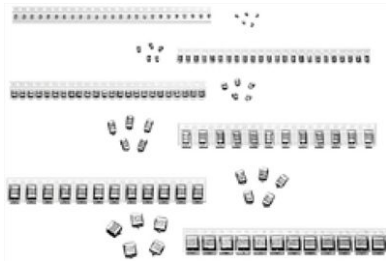


# Solid Tantalum Chip Capacitors TANTAMOUNT<sup>®</sup>, Conformal Coated, Maximum CV



## FEATURES

- Large capacitance rating range
- Terminations: 100 % tin (2) standard tin/lead available
- Mounting: Surface mount
- 8 mm, 12 mm tape and reel packaging available per EIA 481 and reeling per IEC 60286-3. 7" [178 mm] standard. 13" [330 mm] available.
- Case code compatibility with EIA 535BAAC and CECC 30801
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS\***  
COMPLIANT

### Note

\* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

## PERFORMANCE CHARACTERISTICS

[www.vishay.com/doc?40088](http://www.vishay.com/doc?40088)

**Operating Temperature:** - 55 °C to + 125 °C  
(above 85 °C, voltage derating is required)

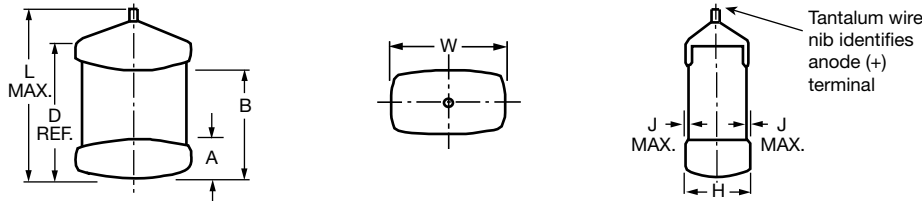
**Capacitance Range:** 0.1 μF to 1500 μF  
**Capacitance Tolerance:** ± 10 %, ± 20 % standard  
**Voltage Rating:** 4 V<sub>DC</sub> to 50 V<sub>DC</sub>

ORDERING INFORMATION						
595D	106	X0	010	A	2	T
TYPE	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT + 85 °C	CASE CODE	TERMINATION	REEL SIZE AND PACKAGING
	This is expressed in pF. The first two digits are the significant figures. The third is the number of zeros to follow.	<b>X0 = ± 20 %</b> <b>X9 = ± 10 %</b>	This is expressed in V. To complete the three-digit block, zeros precede the voltage rating. A decimal point is indicated by an "R" (6R3 = 6.3 V).	See Ratings and Case Codes table	<b>2 = 100 % tin</b> <b>4 = Gold plated</b> <b>8 = Solder plated (60/40)</b> Special order	<b>Tape and reel</b> <b>T = 7"</b> <b>[178 mm] reel</b> <b>W = 13"</b> <b>[330 mm] reel</b>

### Note

- Preferred tolerances and reel sizes are in bold. We reserve the right to substitute form-fit-function replacement products with higher voltage rating, tighter capacitance tolerance, lower ESR (e.g., 594D series), or increased reliability screening (T95 series).

## DIMENSIONS in inches [millimeters]



CASE CODE	L MAX.	W	H	A	B	D REF.	J MAX.
T	0.087 [2.2]	0.043 ± 0.012 [1.1 ± 0.3]	0.043 ± 0.012 [1.1 ± 0.3]	0.016 ± 0.008 [0.4 ± 0.2]	0.042 ± 0.001 [1.07 ± 0.25]	0.063 [1.6]	0.004 [0.1]
S	0.134 [3.4]	0.067 ± 0.008 [1.7 ± 0.2]	0.051 ± 0.008 [1.3 ± 0.3]	0.031 ± 0.012 [0.8 ± 0.3]	0.079 ± 0.012 [2.0 ± 0.3]	0.087 [2.2]	0.004 [0.1]
A	0.146 [3.7]	0.071 ± 0.012 [1.8 ± 0.3]	0.055 ± 0.012 [1.4 ± 0.3]	0.031 ± 0.012 [0.8 ± 0.3]	0.087 ± 0.016 [2.2 ± 0.4]	0.115 [2.9]	0.004 [0.1]
M	0.142 [3.6]	0.106 ± 0.012 [2.7 ± 0.3]	0.067 ± 0.012 [1.7 ± 0.3]	0.031 ± 0.012 [0.8 ± 0.3]	0.079 ± 0.012 [2.0 ± 0.3]	0.253 [6.4]	0.004 [0.1]
B	0.157 [4.0]	0.110 + 0.012/- 0.016 [2.8 + 0.3/- 0.4]	0.075 + 0.012/- 0.024 [1.9 + 0.3/- 0.6]	0.031 ± 0.012 [0.8 ± 0.3]	0.098 ± 0.016 [2.5 ± 0.4]	0.138 [3.5]	0.004 [0.1]
C	0.280 [7.1]	0.126 ± 0.012 [3.2 ± 0.3]	0.098 ± 0.012 [2.5 ± 0.3]	0.051 ± 0.012 [1.3 ± 0.3]	0.181 ± 0.024 [4.6 ± 0.6]	0.236 [6.0]	0.004 [0.1]
G	0.220 [5.6]	0.144 ± 0.016 [3.65 ± 0.4]	0.087 [2.2 max.]	0.051 ± 0.012 [1.3 ± 0.3]	0.134 ± 0.016 [3.4 ± 0.4]	0.236 [6.0]	0.004 [0.1]
D	0.295 [7.5]	0.169 ± 0.012/- 0.024 [4.3 + 0.3/- 0.6]	0.110 ± 0.012 [2.8 ± 0.3]	0.051 ± 0.012 [1.3 ± 0.3]	0.181 ± 0.024 [4.6 ± 0.6]	0.252 [6.4]	0.004 [0.1]
R	0.283 [7.2]	0.236 + 0.012/- 0.024 [6.0 + 0.3/- 0.6]	0.138 + 0.012/- 0.016 [3.5 + 0.3/- 0.4]	0.051 ± 0.012 [1.3 ± 0.3]	0.181 ± 0.024 [4.6 ± 0.6]	0.244 [6.2]	0.004 [0.1]

### Note

- The anode termination (D less B) will be a minimum of 0.012" [0.3 mm]. T case = 0.005" [0.13 mm] minimum.



RATINGS AND CASE CODES								
μF	4 V	6.3 V	10 V	16 V	20 V	25 V	35 V	50 V
0.10								T
0.15								T
0.22								T/A
0.33							T	A
0.47						T	A	A
0.68					T	A	A	A/B
1.0					T	A	A	A/B
1.5				T		A	A/B	B/C
2.2			T	T/A	A	A/B	B	B/C
3.3		T/A	A	T	A	B	B/C	C
4.7	T	A	T/A	A	A/B	B/C	B/C	C
6.8	T	T/A	A	A	A/B	B/C	C	C/D
10	T/A	A	A	A/B	B	B/C	D	D/R
15	A	A	A/B	A/B	B	C	C/D	R
22		A/B	A/B	M/B	B/C	C/D	D/R	R
33	A/B	S/A/B/C	A/B	B/C		C/D	R	
47	A	A/B	B /C	B/C	C/D	D/R	R	
68	A	A/B	B/C	C/D	C/D/R	D/R		
100	A/B	M/B/C	B/C/D	C/D/R	D/R	R		
120	C	C	C/D	R	R			
150	B/C	D	C/D	D/R	D/R			
180	D	D	D/R	R	R			
220	C/D	C/G/D	C/D/R	R				
270	C/D		R					
330	C	C/D/R	D/R	R				
390	D	R	R					
470	C/R	D/R	R					
560		R						
680	D	R	R					
1000	R	R						
1500	R							

STANDARD RATINGS						
CAPACITANCE (μF)	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C (μA)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I <sub>RMS</sub> (A)
4 V <sub>DC</sub> AT + 85 °C, 2.7 V <sub>DC</sub> AT + 125 °C						
4.7	T	595D475(1)004T(2)(3)	0.5	6	7.80	0.06
6.8	T	595D685(1)004T(2)(3)	0.5	6	7.80	0.06
10	T	595D106(1)004T(2)(3)	0.5	6	7.80	0.06
10	A	595D106(1)004A(2)(3)	0.5	6	1.90	0.20
15	A	595D156(1)004A(2)(3)	0.6	6	1.40	0.23
33	A	595D336(1)004A(2)(3)	1.3	6	1.40	0.23
33	B	595D336(1)004B(2)(3)	1.3	6	0.47	0.43
47	A	595D476(1)004A(2)(3)	1.9	6	1.40	0.23
68	A	595D686(1)004A(2)(3)	2.7	6	1.30	0.24
100	A	595D107(1)004A(2)(3)	4.0	12	0.60	0.35
100	B	595D107(1)004B(2)(3)	4.0	8	0.45	0.43
120	C	595D127(1)004C(2)(3)	4.8	8	0.19	0.76
150	B	595D157(1)004B(2)(3)	6.0	8	0.45	0.43
150	C	595D157(1)004C(2)(3)	6.0	8	0.18	0.78
180	D	595D187(1)004D(2)(3)	7.2	8	0.14	1.04
220	C	595D227(1)004C(2)(3)	8.8	8	0.18	0.78
220	D	595D227(1)004D(2)(3)	8.8	8	0.14	1.04

**Note**

- Part number definitions:
  - Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
  - Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
  - Packaging code: For 7" reels specify "T", for 13" reels specify "W"



STANDARD RATINGS						
CAPACITANCE ( $\mu\text{F}$ )	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C ( $\mu\text{A}$ )	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz ( $\Omega$ )	MAX. RIPPLE 100 kHz $I_{\text{RMS}}$ (A)
<b>4 V<sub>DC</sub> AT + 85 °C, 2.7 V<sub>DC</sub> AT + 125 °C</b>						
270	C	595D277(1)004C(2)(3)	10.8	8	0.17	0.80
270	D	595D277(1)004D(2)(3)	10.8	8	0.13	1.07
330	C	595D337(1)004C(2)(3)	13.2	8	0.17	0.80
390	D	595D397(1)004D(2)(3)	15.6	8	0.13	1.07
470	C	595D477(1)004C(2)(3)	18.8	10	0.16	0.83
470	R	595D477(1)004R(2)(3)	18.8	10	0.13	1.39
680	D	595D687(1)004D(2)(3)	27.2	12	0.13	1.07
1000	R	595D108(1)004R(2)(3)	40.0	16	0.07	1.89
1500	R	595D158(1)004R(2)(3)	60.0	20	0.07	1.89
<b>6.3 V<sub>DC</sub> AT + 85 °C, 4 V<sub>DC</sub> AT + 125 °C</b>						
3.3	T	595D335(1)6R3T(2)(3)	0.5	6	8.50	0.06
3.3	A	595D335(1)6R3A(2)(3)	0.5	6	3.80	0.14
4.7	A	595D475(1)6R3A(2)(3)	0.5	6	3.80	0.14
6.8	T	595D685(1)6R3T(2)(3)	0.5	6	8.50	0.06
6.8	A	595D685(1)6R3A(2)(3)	0.5	6	3.60	0.14
10	A	595D106(1)6R3A(2)(3)	0.6	6	1.90	0.20
15	A	595D156(1)6R3A(2)(3)	0.9	6	1.70	0.21
22	A	595D226(1)6R3A(2)(3)	1.4	6	1.70	0.21
22	B	595D226(1)6R3B(2)(3)	1.4	6	0.57	0.39
33	S	595D336(1)6R3S(2)(3)	2.1	8	1.30	0.21
33	A	595D336(1)6R3A(2)(3)	2.1	6	1.70	0.21
33	B	595D336(1)6R3B(2)(3)	2.1	5	0.57	0.39
33	C	595D336(1)6R3C(2)(3)	2.1	9	0.29	0.62
47	A	595D476(1)6R3A(2)(3)	2.8	6	1.50	0.22
47	B	595D476(1)6R3B(2)(3)	2.8	5	0.57	0.39
68	A	595D686(1)6R3A(2)(3)	4.3	12	0.50	0.39
68	B	595D686(1)6R3B(2)(3)	4.3	6	0.55	0.39
100	M	595D107(1)6R3M(2)(3)	6.3	14	0.40	0.49
100	B	595D107(1)6R3B(2)(3)	6.3	8	0.55	0.39
100	C	595D107(1)6R3C(2)(3)	6.3	8	0.20	0.74
120	C	595D127(1)6R3C(2)(3)	7.6	8	0.19	0.76
150	D	595D157(1)6R3D(2)(3)	9.5	8	0.50	0.55
180	D	595D187(1)6R3D(2)(3)	11.3	8	0.14	1.04
220	C	595D227(1)6R3C(2)(3)	13.9	8	0.18	0.78
220	G	595D227(1)6R3G(2)(3)	13.9	8	0.18	0.80
220	D	595D227(1)6R3D(2)(3)	13.9	8	0.14	1.04
330	C	595D337(1)6R3C(2)(3)	20.8	8	0.17	0.80
330	D	595D337(1)6R3D(2)(3)	20.8	8	0.14	1.04
330	R	595D337(1)6R3R(2)(3)	20.8	8	0.13	1.39
390	R	595D397(1)6R3R(2)(3)	24.6	8	0.13	1.39
470	D	595D477(1)6R3D(2)(3)	29.6	8	0.13	1.07
470	R	595D477(1)6R3R(2)(3)	29.6	10	0.12	1.44
560	R	595D567(1)6R3R(2)(3)	35.3	10	0.11	1.51
680	R	595D687(1)6R3R(2)(3)	42.8	10	0.09	1.67
1000	R	595D108(1)6R3R(2)(3)	63.0	16	0.07	1.89

**Note**

- Part number definitions:
  - (1) Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
  - (2) Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
  - (3) Packaging code: For 7" reels specify "T", for 13" reels specify "W"



STANDARD RATINGS						
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C ( $\mu$ A)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz ( $\Omega$ )	MAX. RIPPLE 100 kHz $I_{RMS}$ (A)
<b>10 V<sub>DC</sub> AT + 85 °C, 7 V<sub>DC</sub> AT + 125 °C</b>						
2.2	T	595D225(1)010T(2)(3)	0.5	6	8.60	0.06
3.3	A	595D335(1)010A(2)(3)	0.5	6	3.80	0.14
4.7	T	595D475(1)010T(2)(3)	0.5	6	8.60	0.06
4.7	A	595D475(1)010A(2)(3)	0.5	6	3.60	0.14
6.8	A	595D685(1)010A(2)(3)	0.7	6	3.60	0.14
10	A	595D106(1)010A(2)(3)	1.0	6	1.90	0.20
15	A	595D156(1)010A(2)(3)	1.5	6	1.80	0.20
15	B	595D156(1)010B(2)(3)	1.5	6	0.67	0.36
22	A	595D226(1)010A(2)(3)	2.2	6	1.80	0.20
22	B	595D226(1)010B(2)(3)	2.2	6	1.90	0.21
33	A	595D336(1)010A(2)(3)	3.3	8	3.00	0.16
33	B	595D336(1)010B(2)(3)	3.3	6	1.90	0.21
47	B	595D476(1)010B(2)(3)	4.7	6	0.65	0.36
47	C	595D476(1)010C(2)(3)	4.7	6	0.30	0.61
68	B	595D686(1)010B(2)(3)	6.8	6	0.65	0.36
68	C	595D686(1)010C(2)(3)	6.8	6	0.24	0.68
100	B	595D107(1)010B(2)(3)	10.0	12	0.40	0.46
100	C	595D107(1)010C(2)(3)	10.0	8	0.20	0.74
100	D	595D107(1)010D(2)(3)	8.0	7	0.15	1.00
120	C	595D127(1)010C(2)(3)	12.0	7	0.22	0.71
120	D	595D127(1)010D(2)(3)	12.0	8	0.14	1.04
150	C	595D157(1)010C(2)(3)	15.0	8	0.22	0.71
150	D	595D157(1)010D(2)(3)	15.0	8	0.14	1.04
180	D	595D187(1)010D(2)(3)	18.0	7	0.38	0.63
180	R	595D187(1)010R(2)(3)	18.0	8	0.13	1.39
220	C	595D227(1)010C(2)(3)	22.0	8	0.20	0.74
220	D	595D227(1)010D(2)(3)	22.0	8	0.14	1.04
220	R	595D227(1)010R(2)(3)	22.0	8	0.13	1.39
270	R	595D277(1)010R(2)(3)	27.0	8	0.13	1.39
330	D	595D337(1)010D(2)(3)	33.0	8	0.14	1.04
330	R	595D337(1)010R(2)(3)	33.0	8	0.13	1.39
390	R	595D397(1)010R(2)(3)	39.0	8	0.12	1.44
470	R	595D477(1)010R(2)(3)	47.0	8	0.12	1.44
680	R	595D687(1)010R(2)(3)	68.0	14	0.09	1.67
<b>16 V<sub>DC</sub> AT + 85 °C, 10 V<sub>DC</sub> AT + 125 °C</b>						
1.5	T	595D155(1)016T(2)(3)	0.5	6	8.70	0.06
2.2	T	595D225(1)016T(2)(3)	0.5	6	8.70	0.06
2.2	A	595D225(1)016A(2)(3)	0.5	5	3.90	0.14
3.3	T	595D335(1)016T(2)(3)	0.5	6	8.60	0.06
4.7	A	595D475(1)016A(2)(3)	0.8	6	2.90	0.16
6.8	A	595D685(1)016A(2)(3)	1.1	6	2.80	0.16
10	A	595D106(1)016A(2)(3)	1.6	6	2.50	0.17
10	B	595D106(1)016B(2)(3)	1.6	6	0.76	0.33
15	A	595D156(1)016A(2)(3)	2.4	6	2.40	0.18
15	B	595D156(1)016B(2)(3)	2.4	6	0.75	0.34

Note

- Part number definitions:
  - Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
  - Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
  - Packaging code: For 7" reels specify "T", for 13" reels specify "W"



STANDARD RATINGS						
CAPACITANCE (μF)	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C (μA)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I <sub>RMS</sub> (A)
<b>16 V<sub>DC</sub> AT + 85 °C, 10 V<sub>DC</sub> AT + 125 °C</b>						
22	M	595D226(1)016M(2)(3)	3.5	6	0.50	0.44
22	B	595D226(1)016B(2)(3)	3.5	6	0.75	0.34
33	B	595D336(1)016B(2)(3)	5.3	6	0.72	0.34
33	C	595D336(1)016C(2)(3)	5.3	6	0.29	0.62
47	B	595D476(1)016B(2)(3)	7.5	6	0.72	0.34
47	C	595D476(1)016C(2)(3)	7.5	6	0.28	0.63
68	C	595D686(1)016C(2)(3)	10.9	6	0.26	0.65
68	D	595D686(1)016D(2)(3)	10.9	6	0.14	1.04
100	C	595D107(1)016C(2)(3)	16.0	8	0.27	0.64
100	D	595D107(1)016D(2)(3)	16.0	8	0.14	1.04
100	R	595D107(1)016R(2)(3)	16.0	8	0.14	1.30
120	R	595D127(1)016R(2)(3)	19.2	8	0.14	1.34
150	D	595D157(1)016D(2)(3)	24.0	8	0.14	1.04
150	R	595D157(1)016R(2)(3)	24.0	8	0.13	1.39
180	R	595D187(1)016R(2)(3)	28.8	8	0.13	1.39
220	R	595D227(1)016R(2)(3)	35.2	8	0.12	1.44
330	R	595D337(1)016R(2)(3)	52.8	14	0.11	1.51
<b>20 V<sub>DC</sub> AT + 85 °C, 13 V<sub>DC</sub> AT + 125 °C</b>						
0.68	T	595D684(1)020T(2)(3)	0.5	4	10.80	0.05
1.0	T	595D105(1)020T(2)(3)	0.5	4	9.00	0.06
2.2	A	595D225(1)020A(2)(3)	0.5	6	3.80	0.14
3.3	A	595D335(1)020A(2)(3)	0.7	6	3.80	0.14
4.7	A	595D475(1)020A(2)(3)	0.9	6	3.10	0.16
4.7	B	595D475(1)020B(2)(3)	0.9	6	0.95	0.30
6.8	A	595D685(1)020A(2)(3)	1.4	6	3.00	0.16
6.8	B	595D685(1)020B(2)(3)	1.4	6	0.95	0.30
10	B	595D106(1)020B(2)(3)	2.0	6	1.00	0.29
15	B	595D156(1)020B(2)(3)	3.0	6	1.00	0.29
22	B	595D226(1)020B(2)(3)	4.4	6	0.90	0.31
22	C	595D226(1)020C(2)(3)	4.4	6	0.38	0.54
47	C	595D476(1)020C(2)(3)	9.4	6	0.35	0.56
47	D	595D476(1)020D(2)(3)	9.4	6	0.19	0.89
68	C	595D686(1)020C(2)(3)	13.6	6	0.19	0.76
68	D	595D686(1)020D(2)(3)	13.6	6	0.19	0.89
68	R	595D686(1)020R(2)(3)	13.6	6	0.20	1.12
100	D	595D107(1)020D(2)(3)	20.0	8	0.18	0.91
100	R	595D107(1)020R(2)(3)	20.0	8	0.14	1.34
120	R	595D127(1)020R(2)(3)	24.0	8	0.14	1.34
150	D	595D157(1)020D(2)(3)	30.0	12	0.20	0.87
150	R	595D157(1)020R(2)(3)	30.0	8	0.14	1.34
180	R	595D187(1)020R(2)(3)	36.0	8	0.14	1.34
<b>25 V<sub>DC</sub> AT + 85 °C, 17 V<sub>DC</sub> AT + 125 °C</b>						
0.47	T	595D474(1)025T(2)(3)	0.5	4	13.50	0.05
1.0	A	595D105(1)025A(2)(3)	0.5	4	4.20	0.13
1.5	A	595D155(1)025A(2)(3)	0.5	6	3.80	0.14
2.2	A	595D225(1)025A(2)(3)	0.6	6	3.80	0.14
2.2	B	595D225(1)025B(2)(3)	0.6	6	2.30	0.19
3.3	B	595D335(1)025B(2)(3)	0.8	6	1.90	0.21

Note

- Part number definitions:
  - Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
  - Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
  - Packaging code: For 7" reels specify "T", for 13" reels specify "W"



STANDARD RATINGS						
CAPACITANCE (μF)	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C (μA)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I <sub>RMS</sub> (A)
<b>25 V<sub>DC</sub> AT + 85 °C, 17 V<sub>DC</sub> AT + 125 °C</b>						
4.7	B	595D475(1)025B(2)(3)	1.2	6	1.80	0.22
4.7	C	595D475(1)025C(2)(3)	1.3	5	0.68	0.40
6.8	B	595D685(1)025B(2)(3)	1.7	6	1.50	0.24
6.8	C	595D685(1)025C(2)(3)	1.7	6	0.63	0.42
10	B	595D106(1)025B(2)(3)	2.5	6	1.50	0.24
10	C	595D106(1)025C(2)(3)	2.5	6	0.57	0.44
15	C	595D156(1)025C(2)(3)	3.8	6	0.56	0.44
22	C	595D226(1)025C(2)(3)	5.5	6	0.50	0.47
22	D	595D226(1)025D(2)(3)	5.5	6	0.28	0.73
33	C	595D336(1)025C(2)(3)	8.3	6	0.45	0.49
33	D	595D336(1)025D(2)(3)	8.3	6	0.27	0.75
47	D	595D476(1)025D(2)(3)	11.8	6	0.26	0.76
47	R	595D476(1)025R(2)(3)	11.8	6	0.20	1.12
68	D	595D686(1)025D(2)(3)	17.0	8	0.26	0.76
68	R	595D686(1)025R(2)(3)	17.0	6	0.20	1.12
100	R	595D107(1)025R(2)(3)	25.0	8	0.20	1.12
<b>35 V<sub>DC</sub> AT + 85 °C, 23 V<sub>DC</sub> AT + 125 °C</b>						
0.33	T	595D334(1)035T(2)(3)	0.5	4	14.40	0.05
0.47	A	595D474(1)035A(2)(3)	0.5	4	4.30	0.13
0.68	A	595D684(1)035A(2)(3)	0.5	4	4.20	0.13
1.0	A	595D105(1)035A(2)(3)	0.5	4	4.10	0.14
1.5	A	595D155(1)035A(2)(3)	0.5	6	3.80	0.14
1.5	B	595D155(1)035B(2)(3)	0.5	6	2.80	0.17
2.2	B	595D225(1)035B(2)(3)	0.8	6	2.30	0.19
3.3	B	595D335(1)035B(2)(3)	1.2	6	2.40	0.19
3.3	C	595D335(1)035C(2)(3)	1.2	6	0.75	0.38
4.7	B	595D475(1)035B(2)(3)	1.6	6	2.20	0.20
4.7	C	595D475(1)035C(2)(3)	1.6	6	0.66	0.41
6.8	C	595D685(1)035C(2)(3)	2.4	6	0.63	0.42
10	D	595D106(1)035D(2)(3)	3.5	6	0.43	0.59
15	C	595D156(1)035C(2)(3)	5.3	6	0.60	0.43
15	D	595D156(1)035D(2)(3)	5.3	6	0.41	0.60
22	D	595D226(1)035D(2)(3)	7.7	6	0.32	0.68
22	R	595D226(1)035R(2)(3)	7.7	6	0.28	0.94
33	R	595D336(1)035R(2)(3)	11.6	6	0.28	0.94
47	R	595D476(1)035R(2)(3)	16.5	6	0.28	0.94
<b>50 V<sub>DC</sub> AT + 85 °C, 33 V<sub>DC</sub> AT + 125 °C</b>						
0.10	T	595D104(1)050T(2)(3)	0.5	4	22.50	0.04
0.15	T	595D154(1)050T(2)(3)	0.5	4	18.00	0.04
0.22	T	595D224(1)050T(2)(3)	0.5	4	15.30	0.04
0.22	A	595D224(1)050A(2)(3)	0.5	4	9.00	0.09
0.33	A	595D334(1)050A(2)(3)	0.5	4	8.10	0.10

Note

- Part number definitions:
  - Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
  - Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
  - Packaging code: For 7" reels specify "T", for 13" reels specify "W"



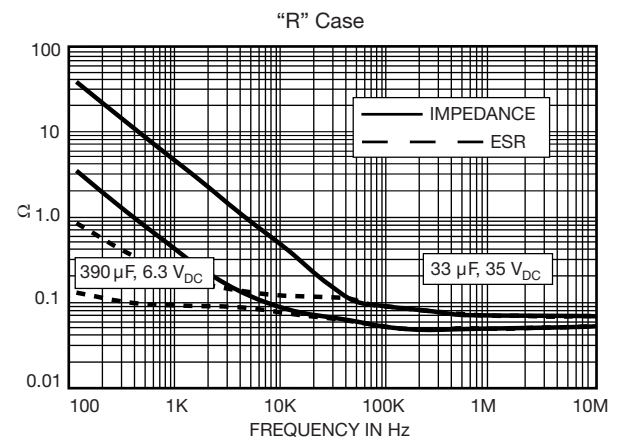
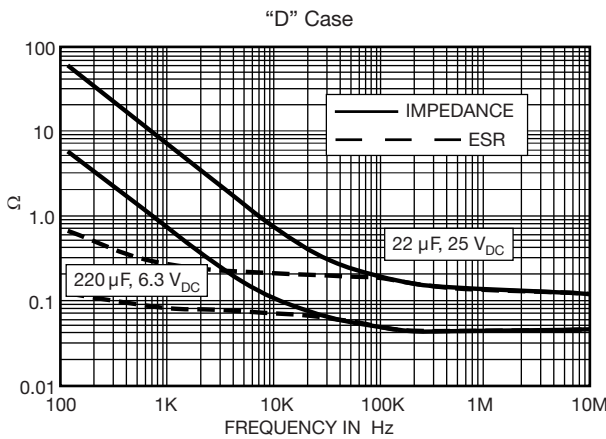
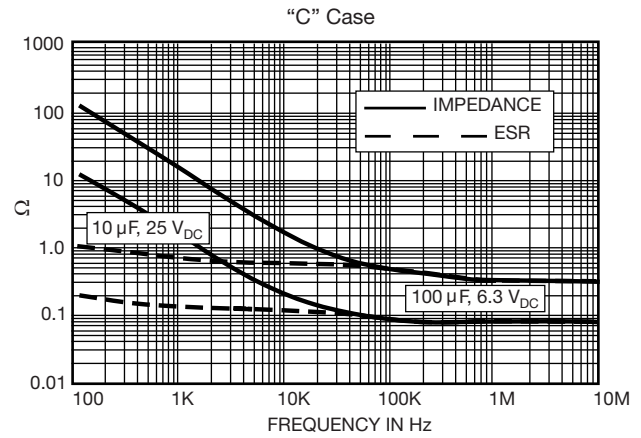
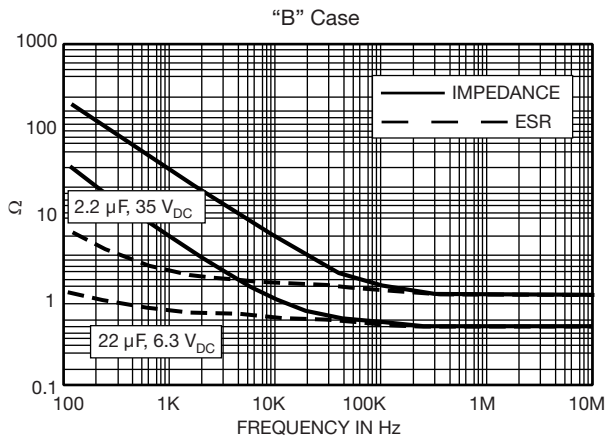
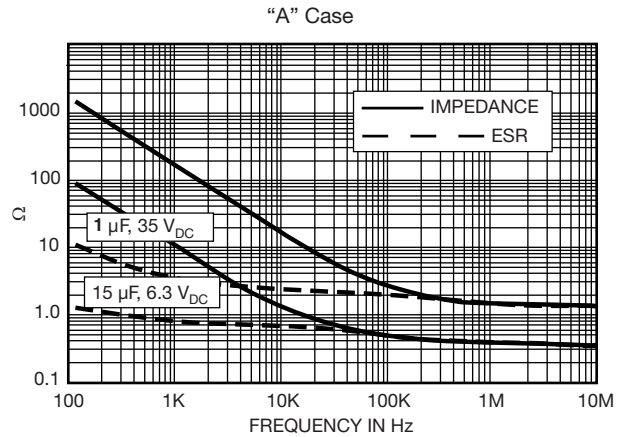
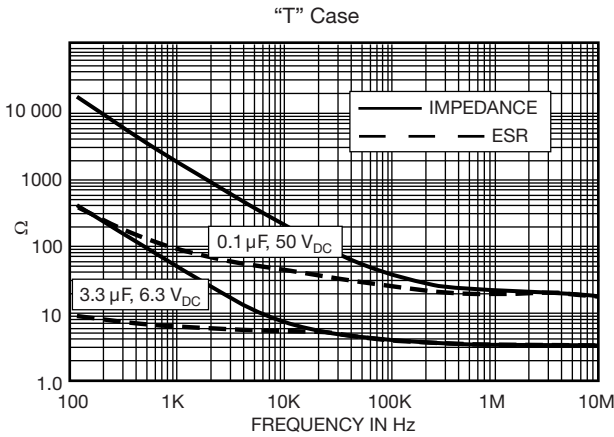
STANDARD RATINGS						
CAPACITANCE (μF)	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C (μA)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I <sub>RMS</sub> (A)
50 V <sub>DC</sub> AT + 85 °C, 33 V <sub>DC</sub> AT + 125 °C						
0.47	A	595D474(1)050A(2)(3)	0.5	4	7.20	0.10
0.68	A	595D684(1)050A(2)(3)	0.5	4	6.10	0.11
0.68	B	595D684(1)050B(2)(3)	0.5	4	5.40	0.13
1.0	A	595D105(1)050A(2)(3)	0.5	4	6.00	0.11
1.0	B	595D105(1)050B(2)(3)	0.5	4	5.00	0.13
1.5	B	595D155(1)050B(2)(3)	0.8	6	4.10	0.14
1.5	C	595D155(1)050C(2)(3)	0.8	6	1.80	0.25
2.2	B	595D225(1)050B(2)(3)	1.1	6	3.20	0.16
2.2	C	595D225(1)050C(2)(3)	1.1	6	1.70	0.25
3.3	C	595D335(1)050C(2)(3)	1.7	6	1.60	0.26
4.7	C	595D475(1)050C(2)(3)	2.4	6	1.40	0.28
6.8	C	595D685(1)050C(2)(3)	3.4	6	1.30	0.29
6.8	D	595D685(1)050D(2)(3)	3.4	6	0.82	0.43
10	D	595D106(1)050D(2)(3)	5.0	6	0.80	0.43
10	R	595D106(1)050R(2)(3)	5.0	6	0.65	0.62
15	R	595D156(1)050R(2)(3)	7.5	6	0.40	0.79
22	R	595D226(1)050R(2)(3)	11.0	6	0.39	0.80

**Note**

- Part number definitions:
  - Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
  - Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
  - Packaging code: For 7" reels specify "T", for 13" reels specify "W"

RECOMMENDED VOLTAGE DERATING GUIDELINES (for temperature below + 85 °C)	
STANDARD CONDITIONS. FOR EXAMPLE: OUTPUT FILTERS	
Capacitor Voltage Rating	Operating Voltage
4.0	2.5
6.3	3.6
10	6.0
16	10
20	12
25	15
35	24
50	28
SEVERE CONDITIONS. FOR EXAMPLE: INPUT FILTERS	
Capacitor Voltage Rating	Operating Voltage
4.0	2.5
6.3	3.3
10	5.0
16	8.0
20	10
25	12
35	15
50	24

**TYPICAL CURVES AT + 25 °C, IMPEDANCE AND ESR VS. FREQUENCY**







POWER DISSIPATION	
CASE CODE	MAXIMUM PERMISSIBLE POWER DISSIPATION AT + 25 °C (W) IN FREE AIR
A	0.075
B	0.085
C	0.110
D	0.150
G	0.115
M	0.095
R	0.250
S	0.060
T	0.030

STANDARD PACKAGING QUANTITY		
CASE CODE	UNITS PER REEL	
	7" REEL	13" REEL
A	2000	9000
B	2000	8000
C	500	3000
D	500	2500
G	500	2500
M	2000	8000
R	600	n/a
S	2500	10 000
T	2500	10 000

PRODUCT INFORMATION	
Conformal Coated Guide	<a href="http://www.vishay.com/doc?40150">www.vishay.com/doc?40150</a>
Moisture Sensitivity	<a href="http://www.vishay.com/doc?40135">www.vishay.com/doc?40135</a>
SELECTOR GUIDES	
Solid Tantalum Selector Guide	<a href="http://www.vishay.com/doc?49053">www.vishay.com/doc?49053</a>
Solid Tantalum Chip Capacitors	<a href="http://www.vishay.com/doc?40091">www.vishay.com/doc?40091</a>
FAQ	
Frequently Asked Questions	<a href="http://www.vishay.com/doc?40110">www.vishay.com/doc?40110</a>



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**