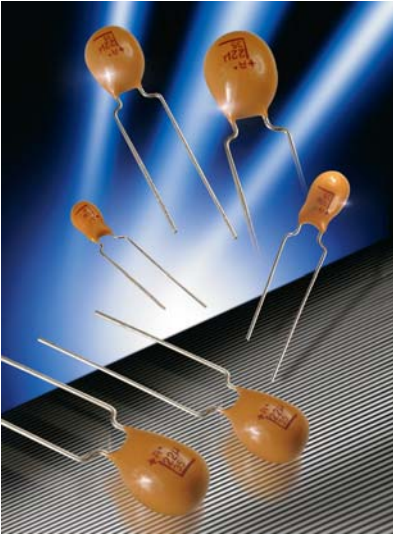


# Dipped Radial Capacitors

## TAP Series



### SOLID TANTALUM RESIN DIPPED CAPACITORS

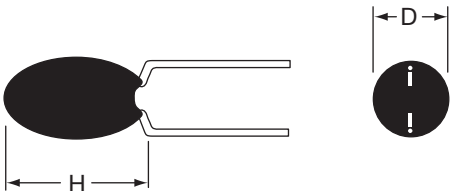


TAP is a professional grade device manufactured with a flame retardant coating and featuring low leakage current and impedance, very small physical sizes and exceptional temperature stability. It is designed and conditioned to operate to +125°C (see page 171 for voltage derating above 85°C) and is available loose or taped and reeled for auto insertion. The 15 case sizes with wide capacitance and working voltage ranges means the TAP can accommodate almost any application.



### MAXIMUM CASE DIMENSIONS: millimeters (inches)

| Wire Case | C, F, G, H<br>H | B, S, D<br>*H <sub>1</sub> | D            |
|-----------|-----------------|----------------------------|--------------|
| A         | 8.50 (0.330)    | 7.00 (0.280)               | 4.50 (0.180) |
| B         | 9.00 (0.350)    | 7.50 (0.300)               | 4.50 (0.180) |
| C         | 10.0 (0.390)    | 8.50 (0.330)               | 5.00 (0.200) |
| D         | 10.5 (0.410)    | 9.00 (0.350)               | 5.00 (0.200) |
| E         | 10.5 (0.410)    | 9.00 (0.350)               | 5.50 (0.220) |
| F         | 11.5 (0.450)    | 10.0 (0.390)               | 6.00 (0.240) |
| G         | 11.5 (0.450)    | 10.0 (0.390)               | 6.50 (0.260) |
| H         | 12.0 (0.470)    | 10.5 (0.410)               | 7.00 (0.280) |
| J         | 13.0 (0.510)    | 11.5 (0.450)               | 8.00 (0.310) |
| K         | 14.0 (0.550)    | 12.5 (0.490)               | 8.50 (0.330) |
| L         | 14.0 (0.550)    | 12.5 (0.490)               | 9.00 (0.350) |
| M         | 14.5 (0.570)    | 13.0 (0.510)               | 9.00 (0.350) |
| N         | 16.0 (0.630)    |                            | 9.00 (0.350) |
| P         | 17.0 (0.670)    |                            | 10.0 (0.390) |
| R         | 18.5 (0.730)    |                            | 10.0 (0.390) |



### HOW TO ORDER

**TAP**



Type

**475**



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

**M**



**Capacitance Tolerance**  
K = ±10%  
M = ±20%  
(For J = ±5% tolerance,  
please consult factory)

**035**



Rated DC Voltage

**SCS**



Suffix indicating wire form  
and packaging  
(see page 134)



# Dipped Radial Capacitors



## TAP Series

### TECHNICAL SPECIFICATIONS

|                               |                                                                                                          |     |     |    |    |    |    |    |
|-------------------------------|----------------------------------------------------------------------------------------------------------|-----|-----|----|----|----|----|----|
| Technical Data:               | All technical data relate to an ambient temperature of +25°C                                             |     |     |    |    |    |    |    |
| Capacitance Range:            | 0.10 $\mu$ F to 330 $\mu$ F                                                                              |     |     |    |    |    |    |    |
| Capacitance Tolerance:        | $\pm 20\%$ ; $\pm 10\%$ ( $\pm 5\%$ consult your AVX representative for details)                         |     |     |    |    |    |    |    |
| Rated Voltage DC ( $V_R$ )    | $\leq +85^\circ\text{C}$ :                                                                               | 6.3 | 10  | 16 | 20 | 25 | 35 | 50 |
| Category Voltage ( $V_C$ )    | $\leq +125^\circ\text{C}$ :                                                                              | 4   | 6.3 | 10 | 13 | 16 | 23 | 33 |
| Surge Voltage ( $V_S$ )       | $\leq +85^\circ\text{C}$ :                                                                               | 8   | 13  | 20 | 26 | 33 | 46 | 65 |
| Surge Voltage ( $V_S$ )       | $\leq +125^\circ\text{C}$ :                                                                              | 5   | 9   | 12 | 16 | 21 | 28 | 40 |
| Temperature Range:            | $-55^\circ\text{C}$ to $+125^\circ\text{C}$                                                              |     |     |    |    |    |    |    |
| Environmental Classification: | 55/125/56 (IEC 68-2)                                                                                     |     |     |    |    |    |    |    |
| Dissipation Factor:           | $\leq 0.04$ for $C_R$ 0.1-1.5 $\mu$ F                                                                    |     |     |    |    |    |    |    |
|                               | $\leq 0.06$ for $C_R$ 2.2-6.8 $\mu$ F                                                                    |     |     |    |    |    |    |    |
|                               | $\leq 0.08$ for $C_R$ 10-68 $\mu$ F                                                                      |     |     |    |    |    |    |    |
|                               | $\leq 0.10$ for $C_R$ 100-330 $\mu$ F                                                                    |     |     |    |    |    |    |    |
| Reliability:                  | 1% per 1000 hrs. at $85^\circ\text{C}$ with $0.1\Omega/\text{V}$ series impedance, 60% confidence level. |     |     |    |    |    |    |    |
| Qualification:                | CECC 30201 - 032                                                                                         |     |     |    |    |    |    |    |

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

| Capacitance |      | Rated voltage DC ( $V_R$ ) |     |     |     |     |     |     |
|-------------|------|----------------------------|-----|-----|-----|-----|-----|-----|
| $\mu$ F     | Code | 6.3V                       | 10V | 16V | 20V | 25V | 35V | 50V |
| 0.10        | 104  |                            |     |     |     |     | A   | A   |
| 0.15        | 154  |                            |     |     |     |     | A   | A   |
| 0.22        | 224  |                            |     |     |     |     | A   | A   |
| 0.33        | 334  |                            |     |     |     |     | A   | A   |
| 0.47        | 474  |                            |     |     |     |     | A   | A   |
| 0.68        | 684  |                            |     |     |     |     | A   | B   |
| 1.0         | 105  |                            |     |     | A   | A   | A   | C   |
| 1.5         | 155  |                            |     | A   | A   | A   | A   | D   |
| 2.2         | 225  |                            | A   | A   | A   | A   | B   | E   |
| 3.3         | 335  | A                          | A   | A   | B   | B   | C   | F   |
| 4.7         | 475  | A                          | A   | B   | C   | C   | E   | G   |
| 6.8         | 685  | A                          | B   | C   | D   | D   | F   | H   |
| 10          | 106  | B                          | C   | D   | E   | E   | F   | J   |
| 15          | 156  | C                          | D   | E   | F   | F   | H   | K   |
| 22          | 226  | D                          | E   | F   | H   | H   | K   | L   |
| 33          | 336  | E                          | F   | F   | J   | J   | M   |     |
| 47          | 476  | F                          | G   | J   | K   | M   | N   |     |
| 68          | 686  | G                          | H   | L   | N   | N   |     |     |
| 100         | 107  | H                          | K   | N   | N   |     |     |     |
| 150         | 157  | K                          | N   | N   |     |     |     |     |
| 220         | 227  | M                          | P   | R   |     |     |     |     |
| 330         | 337  | P                          | R   |     |     |     |     |     |

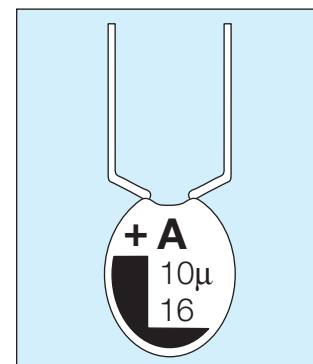
Values outside this standard range may be available on request.

AVX reserves the right to supply capacitors to a higher voltage rating, in the same case size, than that ordered.

### MARKING

Polarity, capacitance, rated DC voltage, and an "A" (AVX logo) are laser marked on the capacitor body which is made of flame retardant gold epoxy resin with a limiting oxygen index in excess of 30 (ASTM-D-2863).

- Polarity
- Capacitance
- Voltage
- AVX logo
- Tolerance code:
  - $\pm 20\%$  = Standard (no marking)
  - $\pm 10\%$  = "K" on reverse side of unit
  - $\pm 5\%$  = "J" on reverse side of unit



# Dipped Radial Capacitors



## TAP Series

### RATINGS AND PART NUMBER REFERENCE

| AVX<br>Part No.                          | Case<br>Size | Capacitance<br>μF | DCL<br>(μA)<br>Max. | DF<br>%<br>Max. | ESR<br>Max. (Ω)<br>@ 100 kHz |
|------------------------------------------|--------------|-------------------|---------------------|-----------------|------------------------------|
| <b>6.3 volt @ 85°C (4 volt @ 125°C)</b>  |              |                   |                     |                 |                              |
| TAP 335(+006                             | A            | 3.3               | 0.5                 | 6               | 13.0                         |
| TAP 475(+006                             | A            | 4.7               | 0.5                 | 6               | 10.0                         |
| TAP 685(+006                             | A            | 6.8               | 0.5                 | 6               | 8.0                          |
| TAP 106(+006                             | B            | 10                | 0.5                 | 8               | 6.0                          |
| TAP 156(+006                             | C            | 15                | 0.8                 | 8               | 5.0                          |
| TAP 226(+006                             | D            | 22                | 1.1                 | 8               | 3.7                          |
| TAP 336(+006                             | E            | 33                | 1.7                 | 8               | 3.0                          |
| TAP 476(+006                             | F            | 47                | 2.4                 | 8               | 2.0                          |
| TAP 686(+006                             | G            | 68                | 3.4                 | 8               | 1.8                          |
| TAP 107(+006                             | H            | 100               | 5.0                 | 10              | 1.6                          |
| TAP 157(+006                             | K            | 150               | 7.6                 | 10              | 0.9                          |
| TAP 227(+006                             | M            | 220               | 11.0                | 10              | 0.9                          |
| TAP 337(+006                             | P            | 330               | 16.6                | 10              | 0.7                          |
| <b>10 volt @ 85°C (6.3 volt @ 125°C)</b> |              |                   |                     |                 |                              |
| TAP 225(+010                             | A            | 2.2               | 0.5                 | 6               | 13.0                         |
| TAP 335(+010                             | A            | 3.3               | 0.5                 | 6               | 10.0                         |
| TAP 475(+010                             | A            | 4.7               | 0.5                 | 6               | 8.0                          |
| TAP 685(+010                             | B            | 6.8               | 0.5                 | 6               | 6.0                          |
| TAP 106(+010                             | C            | 10                | 0.8                 | 8               | 5.0                          |
| TAP 156(+010                             | D            | 15                | 1.2                 | 8               | 3.7                          |
| TAP 226(+010                             | E            | 22                | 1.7                 | 8               | 2.7                          |
| TAP 336(+010                             | F            | 33                | 2.6                 | 8               | 2.1                          |
| TAP 476(+010                             | G            | 47                | 3.7                 | 8               | 1.7                          |
| TAP 686(+010                             | H            | 68                | 5.4                 | 8               | 1.3                          |
| TAP 107(+010                             | K            | 100               | 8.0                 | 10              | 1.0                          |
| TAP 157(+010                             | N            | 150               | 12.0                | 10              | 0.8                          |
| TAP 227(+010                             | P            | 220               | 17.6                | 10              | 0.6                          |
| TAP 337(+010                             | R            | 330               | 20.0                | 10              | 0.5                          |
| <b>16 volt @ 85°C (10 volt @ 125°C)</b>  |              |                   |                     |                 |                              |
| TAP 155(+016                             | A            | 1.5               | 0.5                 | 4               | 10.0                         |
| TAP 225(+016                             | A            | 2.2               | 0.5                 | 6               | 8.0                          |
| TAP 335(+016                             | A            | 3.3               | 0.5                 | 6               | 6.0                          |
| TAP 475(+016                             | B            | 4.7               | 0.6                 | 6               | 5.0                          |
| TAP 685(+016                             | C            | 6.8               | 0.8                 | 6               | 4.0                          |
| TAP 106(+016                             | D            | 10                | 1.2                 | 8               | 3.2                          |
| TAP 156(+016                             | E            | 15                | 1.9                 | 8               | 2.5                          |
| TAP 226(+016                             | F            | 22                | 2.8                 | 8               | 2.0                          |
| TAP 336(+016                             | F            | 33                | 4.2                 | 8               | 1.6                          |
| TAP 476(+016                             | J            | 47                | 6.0                 | 8               | 1.3                          |
| TAP 686(+016                             | L            | 68                | 8.7                 | 8               | 1.0                          |
| TAP 107(+016                             | N            | 100               | 12.8                | 10              | 0.8                          |
| TAP 157(+016                             | N            | 150               | 19.2                | 10              | 0.6                          |
| TAP 227(+016                             | R            | 220               | 20.0                | 10              | 0.5                          |
| <b>20 volt @ 85°C (13 volt @ 125°C)</b>  |              |                   |                     |                 |                              |
| TAP 105(+020                             | A            | 1.0               | 0.5                 | 4               | 10.0                         |
| TAP 155(+020                             | A            | 1.5               | 0.5                 | 4               | 9.0                          |
| TAP 225(+020                             | A            | 2.2               | 0.5                 | 6               | 7.0                          |
| TAP 335(+020                             | B            | 3.3               | 0.5                 | 6               | 5.5                          |
| TAP 475(+020                             | C            | 4.7               | 0.7                 | 6               | 4.5                          |
| TAP 685(+020                             | D            | 6.8               | 1.0                 | 6               | 3.6                          |
| TAP 106(+020                             | E            | 10                | 1.6                 | 8               | 2.9                          |
| TAP 156(+020                             | F            | 15                | 2.4                 | 8               | 2.3                          |
| TAP 226(+020                             | H            | 22                | 3.5                 | 8               | 1.8                          |
| TAP 336(+020                             | J            | 33                | 5.2                 | 8               | 1.4                          |
| TAP 476(+020                             | K            | 47                | 7.5                 | 8               | 1.2                          |
| TAP 686(+020                             | N            | 68                | 10.8                | 8               | 0.9                          |
| TAP 107(+020                             | N            | 100               | 16.0                | 10              | 0.6                          |

| AVX<br>Part No.                         | Case<br>Size | Capacitance<br>μF | DCL<br>(μA)<br>Max. | DF<br>%<br>Max. | ESR<br>Max. (Ω)<br>@ 100 kHz |
|-----------------------------------------|--------------|-------------------|---------------------|-----------------|------------------------------|
| <b>25 volt @ 85°C (16 volt @ 125°C)</b> |              |                   |                     |                 |                              |
| TAP 105(+025                            | A            | 1.0               | 0.5                 | 4               | 10.0                         |
| TAP 155(+025                            | A            | 1.5               | 0.5                 | 4               | 8.0                          |
| TAP 225(+025                            | A            | 2.2               | 0.5                 | 6               | 6.0                          |
| TAP 335(+025                            | B            | 3.3               | 0.6                 | 6               | 5.0                          |
| TAP 475(+025                            | C            | 4.7               | 0.9                 | 6               | 4.0                          |
| TAP 685(+025                            | D            | 6.8               | 1.3                 | 6               | 3.1                          |
| TAP 106(+025                            | E            | 10                | 2.0                 | 8               | 2.5                          |
| TAP 156(+025                            | F            | 15                | 3.0                 | 8               | 2.0                          |
| TAP 226(+025                            | H            | 22                | 4.4                 | 8               | 1.5                          |
| TAP 336(+025                            | J            | 33                | 6.6                 | 8               | 1.2                          |
| TAP 476(+025                            | M            | 47                | 9.4                 | 8               | 1.0                          |
| TAP 686(+025                            | N            | 68                | 13.6                | 8               | 0.8                          |
| <b>35 volt @ 85°C (23 volt @ 125°C)</b> |              |                   |                     |                 |                              |
| TAP 104(+035                            | A            | 0.1               | 0.5                 | 4               | 26.0                         |
| TAP 154(+035                            | A            | 0.15              | 0.5                 | 4               | 21.0                         |
| TAP 224(+035                            | A            | 0.22              | 0.5                 | 4               | 17.0                         |
| TAP 334(+035                            | A            | 0.33              | 0.5                 | 4               | 15.0                         |
| TAP 474(+035                            | A            | 0.47              | 0.5                 | 4               | 13.0                         |
| TAP 684(+035                            | A            | 0.68              | 0.5                 | 4               | 10.0                         |
| TAP 105(+035                            | A            | 1.0               | 0.5                 | 4               | 8.0                          |
| TAP 155(+035                            | A            | 1.5               | 0.5                 | 4               | 6.0                          |
| TAP 225(+035                            | B            | 2.2               | 0.6                 | 6               | 5.0                          |
| TAP 335(+035                            | C            | 3.3               | 0.9                 | 6               | 4.0                          |
| TAP 475(+035                            | E            | 4.7               | 1.3                 | 6               | 3.0                          |
| TAP 685(+035                            | F            | 6.8               | 1.9                 | 6               | 2.5                          |
| TAP 106(+035                            | F            | 10                | 2.8                 | 8               | 2.0                          |
| TAP 156(+035                            | H            | 15                | 4.2                 | 8               | 1.6                          |
| TAP 226(+035                            | K            | 22                | 6.1                 | 8               | 1.3                          |
| TAP 336(+035                            | M            | 33                | 9.2                 | 8               | 1.0                          |
| TAP 476(+035                            | N            | 47                | 10.0                | 8               | 0.8                          |
| <b>50 volt @ 85°C (33 volt @ 125°C)</b> |              |                   |                     |                 |                              |
| TAP 104(+050                            | A            | 0.1               | 0.5                 | 4               | 26.0                         |
| TAP 154(+050                            | A            | 0.15              | 0.5                 | 4               | 21.0                         |
| TAP 224(+050                            | A            | 0.22              | 0.5                 | 4               | 17.0                         |
| TAP 334(+050                            | A            | 0.33              | 0.5                 | 4               | 15.0                         |
| TAP 474(+050                            | A            | 0.47              | 0.5                 | 4               | 13.0                         |
| TAP 684(+050                            | B            | 0.68              | 0.5                 | 4               | 10.0                         |
| TAP 105(+050                            | C            | 1.0               | 0.5                 | 4               | 8.0                          |
| TAP 155(+050                            | D            | 1.5               | 0.6                 | 4               | 6.0                          |
| TAP 225(+050                            | E            | 2.2               | 0.8                 | 6               | 3.5                          |
| TAP 335(+050                            | F            | 3.3               | 1.3                 | 6               | 3.0                          |
| TAP 475(+050                            | G            | 4.7               | 1.8                 | 6               | 2.5                          |
| TAP 685(+050                            | H            | 6.8               | 2.7                 | 6               | 2.0                          |
| TAP 106(+050                            | J            | 10                | 4.0                 | 8               | 1.6                          |
| TAP 156(+050                            | K            | 15                | 6.0                 | 8               | 1.2                          |
| TAP 226(+050                            | L            | 22                | 8.8                 | 8               | 1.0                          |

(\*) Insert capacitance tolerance code; M for ±20%, K for ±10% and J for ±5%

NOTE: Voltage ratings are minimum values. AVX reserves the right to supply higher voltage ratings in the same case size.