

# SOLID TANTALUM ELECTROLYTIC CAPACITORS

**F72** Low Profile  
Conformal coated Chip

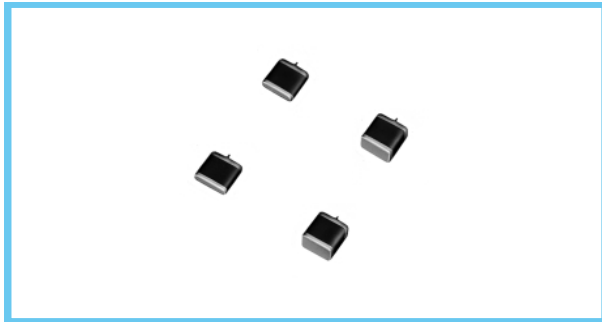
**F75** Maximum CV  
Conformal coated Chip

FRAMELESS™

Upgrade



● Compliant to the RoHS directive (2002/95/EC).

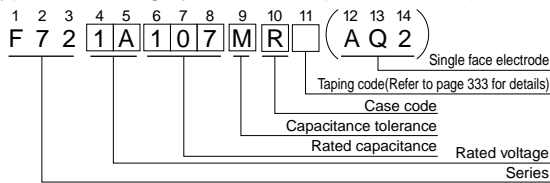


■ Applications

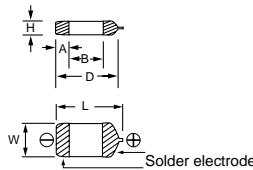
- Wireless modem
- Tablet PC
- e-book
- SSD
- Smart meter

F72

■ Type numbering system (Example : 10V 100μF)



■ Drawing



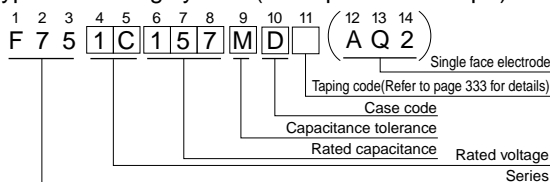
■ Dimensions

| Case code | L         | W         | H         | A         | B         | (D)   |
|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| R         | 7.2 ± 0.3 | 6.0 ± 0.3 | 1.2 ± 0.3 | 1.3 ± 0.4 | 3.8 ± 0.6 | (6.2) |
| M         | 7.2 ± 0.3 | 6.0 ± 0.3 | 2.0MAX.   | 1.3 ± 0.4 | 3.8 ± 0.6 | (6.2) |

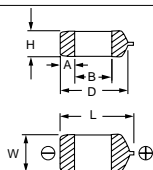
D dimension only for reference

F75

■ Type numbering system (Example : 16V 150μF)



■ Drawing

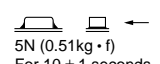
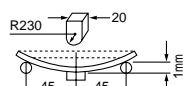


■ Standard Ratings

| F72 | Cap.(μF) | Code | V  |     |     |    |
|-----|----------|------|----|-----|-----|----|
|     |          |      | 4  | 6.3 | 10  | 16 |
|     | 33       | 336  | 0G | 0J  | 1A  | 1C |
|     | 47       | 476  |    |     | R   | R  |
|     | 68       | 686  |    | R   | R   | R  |
|     | 100      | 107  | R  | R   | R   |    |
|     | 150      | 157  | R  | R   | R   |    |
|     | 220      | 227  | R  | R   | R   |    |
|     | 330      | 337  | R  | R   | (R) |    |
|     | 470      | 477  |    |     | M   |    |
|     | 680      | 687  |    |     | M   |    |
|     | 1000     | 108  |    | M   | M   |    |
|     | 1500     | 158  |    | M   |     |    |

( ) The series in parentheses are being developed. Please contact to your local Nichicon sales office when these series are being designed in your application.

■ Specifications

| Item                              | Performance Characteristics  |
|-----------------------------------|--|
| Category                          | -55 to +125°C (Rated temperature : +85°C)  |
| Temperature Range                 |  |
| Capacitance Tolerance             | ±20%, ±10% (at 120Hz)  |
| Dissipation Factor (120Hz)        | Refer to next page   |
| ESR (100kHz)                      | Refer to next page   |
| Leakage Current                   | <ul style="list-style-type: none"> <li>• 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.</li> <li>• After 1 minute's application of rated voltage, leakage current at 85°C is not more than 0.1CV or 5μA, whichever is greater.</li> <li>• 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.</li> </ul>                  |
| Capacitance Change by Temperature | +15% Max. (at +125°C)<br>+10% Max. (at +85°C)<br>-10% Max. (at -55°C)  |
| Damp Heat (Steady State)          | At 40°C, 90 to 95% R.H., For 500 hours (No voltage applied)<br>Capacitance Change ..... Refer to * 1<br>Dissipation Factor ..... Initial specified value or less<br>Leakage Current ..... Initial specified value or less  |
| Temperature Cycles                | At -55°C / +125°C, 30 minutes each, For 5 cycles,<br>Capacitance Change ..... Refer to * 1<br>Dissipation Factor ..... Initial specified value or less<br>Leakage Current ..... Initial specified value or less  |
| Resistance to Soldering Heat      | 10 seconds reflow at 260°C, 10 seconds immersion at 260°C<br>Capacitance Change ..... Refer to * 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 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 table below.<br>Capacitance Change ..... Refer to * 1<br>Dissipation Factor ..... Initial specified value or less<br>Leakage Current ..... Initial specified value or less   |
| Endurance*                        | After 2000 hours' application of rated voltage at 85°C, capacitors shall meet the characteristic requirements table below.<br>Capacitance Change ..... Refer to * 1<br>Dissipation Factor ..... Initial specified value or less<br>Leakage Current ..... Initial specified value or less   |
| 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.  |

\* As for the surge voltage, refer to page 332 for details.

■ Dimensions

| Case code | L         | W         | H         | A         | B         | (D)   |
|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| U         | 7.1 ± 0.3 | 3.2 ± 0.3 | 2.0MAX.   | 1.3 ± 0.3 | 3.6 ± 0.6 | (6.0) |
| C         | 7.1 ± 0.3 | 3.2 ± 0.3 | 2.5 ± 0.3 | 1.3 ± 0.3 | 3.6 ± 0.6 | (6.0) |
| D         | 7.3 ± 0.3 | 4.3 ± 0.3 | 2.8 ± 0.3 | 1.3 ± 0.4 | 3.9 ± 0.6 | (6.4) |
| R         | 7.2 ± 0.3 | 6.0 ± 0.3 | 3.5 ± 0.3 | 1.3 ± 0.4 | 3.8 ± 0.6 | (6.2) |

D dimension only for reference

| F75 | Cap.(μF) | Code | V     |             |       |    |
|-----|----------|------|-------|-------------|-------|----|
|     |          |      | 4     | 6.3         | 10    | 16 |
|     | 68       | 686  |       |             |       | C  |
|     | 100      | 107  |       |             |       | C  |
|     | 150      | 157  |       |             |       | D  |
|     | 220      | 227  |       |             |       | R  |
|     | 330      | 337  | C     | C · D       | D     |    |
|     | 470      | 477  | C · D | U · D       | U · R |    |
|     | 680      | 687  | D     | (U) · D · R |       |    |
|     | 1000     | 108  | D · R | (U) · R     |       |    |
|     | 1500     | 158  | R     |             |       |    |
|     | 2200     | 228  | R     |             |       |    |

## F72

### Standard Ratings

| Rated Volt | Rated Capacitance (μF) | Case code | Part Number | Leakage Current (μA) | Dissipation Factor (%@120Hz) | ESR (Ω@100kHz) | *1 ΔC/C (%) |
|------------|------------------------|-----------|-------------|----------------------|------------------------------|----------------|-------------|
| 4V         | 100                    | R         | F720G107MRC | 4.0                  | 8                            | 0.70           | *           |
|            | 150                    | R         | F720G157MRC | 6.0                  | 10                           | 0.70           | *           |
|            | 220                    | R         | F720G227MRC | 8.8                  | 12                           | 0.70           | *           |
|            | 330                    | R         | F720G337MRC | 13.2                 | 12                           | 0.70           | *           |
| 6.3V       | 68                     | R         | F720J686MRC | 4.3                  | 6                            | 0.75           | *           |
|            | 100                    | R         | F720J107MRC | 6.3                  | 8                            | 0.70           | *           |
|            | 150                    | R         | F720J157MRC | 9.5                  | 10                           | 0.70           | *           |
|            | 220                    | R         | F720J227MRC | 13.9                 | 12                           | 0.70           | *           |
|            | 330                    | R         | F720J337MRC | 20.8                 | 12                           | 0.70           | *           |
|            | 1000                   | M         | F720J108MMC | 63.0                 | 30                           | 0.14           | ±15         |
|            | 1500                   | M         | F720J158MMC | 95.0                 | 45                           | 0.14           | ±20         |
| 10V        | 47                     | R         | F721A476MRC | 4.7                  | 6                            | 0.80           | *           |
|            | 68                     | R         | F721A686MRC | 6.8                  | 6                            | 0.75           | *           |
|            | 100                    | R         | F721A107MRC | 10.0                 | 8                            | 0.70           | *           |
|            | 150                    | R         | F721A157MRC | 15.0                 | 10                           | 0.70           | *           |
|            | 220                    | R         | F721A227MRC | 22.0                 | 12                           | 0.70           | *           |
|            | 470                    | M         | F721A477MMC | 47.0                 | 30                           | 0.14           | ±15         |
|            | 680                    | M         | F721A687MMC | 68.0                 | 35                           | 0.14           | ±20         |
|            | 1000                   | M         | F721A108MMC | 200                  | 45                           | 0.14           | ±20         |
| 16V        | 33                     | R         | F721C336MRC | 5.3                  | 6                            | 0.90           | *           |
|            | 47                     | R         | F721C476MRC | 7.5                  | 6                            | 0.80           | *           |
|            | 68                     | R         | F721C686MRC | 10.9                 | 6                            | 0.75           | *           |

\*1 : ΔC/C Marked "\*\*"

|                           | F72 ALL Case (%) |
|---------------------------|------------------|
| Damp Heat                 | ±10              |
| Temperature cycles        | ±5               |
| Resistance soldering heat | ±5               |
| Surge                     | ±5               |
| Endurance                 | ±10              |

## F75

### Standard Ratings

| Rated Volt | Rated Capacitance (μF) | Case code | Part Number | Leakage Current (μA) | Dissipation Factor (%@120Hz) | ESR (Ω@100kHz) | *1 ΔC/C (%) |
|------------|------------------------|-----------|-------------|----------------------|------------------------------|----------------|-------------|
| 4V         | 330                    | C         | F750G337MCC | 13.2                 | 10                           | 0.15           | *           |
|            | 470                    | C         | F750G477MCC | 18.8                 | 14                           | 0.12           | *           |
|            | 470                    | D         | F750G477MDC | 18.8                 | 14                           | 0.12           | *           |
|            | 680                    | D         | F750G687MDC | 27.2                 | 18                           | 0.12           | *           |
|            | 1000                   | D         | F750G108MDC | 40.0                 | 24                           | 0.12           | *           |
|            | 1000                   | R         | F750G108MRC | 40.0                 | 24                           | 0.12           | *           |
|            | 1500                   | R         | F750G158MRC | 60.0                 | 30                           | 0.12           | *           |
|            | 2200                   | R         | F750G228MRC | 88.0                 | 45                           | 0.07           | *           |
|            | 6.3V                   | 220       | C           | F750J227MCC          | 13.9                         | 10             | 0.20        |
| 330        |                        | C         | F750J337MCC | 20.8                 | 10                           | 0.15           | *           |
| 330        |                        | D         | F750J337MDC | 20.8                 | 10                           | 0.15           | *           |
| 470        |                        | U         | F750J477MUC | 29.6                 | 15                           | 0.10           | *           |
| 470        |                        | D         | F750J477MDC | 29.6                 | 14                           | 0.12           | *           |
| 680        |                        | D         | F750J687MDC | 42.8                 | 18                           | 0.12           | *           |
| 680        |                        | R         | F750J687MRC | 42.8                 | 18                           | 0.12           | *           |
| 1000       |                        | R         | F750J108MRC | 63.0                 | 24                           | 0.12           | *           |
| 10V        |                        | 150       | C           | F751A157MCC          | 15.0                         | 10             | 0.22        |
|            | 220                    | C         | F751A227MCC | 22.0                 | 10                           | 0.20           | *           |
|            | 220                    | D         | F751A227MDC | 22.0                 | 10                           | 0.20           | *           |
|            | 330                    | D         | F751A337MDC | 33.0                 | 10                           | 0.15           | *           |
|            | 470                    | U         | F751A477MUC | 94.0                 | 30                           | 0.15           | ±20         |
|            | 470                    | R         | F751A477MRC | 47.0                 | 14                           | 0.12           | *           |
| 16V        | 68                     | C         | F751C686MCC | 10.9                 | 10                           | 0.22           | *           |
|            | 100                    | C         | F751C107MCC | 16.0                 | 10                           | 0.22           | *           |
|            | 150                    | D         | F751C157MDC | 24.0                 | 10                           | 0.22           | *           |
|            | 220                    | R         | F751C227MRC | 35.2                 | 10                           | 0.20           | *           |

\*1 : ΔC/C Marked "\*\*"

|                           | F75 ALL Case (%) |
|---------------------------|------------------|
| Damp Heat                 | ±10              |
| Temperature cycles        | ±5               |
| Resistance soldering heat | ±5               |
| Surge                     | ±5               |
| Endurance                 | ±10              |