

# F72/F75 Series



## Low Profile and High CV Conformal Coated Chip



### FEATURES

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

### APPLICATIONS

- Smartphone
- Mobile phone
- Wireless module
- Hearing aid

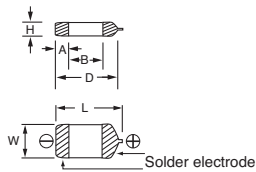


### CASE DIMENSIONS: millimeters (inches)

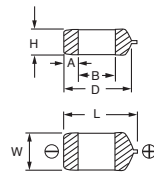
| Code                       | EIA Code | EIA Metric | L                          | W                          | H                          | A                          | B                          | D*              |
|----------------------------|----------|------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-----------------|
| <b>F72 Case Dimensions</b> |          |            |                            |                            |                            |                            |                            |                 |
| M                          | 2824     | 7260-20    | 7.20±0.30<br>(0.283±0.012) | 6.00±0.30<br>(0.236±0.012) | 2.00 Max.<br>(0.079 Max)   | 1.30±0.40<br>(0.051±0.016) | 3.80±0.60<br>(0.150±0.024) | 6.20<br>(0.244) |
| R                          | 2824     | 7260-15    | 7.20±0.30<br>(0.283±0.012) | 6.00±0.30<br>(0.236±0.012) | 1.20±0.30<br>(0.047±0.012) | 1.30±0.40<br>(0.051±0.016) | 3.80±0.60<br>(0.150±0.024) | 6.20<br>(0.244) |
| <b>F75 Case Dimensions</b> |          |            |                            |                            |                            |                            |                            |                 |
| C                          | 2813     | 7132-28    | 7.10±0.30<br>(0.280±0.012) | 3.20±0.30<br>(0.126±0.012) | 2.50±0.30<br>(0.098±0.012) | 1.30±0.30<br>(0.051±0.012) | 3.60±0.60<br>(0.142±0.024) | 6.00<br>(0.236) |
| D                          | 2914     | 7343-31    | 7.30±0.30<br>(0.287±0.012) | 4.30±0.30<br>(0.166±0.012) | 2.80±0.30<br>(0.110±0.012) | 1.30±0.40<br>(0.051±0.016) | 3.90±0.60<br>(0.153±0.024) | 6.40<br>(0.252) |
| M                          | 2824     | 7260-28    | 7.20±0.30<br>(0.283±0.012) | 6.00±0.30<br>(0.236±0.012) | 2.80 Max.<br>(0.110 Max)   | 1.30±0.40<br>(0.051±0.016) | 3.80±0.60<br>(0.150±0.024) | 6.20<br>(0.244) |
| R                          | 2824     | 7260-38    | 7.20±0.30<br>(0.283±0.012) | 6.00±0.30<br>(0.236±0.012) | 3.50±0.30<br>(0.138±0.012) | 1.30±0.40<br>(0.051±0.016) | 3.80±0.60<br>(0.150±0.024) | 6.20<br>(0.244) |
| U                          | 2813     | 7132-20    | 7.10±0.30<br>(0.280±0.012) | 3.20±0.30<br>(0.126±0.012) | 2.00 Max.<br>(0.079 Max)   | 1.30±0.30<br>(0.051±0.012) | 3.60±0.60<br>(0.142±0.024) | 6.00<br>(0.236) |

\*D dimension only for reference

**F72**



**F75**



### HOW TO ORDER

**F72**

Type

**1A**

Rated Voltage

**107**

Capacitance Code

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

**M**

Tolerance  
K = ±10%  
M = ±20%

**R**

Case Size  
See table above



Packaging  
See Tape & Reel Packaging Section



Specification Suffix  
AH1 = Low ESR

**AQ2 or Q2**

Single Face Electrode

**F75**

Type

**1C**

Rated Voltage

**157**

Capacitance Code

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

**M**

Tolerance  
K = ±10%  
M = ±20%

**D**

Case Size  
See table above



Packaging  
See Tape & Reel Packaging Section

**AQ2**

Single Face Electrode

### 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   |

# F72/F75 Series



## Low Profile and High CV Conformal Coated Chip

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

#### F72

| Capacitance |      | Rated Voltage |           |          |          |
|-------------|------|---------------|-----------|----------|----------|
| µF          | Code | 4V (0G)       | 6.3V (0J) | 10V (1A) | 16V (1C) |
| 33          | 336  |               |           |          | R        |
| 47          | 476  |               |           | R        | R        |
| 68          | 686  |               | R         | R        | R        |
| 100         | 107  | R             | R         | R        |          |
| 150         | 157  | R             | R         | R        |          |
| 220         | 227  | R             | R         | R        | M        |
| 330         | 337  | R             | R         |          | M        |
| 470         | 477  |               |           | M        |          |
| 680         | 687  |               |           | M        |          |
| 1000        | 108  |               | M/M(AH1)  | M        |          |
| 1500        | 158  |               | M         |          |          |

Released ratings

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

#### F75

| Capacitance |      | Rated Voltage |           |          |          |
|-------------|------|---------------|-----------|----------|----------|
| µF          | Code | 4V (0G)       | 6.3V (0J) | 10V (1A) | 16V (1C) |
| 68          | 686  |               |           |          | C        |
| 100         | 107  |               |           |          | C        |
| 150         | 157  |               |           | C        | D        |
| 220         | 227  |               | C         | C/D      | R        |
| 330         | 337  | C             | C/D       | D        |          |
| 470         | 477  | C/D           | D/U       | R/U      |          |
| 680         | 687  | D             | D/R       |          |          |
| 1000        | 108  | D/R           | R/U       |          |          |
| 1500        | 158  | R             |           |          |          |
| 2200        | 228  | R             | M         |          |          |

### RATINGS & PART NUMBER REFERENCE

#### F72

| 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 |
|------------------|-----------|------------------|-------------------|----------|----------------|------------------|-------------------------|-------------|-----|
|                  |           |                  |                   |          |                |                  | @ 20°C                  |             |     |
| <b>4 Volt</b>    |           |                  |                   |          |                |                  |                         |             |     |
| F720G107#RC      | R         | 100              | 4                 | 4.0      | 8              | 0.70             | 463                     | *           | 3   |
| F720G157#RC      | R         | 150              | 4                 | 6.0      | 10             | 0.70             | 463                     | *           | 3   |
| F720G227#RC      | R         | 220              | 4                 | 8.8      | 12             | 0.70             | 463                     | *           | 3   |
| F720G337#RC      | R         | 330              | 4                 | 13.2     | 12             | 0.70             | 463                     | *           | 3   |
| <b>6.3 Volt</b>  |           |                  |                   |          |                |                  |                         |             |     |
| F720J686#RC      | R         | 68               | 6.3               | 4.3      | 6              | 0.75             | 447                     | *           | 3   |
| F720J107#RC      | R         | 100              | 6.3               | 6.3      | 8              | 0.70             | 463                     | *           | 3   |
| F720J157#RC      | R         | 150              | 6.3               | 9.5      | 10             | 0.70             | 463                     | *           | 3   |
| F720J227#RC      | R         | 220              | 6.3               | 13.9     | 12             | 0.70             | 463                     | *           | 3   |
| F720J337#RC      | R         | 330              | 6.3               | 20.8     | 12             | 0.70             | 463                     | *           | 3   |
| F720J108#MCAQ2   | M         | 1000             | 6.3               | 63.0     | 30             | 0.14             | 1118                    | ±15         | 3   |
| F720J108#MCAH1Q2 | M         | 1000             | 6.3               | 63.0     | 30             | 0.075            | 1528                    | ±15         | 3   |
| F720J158#MCAQ2   | M         | 1500             | 6.3               | 95.0     | 45             | 0.14             | 1118                    | ±20         | 3   |
| <b>10 Volt</b>   |           |                  |                   |          |                |                  |                         |             |     |
| F721A476#RC      | R         | 47               | 10                | 4.7      | 6              | 0.80             | 433                     | *           | 3   |
| F721A686#RC      | R         | 68               | 10                | 6.8      | 6              | 0.75             | 447                     | *           | 3   |
| F721A107#RC      | R         | 100              | 10                | 10.0     | 8              | 0.70             | 463                     | *           | 3   |
| F721A157#RC      | R         | 150              | 10                | 15.0     | 10             | 0.70             | 463                     | *           | 3   |
| F721A227#RC      | R         | 220              | 10                | 22.0     | 12             | 0.70             | 463                     | *           | 3   |
| F721A477#MCAQ2   | M         | 470              | 10                | 47.0     | 30             | 0.14             | 1118                    | ±15         | 3   |
| F721A687#MCAQ2   | M         | 680              | 10                | 68.0     | 35             | 0.14             | 1118                    | ±20         | 3   |
| F721A108#MCAQ2   | M         | 1000             | 10                | 200      | 45             | 0.14             | 1118                    | ±20         | 3   |
| <b>16 Volt</b>   |           |                  |                   |          |                |                  |                         |             |     |
| F721C336#RC      | R         | 33               | 16                | 5.3      | 6              | 0.90             | 408                     | *           | 3   |
| F721C476#RC      | R         | 47               | 16                | 7.5      | 6              | 0.80             | 433                     | *           | 3   |
| F721C686#RC      | R         | 68               | 16                | 10.9     | 6              | 0.75             | 447                     | *           | 3   |
| F721C227#MCAQ2   | M         | 220              | 16                | 35.2     | 12             | 0.20             | 935                     | ±20         | 3   |
| F721C337#MCAQ2   | M         | 330              | 16                | 52.8     | 45             | 0.20             | 935                     | ±20         | 3   |

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

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

\*1: ΔC/C Marked "\*"

| Item                      | F72/F75 All Case (%) |
|---------------------------|----------------------|
| Damp Heat                 | ±10                  |
| Temperature cycles        | ±5                   |
| Resistance soldering heat | ±5                   |
| Surge                     | ±5                   |
| Endurance                 | ±10                  |

#### F75

| 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 |
|-----------------|-----------|------------------|-------------------|----------|----------------|------------------|-------------------------|-------------|-----|
|                 |           |                  |                   |          |                |                  | @ 20°C                  |             |     |
| <b>4 Volt</b>   |           |                  |                   |          |                |                  |                         |             |     |
| F750G337#CC     | C         | 330              | 4                 | 13.2     | 10             | 0.15             | 856                     | *           | 3   |
| F750G477#CC     | C         | 470              | 4                 | 18.8     | 14             | 0.12             | 957                     | *           | 3   |
| F750G477#DC     | D         | 470              | 4                 | 18.8     | 14             | 0.12             | 1118                    | *           | 3   |
| F750G687#DC     | D         | 680              | 4                 | 27.2     | 18             | 0.12             | 1118                    | *           | 3   |
| F750G108#DC     | D         | 1000             | 4                 | 40.0     | 24             | 0.12             | 1118                    | *           | 3   |
| F750G108#RC     | R         | 1000             | 4                 | 40.0     | 24             | 0.12             | 1443                    | *           | 3   |
| F750G158#RC     | R         | 1500             | 4                 | 60.0     | 30             | 0.12             | 1443                    | *           | 3   |
| F750G228#RC     | R         | 2200             | 4                 | 88.0     | 45             | 0.07             | 1890                    | *           | 3   |
| <b>6.3 Volt</b> |           |                  |                   |          |                |                  |                         |             |     |
| F750J227#CC     | C         | 220              | 6.3               | 13.9     | 10             | 0.20             | 742                     | *           | 3   |
| F750J337#CC     | C         | 330              | 6.3               | 20.8     | 10             | 0.15             | 856                     | *           | 3   |
| F750J337#DC     | D         | 330              | 6.3               | 20.8     | 10             | 0.15             | 1000                    | *           | 3   |
| F750J477#DC     | D         | 470              | 6.3               | 29.6     | 14             | 0.12             | 1118                    | *           | 3   |
| F750J477#UC     | U         | 470              | 6.3               | 29.6     | 15             | 0.10             | 1049                    | *           | 3   |
| F750J687#DC     | D         | 680              | 6.3               | 42.8     | 18             | 0.12             | 1118                    | *           | 3   |
| F750J687#RC     | R         | 680              | 6.3               | 42.8     | 18             | 0.12             | 1443                    | *           | 3   |
| F750J108#RC     | R         | 1000             | 6.3               | 63.0     | 24             | 0.12             | 1443                    | *           | 3   |
| F750J108#UCAQ2  | U         | 1000             | 6.3               | 126      | 40             | 0.15             | 856                     | ±20         | 3   |
| F750J228#MCAQ2  | M         | 2200             | 6.3               | 139      | 60             | 0.08             | 1581                    | ±20         | 3   |
| <b>10 Volt</b>  |           |                  |                   |          |                |                  |                         |             |     |
| F751A157#CC     | C         | 150              | 10                | 15.0     | 10             | 0.22             | 707                     | *           | 3   |
| F751A227#CC     | C         | 220              | 10                | 22.0     | 10             | 0.20             | 742                     | *           | 3   |
| F751A227#DC     | D         | 220              | 10                | 22.0     | 10             | 0.20             | 866                     | *           | 3   |
| F751A337#DC     | D         | 330              | 10                | 33.0     | 10             | 0.15             | 1000                    | *           | 3   |
| F751A477#RC     | R         | 470              | 10                | 47.0     | 14             | 0.12             | 1443                    | *           | 3   |
| F751A477#UCAQ2  | U         | 470              | 10                | 94.0     | 30             | 0.15             | 856                     | ±20         | 3   |
| <b>16 Volt</b>  |           |                  |                   |          |                |                  |                         |             |     |
| F751C686#CC     | C         | 68               | 16                | 10.9     | 10             | 0.22             | 707                     | *           | 3   |
| F751C107#CC     | C         | 100              | 16                | 16.0     | 10             | 0.22             | 707                     | *           | 3   |
| F751C157#DC     | D         | 150              | 16                | 24.0     | 10             | 0.22             | 826                     | *           | 3   |
| F751C227#RC     | R         | 220              | 16                | 35.2     | 10             | 0.20             | 1118                    | *           | 3   |

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

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

### QUALIFICATION TABLE

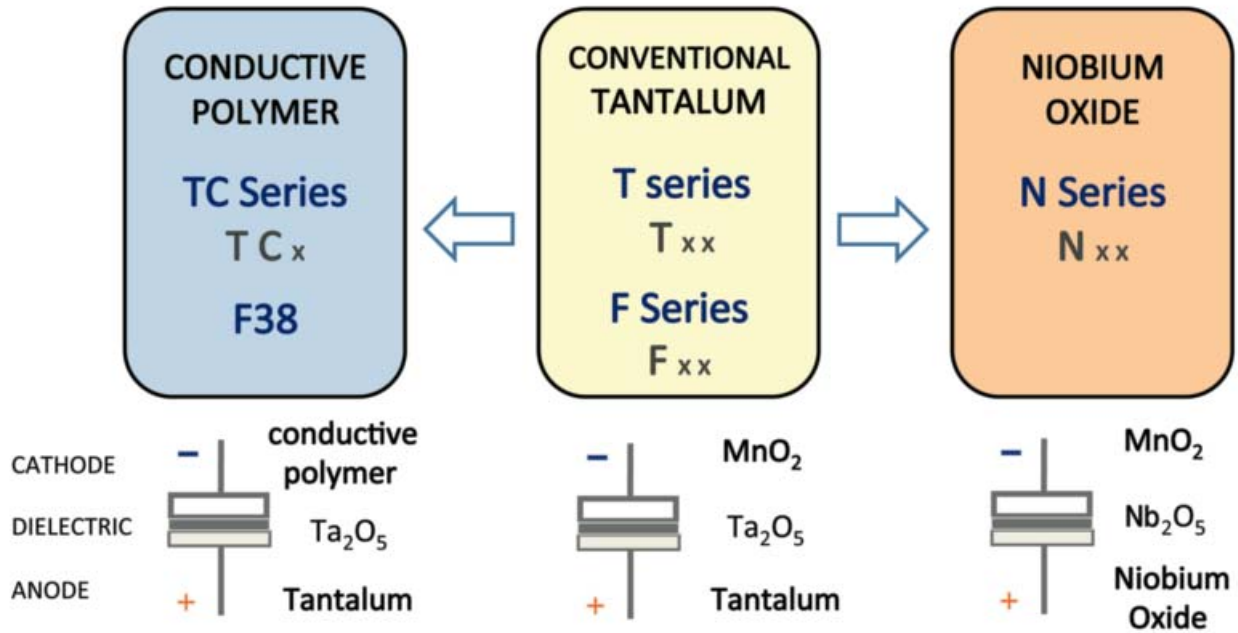
| TEST                                | F72/F75 series (Temperature range -55°C to +125°C)  |   |
|-------------------------------------|---|---|
|                                     | Condition   |   |
| <b>Damp Heat (Steady State)</b>     | At 40°C, 90 to 95% R.H., 500 hours (No voltage applied)<br>Capacitance Change ..... Refer to page 173 (*1)<br>Dissipation Factor ..... Initial specified value or less<br>Leakage Current ..... Initial specified value or less   |   |
| <b>Temperature Cycles</b>           | At -55°C / +125°C, 30 minutes each, 5 cycles<br>Capacitance Change ..... Refer to page 173 (*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, 10 seconds immersion at 260°C.<br>Capacitance Change ..... Refer to page 173 (*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 173 (*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 at 85°C, capacitors shall meet the characteristic requirements in the table above.<br>Capacitance Change ..... Refer to page 173 (*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.  | <p>5N (0.51kg · f)<br/>For 10±1 seconds</p> |
| <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.        |   |

# F72/F75 Series

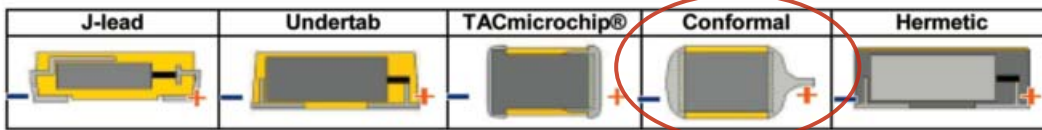


## Low Profile and High CV Conformal Coated Chip

### AVX SOLID ELECTROLYTE CAPACITOR ROADMAP



### Five Capacitor Construction Styles



### SERIES LINE UP: CONFORMAL Ta MnO<sub>2</sub>

