | 25                | 3.8      | 8              | 1.2              | 303                     | 272  | 121   | *           | 1   |
| F931E226#CC    | C         | 22               | 25                | 5.5      | 8              | 1.1              | 316                     | 285  | 126   | *           | 1   |

# F93 Series



## Resin-Molded Chip, Standard Tantalum J-Lead

### RATINGS & PART NUMBER REFERENCE

| AVX Part No.   | Case Size | Capacitance (μF) | Rated Voltage (V) | DCL (μA) | DF @ 120Hz (%) | ESR @ 100kHz (Ω) | 100kHz RMS Current (mA) |      |       | *1 ΔC/C (%) | MSL |
|----------------|-----------|------------------|-------------------|----------|----------------|------------------|-------------------------|------|-------|-------------|-----|
|                |           |                  |                   |          |                |                  | 25°C                    | 85°C | 125°C |             |     |
| F931E226#NC    | N         | 22               | 25                | 5.5      | 6              | 0.7              | 463                     | 417  | 185   | *           | 1   |
| F931E336#NC    | N         | 33               | 25                | 8.3      | 8              | 0.7              | 463                     | 417  | 185   | *           | 1   |
| F931E476#NC    | N         | 47               | 25                | 11.8     | 8              | 0.7              | 463                     | 417  | 185   | *           | 1   |
| <b>35 Volt</b> |           |                  |                   |          |                |                  |                         |      |       |             |     |
| F931V334#AA    | A         | 0.33             | 35                | 0.5      | 4              | 12.0             | 79                      | 71   | 32    | *           | 1   |
| F931V474#AA    | A         | 0.47             | 35                | 0.5      | 4              | 10.0             | 87                      | 78   | 35    | *           | 1   |
| F931V684#AA    | A         | 0.68             | 35                | 0.5      | 4              | 7.6              | 99                      | 89   | 40    | *           | 1   |
| F931V105#AA    | A         | 1                | 35                | 0.5      | 4              | 7.5              | 100                     | 90   | 40    | *           | 1   |
| F931V155#AA    | A         | 1.5              | 35                | 0.5      | 6              | 7.5              | 100                     | 90   | 40    | *           | 1   |
| F931V225#AA    | A         | 2.2              | 35                | 0.8      | 6              | 7.0              | 104                     | 93   | 41    | *           | 1   |
| F931V225#BA    | B         | 2.2              | 35                | 0.8      | 4              | 3.8              | 150                     | 135  | 60    | *           | 1   |
| F931V335#BA    | B         | 3.3              | 35                | 1.2      | 4              | 3.5              | 156                     | 140  | 62    | *           | 1   |
| F931V475#BA    | B         | 4.7              | 35                | 1.6      | 8              | 3.1              | 166                     | 149  | 66    | *           | 1   |
| F931V475#CC    | C         | 4.7              | 35                | 1.6      | 6              | 1.8              | 247                     | 222  | 99    | *           | 1   |
| F931V685#CC    | C         | 6.8              | 35                | 2.4      | 6              | 1.8              | 247                     | 222  | 99    | *           | 1   |
| F931V106#CC    | C         | 10               | 35                | 3.5      | 6              | 1.6              | 262                     | 236  | 105   | *           | 1   |
| F931V156#NC    | N         | 15               | 35                | 5.3      | 6              | 0.7              | 463                     | 417  | 185   | *           | 1   |
| F931V226#NC    | N         | 22               | 35                | 7.7      | 8              | 0.7              | 463                     | 417  | 185   | *           | 1   |
| F931V336#NC    | N         | 33               | 35                | 11.6     | 8              | 0.7              | 463                     | 417  | 185   | *           | 1   |

\*1: ΔC/C Marked “\*”

#: “M” for ±20% tolerance, “K” for ± 10% tolerance.

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

| Item                      | All Case (%) |
|---------------------------|--------------|
| Damp Heat                 | ±10          |
| Temperature cycles        | ±5           |
| Resistance soldering heat | ±5           |
| Surge                     | ±5           |
| Endurance                 | ±10          |

### QUALIFICATION TABLE

| TEST                                | F93 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)<br>Capacitance Change ..... Refer to page 33 (*1)<br>Dissipation Factor ..... Initial specified value or less<br>Leakage Current ..... Initial specified value or less   |  |
| <b>Temperature Cycles</b>           | -55°C / +125°C, 30 minutes each, 5 cycles<br>Capacitance Change ..... Refer to page 33 (*1)<br>Dissipation Factor ..... Initial specified value or less<br>Leakage Current ..... Initial specified value or less   |  |
| <b>Resistance to Soldering Heat</b> | 10 seconds reflow at 260°C, 5 seconds immersion at 260°C.<br>Capacitance Change ..... Refer to page 33 (*1)<br>Dissipation Factor ..... Initial specified value or less<br>Leakage Current ..... Initial specified value or less   |  |
| <b>Surge</b>                        | After application of surge voltage in series with a 33Ω 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.<br>Capacitance Change ..... Refer to page 33 (*1)<br>Dissipation Factor ..... Initial specified value or less<br>Leakage Current ..... Initial specified value or less   |  |
| <b>Endurance</b>                    | After 2000 hours' application of rated voltage in series with a 3Ω resistor at 85°C, or derated voltage in series with a 3Ω resistor at 125°C, capacitors shall meet the characteristic requirements in the table above.<br>Capacitance Change ..... Refer to page 33 (*1)<br>Dissipation Factor ..... Initial specified value or less<br>Leakage Current ..... Initial specified value or less  |  |
| <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.    |  |
| <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.  |  |
| <b>Failure Rate</b>                 | 1% per 1000 hours at 85°C, VR with 0.1Ω/V series impedance, 60% confidence level.  |  |

We can supply the type of compliance to AEC-Q200. Please contact to your local AVX sales office when these series are being designed in your application.

### AVX SOLID ELECTROLYTE CAPACITOR ROADMAP



### Five Capacitor Construction Styles



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



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