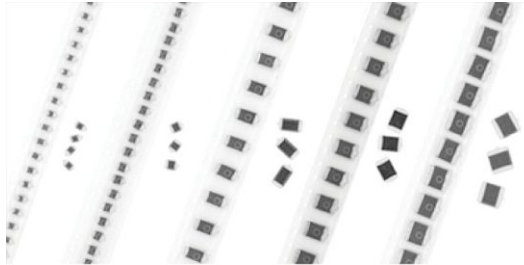


# Solid Tantalum Chip Capacitors TANTAMOUNT<sup>®</sup>, Low Profile, Low ESR, Conformal Coated, Maximum CV



## FEATURES

- New robust ratings for pulsed applications
- New case size offerings
- 1.2 mm to 2 mm height
- Terminations: 100 % matte tin (2) standard, tin/lead available
- Mounting: Surface mount
- Very low ESR
- 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
- Footprint compatible with EIA 535BAAC and CECC 30801
- See also 592W for additional ratings designs for pulsed applications
- 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:** 1 µF to 1000 µF

**Capacitance Tolerance:** ± 10 %, ± 20 % standard

**Voltage Rating:** 4 V<sub>DC</sub> to 50 V<sub>DC</sub>

ORDERING INFORMATION							
591D	106	X0	010	B	2	T	15H
TYPE	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT + 85 °C	CASE CODE	TERMINATION	REEL SIZE AND PACKAGING	SUFFIX
	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow.	<b>X0 = ± 20 %</b> X9 = ± 10 %	This is expressed in volts. 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> 4 = Gold plated 8 = Solder plated 60/40 Special order	<b>T = Tape and reel</b> <b>7" [178 mm] reel</b> W = 13" [330 mm] reel	Maximum height (mm) see Standard Ratings table

### Note

- Preferred tolerance and reel sizes are in bold.  
We reserve the right to supply higher voltage ratings and tighter capacitance tolerance capacitors in the same case size.

DIMENSIONS in inches [millimeters]						
CASE CODE	L MAX.	W	A	B	D REF.	J MAX.
A	0.146 [3.7]	0.071 ± 0.012 [1.8 ± 0.3]	0.031 ± 0.012 [0.8 ± 0.3]	0.087 ± 0.016 [2.2 ± 0.4]	0.114 [2.9]	0.004 [0.1]
B	0.157 [4.0]	0.110 + 0.012/- 0.016 [2.8 + 0.3/- 0.4]	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	0.28 [7.1]	0.126 ± 0.012 [3.2 ± 0.3]	0.051 ± 0.012 [1.3 ± 0.3]	0.173 ± 0.024 [4.4 ± 0.6]	0.236 [6.0]	0.004 [0.1]
D	0.295 [7.5]	0.169 ± 0.012 [4.3 ± 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]
M	0.295 [7.5]	0.248 ± 0.012 [6.3 ± 0.3]	0.051 ± 0.012 [1.3 ± 0.3]	0.200 ± 0.024 [5.1 ± 0.6]	0.264 [6.7]	0.004 [0.1]
R	0.283 [7.2]	0.236 + 0.012/- 0.024 [6.0 + 0.3/- 0.6]	0.051 ± 0.012 [1.3 ± 0.3]	0.181 ± 0.024 [4.6 ± 0.6]	0.244 [6.2]	0.004 [0.1]

**Notes**

- The anode termination (D less B) will be a minimum of 0.012" [0.3 mm]
- (1) For package height, please refer to specific rating in the "Standard Ratings" table

RATINGS AND CASE CODES								
μF	4 V	6.3 V	10 V	16 V	20 V	25 V	35 V	50 V
1.0							A/B	B
1.5							B	
2.2					A	A/B	B/C	
3.3			A	A	A/B	C	B	C
4.7			A	A/B	B/C	C/D	D/R	
6.8		A	A/B	B/C	B/D	B/D/R	R	
10		A/B	B	B/D	C	R		
15	A/B	A/B	A/B/C	C/D	D/R			
22	B	A/B/C	C/D	C/D/R	R	C		
33	B/C	B/C/D	D/R	C/R				
47	B/C/D	D/R	C/D/R	C/D		R		
68	D/R	B/C/D/R	B/C/D	C/D	R			
100		C						
120								
150	C/R	C/D/R	C/D	D/R				
220	C/D	C/D/R	D/R	R				
330	C/D	C/D/R	D/R					
470	C/D/R	C/D/R						
680	D/R	R						
1000	R	R						
1500		M/R						



STANDARD RATINGS							
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER	HEIGHT MAX. (mm)	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>4 V<sub>DC</sub> AT + 85 °C; 2.7 V<sub>DC</sub> AT + 125 °C</b>							
22	A	591D226(1)004A(2)(3)15H	1.5	0.9	6	1.200	0.22
22	B	591D226(1)004B(2)(3)15H	1.5	0.9	6	0.800	0.32
33	B	591D336(1)004B(2)(3)15H	1.5	1.3	6	0.800	0.32
47	B	591D476(1)004B(2)(3)15H	1.5	1.9	6	0.800	0.32
47	C	591D476(1)004C(2)(3)15H	1.5	1.9	6	0.200	0.71
68	B	591D686(1)004B(2)(3)15H	1.5	2.7	6	0.800	0.32
68	C	591D686(1)004C(2)(3)15H	1.5	2.7	6	0.180	0.75
68	D	591D686(1)004D(2)(3)15H	1.5	2.7	6	0.140	0.94
100	D	591D107(1)004D(2)(3)15H	1.5	4.0	8	0.130	0.98
100	R	591D107(1)004R(2)(3)15H	1.5	4.0	8	0.110	1.17
150	C	591D157(1)004C(2)(3)15H	1.5	6.0	8	0.150	0.82
150	R	591D157(1)004R(2)(3)15H	1.5	6.0	8	0.100	1.22
220	C	591D227(1)004C(2)(3)20H	2.0	8.8	8	0.075	1.21
220	D	591D227(1)004D(2)(3)15H	1.5	8.8	8	0.100	1.12
330	C	591D337(1)004C(2)(3)20H	2.0	13.2	8	0.070	1.25
330	D	591D337(1)004D(2)(3)20H	2.0	13.2	8	0.060	1.53
470	C	591D477(1)004C(2)(3)20H	2.0	18.8	8	0.070	1.25
470	D	591D477(1)004D(2)(3)20H	2.0	18.8	8	0.060	1.53
470	R	591D477(1)004R(2)(3)20H	2.0	18.8	10	0.045	1.97
680	D	591D687(1)004D(2)(3)20H	2.0	27.2	12	0.085	1.28
680	R	591D687(1)004R(2)(3)20H	2.0	27.2	12	0.045	1.97
1000	R	591D108(1)004R(2)(3)20H	2.0	40.0	14	0.050	1.87
<b>6.3 V<sub>DC</sub> AT + 85 °C; 4 V<sub>DC</sub> AT + 125 °C</b>							
10	A	591D106(1)6R3A(2)(3)15H	1.5	0.6	6	1.900	0.18
15	A	591D156(1)6R3A(2)(3)15H	1.5	0.9	6	1.300	0.21
15	B	591D156(1)6R3B(2)(3)15H	1.5	0.9	6	0.800	0.32
22	A	591D226(1)6R3A(2)(3)13H	1.3	1.4	6	0.800	0.26
22	B	591D226(1)6R3B(2)(3)15H	1.5	1.4	6	0.800	0.32
33	A	591D336(1)6R3A(2)(3)15H	1.5	2.1	6	1.000	0.24
33	B	591D336(1)6R3B(2)(3)15H	1.5	2.1	6	0.800	0.32
33	C	591D336(1)6R3C(2)(3)15H	1.5	2.1	6	0.200	0.71
47	B	591D476(1)6R3B(2)(3)15H	1.5	3.0	8	0.800	0.32
47	C	591D476(1)6R3C(2)(3)15H	1.5	3.0	6	0.200	0.71
47	D	591D476(1)6R3D(2)(3)15H	1.5	3.0	6	0.140	0.94
68	D	591D686(1)6R3D(2)(3)15H	1.5	4.3	6	0.130	0.98
68	R	591D686(1)6R3R(2)(3)15H	1.5	4.3	6	0.110	1.17
100	B	591D107(1)6R3B(2)(3)15H	1.5	6.3	8	0.500	0.40
100	C	591D107(1)6R3C(2)(3)15H	1.5	6.3	8	0.190	0.73
100	D	591D107(1)6R3D(2)(3)15H	1.5	6.3	8	0.150	0.91
100	R	591D107(1)6R3R(2)(3)15H	1.5	6.3	8	0.100	1.22
120	C	591D127(1)6R3C(2)(3)20H	2.0	7.2	8	0.100	1.05
150	C	591D157(1)6R3C(2)(3)20H	2.0	9.5	8	0.080	1.17
150	D	591D157(1)6R3D(2)(3)15H	1.5	9.5	8	0.120	1.02
150	R	591D157(1)6R3R(2)(3)15H	1.5	9.5	8	0.140	1.04
220	C	591D227(1)6R3C(2)(3)20H	2.0	13.9	8	0.075	1.21
220	D	591D227(1)6R3D(2)(3)20H	2.0	13.9	8	0.065	1.47
220	R	591D227(1)6R3R(2)(3)15H	1.5	13.9	8	0.150	1.00

**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	HEIGHT MAX. (mm)	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>6.3 V<sub>DC</sub> AT + 85 °C; 4 V<sub>DC</sub> AT + 125 °C</b>							
330	C	591D337(1)6R3C(2)(3)20H	2.0	20.8	12	0.150	0.86
330	D	591D337(1)6R3D(2)(3)20H	2.0	20.8	8	0.060	1.53
330	R	591D337(1)6R3R(2)(3)20H	2.0	20.8	8	0.045	1.97
470	C	591D477X06R3C(2)(3)16H	1.6	29.6	14	0.080	1.12
470	C	591D477(1)6R3C(2)(3)20H	2.0	29.6	14	0.080	1.17
470	D	591D477(1)6R3D(2)(3)20H	2.0	29.6	10	0.085	1.28
470	R	591D477(1)6R3R(2)(3)20H	2.0	29.6	10	0.045	1.97
680	R	591D687(1)6R3R(2)(3)16H	1.6	42.8	10	0.060	1.60
680	R	591D687(1)6R3R(2)(3)20H	2.0	42.8	10	0.060	1.71
1000	R	591D108(1)6R3R(2)(3)20H	2.0	63.0	29	0.075	1.53
1500	M	591D158X06R3M(2)(3)20H	2.0	95.0	50	0.060	1.87
1500	R	591D158X06R3R(2)(3)20H	2.0	95.0	50	0.060	1.71
<b>10 V<sub>DC</sub> AT + 85 °C; 7 V<sub>DC</sub> AT + 125 °C</b>							
4.7	A	591D475(1)010A(2)(3)15H	1.5	0.5	6	4.000	0.12
6.8	A	591D685(1)010A(2)(3)15H	1.5	0.7	6	4.000	0.12
10	A	591D106(1)010A(2)(3)15H	1.5	1.0	6	1.300	0.21
10	B	591D106(1)010B(2)(3)15H	1.5	1.0	6	0.850	0.31
15	B	591D156(1)010B(2)(3)15H	1.5	1.5	6	0.800	0.32
22	A	591D226(1)010A(2)(3)13H	1.3	2.2	6	0.800	0.27
22	A	591D226(1)010A(2)(3)15H	1.5	2.2	6	0.900	0.26
22	B	591D226(1)010B(2)(3)15H	1.5	2.2	6	0.800	0.32
22	C	591D226(1)010C(2)(3)15H	1.5	2.2	6	0.200	0.71
33	C	591D336(1)010C(2)(3)15H	1.5	3.3	6	0.200	0.71
33	D	591D336(1)010D(2)(3)15H	1.5	3.3	6	0.140	0.94
47	D	591D476(1)010D(2)(3)15H	1.5	4.7	6	0.140	0.94
47	R	591D476(1)010R(2)(3)15H	1.5	4.7	6	0.120	1.12
68	C	591D686(1)010C(2)(3)15H	1.5	6.8	6	0.190	0.73
68	D	591D686(1)010D(2)(3)15H	1.5	6.8	6	0.130	0.98
68	R	591D686(1)010R(2)(3)15H	1.5	6.8	6	0.110	1.17
100	B	591D107(1)010B(2)(3)20H	2.0	10.0	14	0.250	0.57
100	C	591D107(1)010C(2)(3)20H	2.0	10.0	8	0.085	1.14
100	D	591D107(1)010D(2)(3)15H	1.5	10.0	8	0.130	0.98
150	C	591D157(1)010C(2)(3)15H	1.5	15.0	8	0.083	1.10
150	C	591D157(1)010C(2)(3)20H	2.0	15.0	8	0.080	1.17
150	D	591D157(1)010D(2)(3)15H	1.5	15.0	8	0.120	1.02
150	D	591D157(1)010D(2)(3)20H	2.0	15.0	8	0.075	1.37
220	D	591D227(1)010D(2)(3)20H	2.0	22.0	8	0.065	1.47
220	R	591D227(1)010R(2)(3)20H	2.0	22.0	8	0.055	1.78
330	D	591D337(1)010D(2)(3)20H	2.0	33.0	8	0.060	1.53
330	R	591D337(1)010R(2)(3)18H	1.8	33.0	8	0.050	1.81
330	R	591D337(1)010R(2)(3)20H	2.0	33.0	8	0.050	1.87

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 ( $\mu$ F)	CASE CODE	PART NUMBER	HEIGHT MAX. (mm)	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>16 V<sub>DC</sub> AT + 85 °C; 10 V<sub>DC</sub> AT + 125 °C</b>							
4.7	A	591D475(1)016A(2)(3)15H	1.5	0.8	6	1.750	0.19
6.8	A	591D685(1)016A(2)(3)15H	1.5	1.1	6	1.750	0.19
6.8	B	591D685(1)016B(2)(3)15H	1.5	1.1	6	0.900	0.30
10	B	591D106(1)016B(2)(3)15H	1.5	1.6	6	0.800	0.32
10	C	591D106(1)016C(2)(3)15H	1.5	1.6	6	0.500	0.45
15	B	591D156(1)016B(2)(3)15H	1.5	2.4	6	0.700	0.34
15	D	591D156(1)016D(2)(3)15H	1.5	2.4	6	0.250	0.71
22	C	591D226(1)016C(2)(3)15H	1.5	3.5	6	0.240	0.65
22	D	591D226(1)016D(2)(3)15H	1.5	3.5	6	0.180	0.83
33	C	591D336(1)016C(2)(3)15H	1.5	5.3	6	0.180	0.75
33	D	591D336(1)016D(2)(3)15H	1.5	5.3	6	0.170	0.86
33	R	591D336(1)016R(2)(3)15H	1.5	5.3	6	0.140	1.04
47	C	591D476(1)016C(2)(3)20H	2.0	7.5	6	0.180	0.78
47	R	591D476(1)016R(2)(3)15H	1.5	7.5	6	0.130	1.07
68	C	591D686(1)016C(2)(3)20H	2.0	10.9	6	0.100	1.05
68	D	591D686(1)016D(2)(3)20H	2.0	10.9	6	0.080	1.32
100	C	591D107(1)016C(2)(3)20H	2.0	16.0	8	0.100	1.05
100	D	591D107(1)016D(2)(3)15H	1.5	16.0	8	0.100	1.12
100	D	591D107(1)016D(2)(3)20H	2.0	16.0	8	0.075	1.37
150	D	591D157(1)016D(2)(3)20H	2.0	24.0	8	0.080	1.32
150	R	591D157(1)016R(2)(3)20H	2.0	24.0	8	0.060	1.71
220	R	591D227(1)016R(2)(3)20H	2.0	35.2	10	0.075	1.53
<b>20 V<sub>DC</sub> AT + 85 °C; 13 V<sub>DC</sub> AT + 125 °C</b>							
2.2	A	591D225(1)020A(2)(3)15H	1.5	0.5	6	4.000	0.12
4.7	A	591D475(1)020A(2)(3)15H	1.5	0.9	6	1.900	0.18
4.7	B	591D475(1)020B(2)(3)15H	1.5	0.9	6	1.600	0.22
6.8	B	591D685(1)020B(2)(3)15H	1.5	1.4	6	1.600	0.22
6.8	C	591D685(1)020C(2)(3)15H	1.5	1.4	6	0.400	0.50
10	B	591D106(1)020B(2)(3)15H	1.5	2.0	6	1.500	0.23
10	D	591D106(1)020D(2)(3)15H	1.5	2.0	6	0.270	0.68
15	C	591D156(1)020C(2)(3)15H	1.5	3.0	6	0.300	0.58
22	D	591D226(1)020D(2)(3)15H	1.5	4.4	6	0.200	0.79
22	R	591D226(1)020R(2)(3)15H	1.5	4.4	6	0.140	1.04
33	R	591D336(1)020R(2)(3)15H	1.5	6.6	6	0.140	1.04
100	R	591D107(1)020R(2)(3)20H	2.0	20.0	10	0.100	0.94
<b>25 V<sub>DC</sub> AT + 85 °C; 17 V<sub>DC</sub> AT + 125 °C</b>							
2.2	A	591D225(1)025A(2)(3)15H	1.5	0.6	6	5.000	0.11
2.2	B	591D225(1)025B(2)(3)15H	1.5	0.6	6	3.800	0.15
3.3	B	591D335(1)025B(2)(3)15H	1.5	0.8	6	3.700	0.15
3.3	C	591D335(1)025C(2)(3)15H	1.5	0.8	6	1.000	0.32
4.7	C	591D475(1)025C(2)(3)15H	1.5	1.2	6	0.800	0.35
6.8	C	591D685(1)025C(2)(3)15H	1.5	1.7	6	0.750	0.37
6.8	D	591D685(1)025D(2)(3)15H	1.5	1.7	6	0.650	0.44
10	B	591D106X0025B(2)(3)15H	1.5	2.5	6	1.000	0.28
10	D	591D106(1)025D(2)(3)15H	1.5	2.5	6	0.600	0.46
10	R	591D106(1)025R(2)(3)15H	1.5	2.5	6	0.240	0.79
15	R	591D156(1)025R(2)(3)15H	1.5	3.8	6	0.200	0.87
33	C	591D336(1)025C(2)(3)16H	1.6	8.3	6	0.250	0.63
33	C	591D336(1)025C(2)(3)20H	2.0	8.3	6	0.250	0.66
68	R	591D686(1)025R(2)(3)20H	2.0	17.0	8	0.175	1.00

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 ( $\mu$ F)	CASE CODE	PART NUMBER	HEIGHT MAX. (mm)	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>35 V<sub>DC</sub> AT + 85 °C; 23 V<sub>DC</sub> AT + 125 °C</b>							
1.0	A	591D105(1)035A(2)(3)15H	1.5	0.5	4	5.000	0.11
1.0	B	591D105(1)035B(2)(3)15H	1.5	0.5	4	4.400	0.13
1.5	B	591D155(1)035B(2)(3)15H	1.5	0.5	4	3.800	0.15
2.2	B	591D225(1)035B(2)(3)15H	1.5	0.8	6	4.000	0.14
2.2	C	591D225(1)035C(2)(3)15H	1.5	0.8	6	2.000	0.22
3.3	B	591D335(1)035B(2)(3)15H	1.5	1.2	6	3.500	0.15
3.3	C	591D335(1)035C(2)(3)15H	1.5	1.2	6	1.900	0.23
3.3	D	591D335(1)035D(2)(3)15H	1.5	1.2	6	1.500	0.29
4.7	B	591D475(1)035B(2)(3)15H	1.5	1.6	6	0.800	0.32
6.8	D	591D685(1)035D(2)(3)15H	1.5	2.4	6	0.950	0.36
6.8	R	591D685(1)035R(2)(3)15H	1.5	2.4	6	0.750	0.45
10	R	591D106(1)035R(2)(3)15H	1.5	3.5	6	0.600	0.50
<b>50 V<sub>DC</sub> AT + 85 °C; 33 V<sub>DC</sub> AT + 125 °C</b>							
1.0	B	591D155(1)050B(2)(3)15H	1.5	0.8	6	6.500	0.11
4.7	C	591D475(1)050C(2)(3)20H	2.0	23.5	6	6.000	0.14

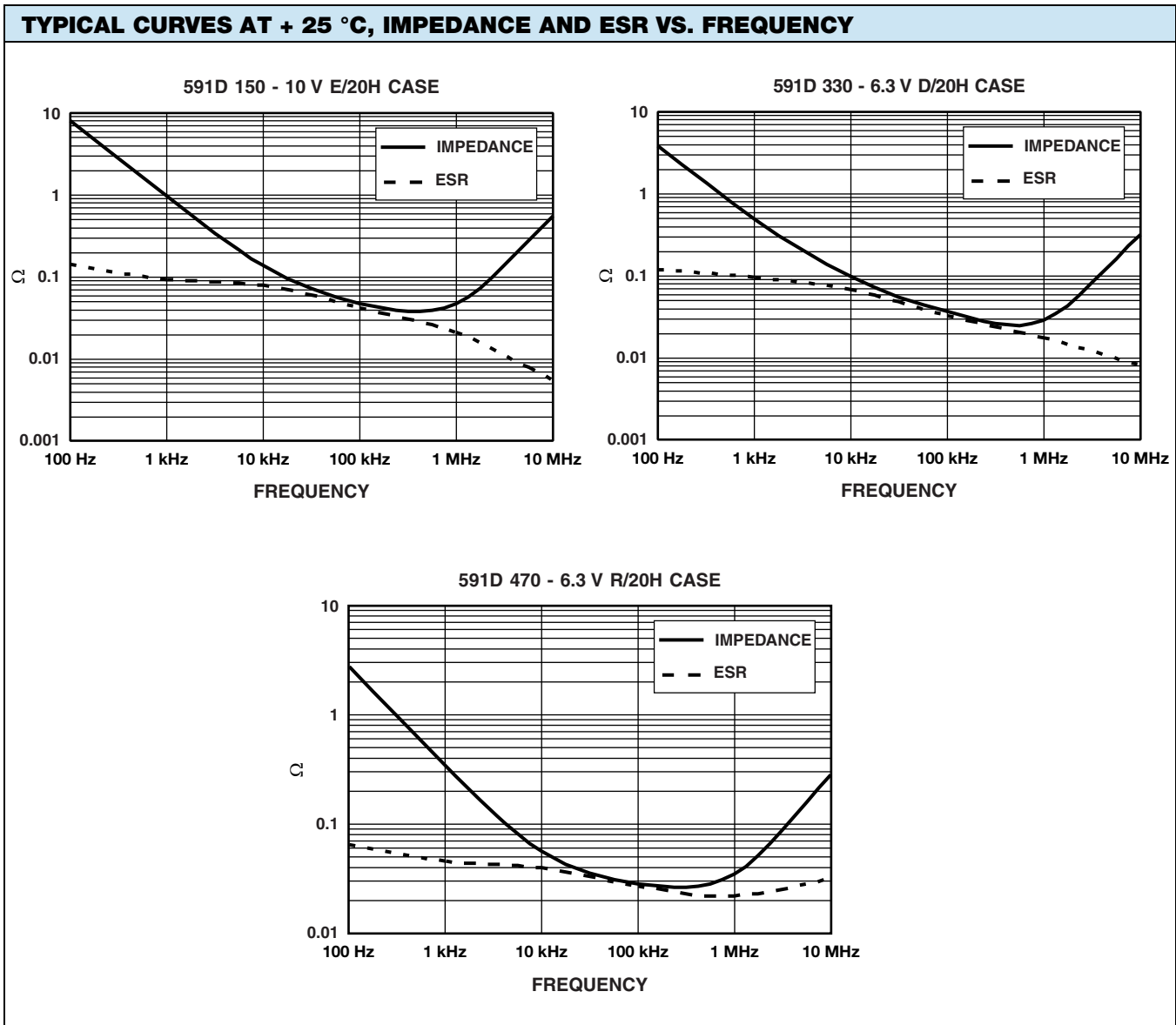
Note

- 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"

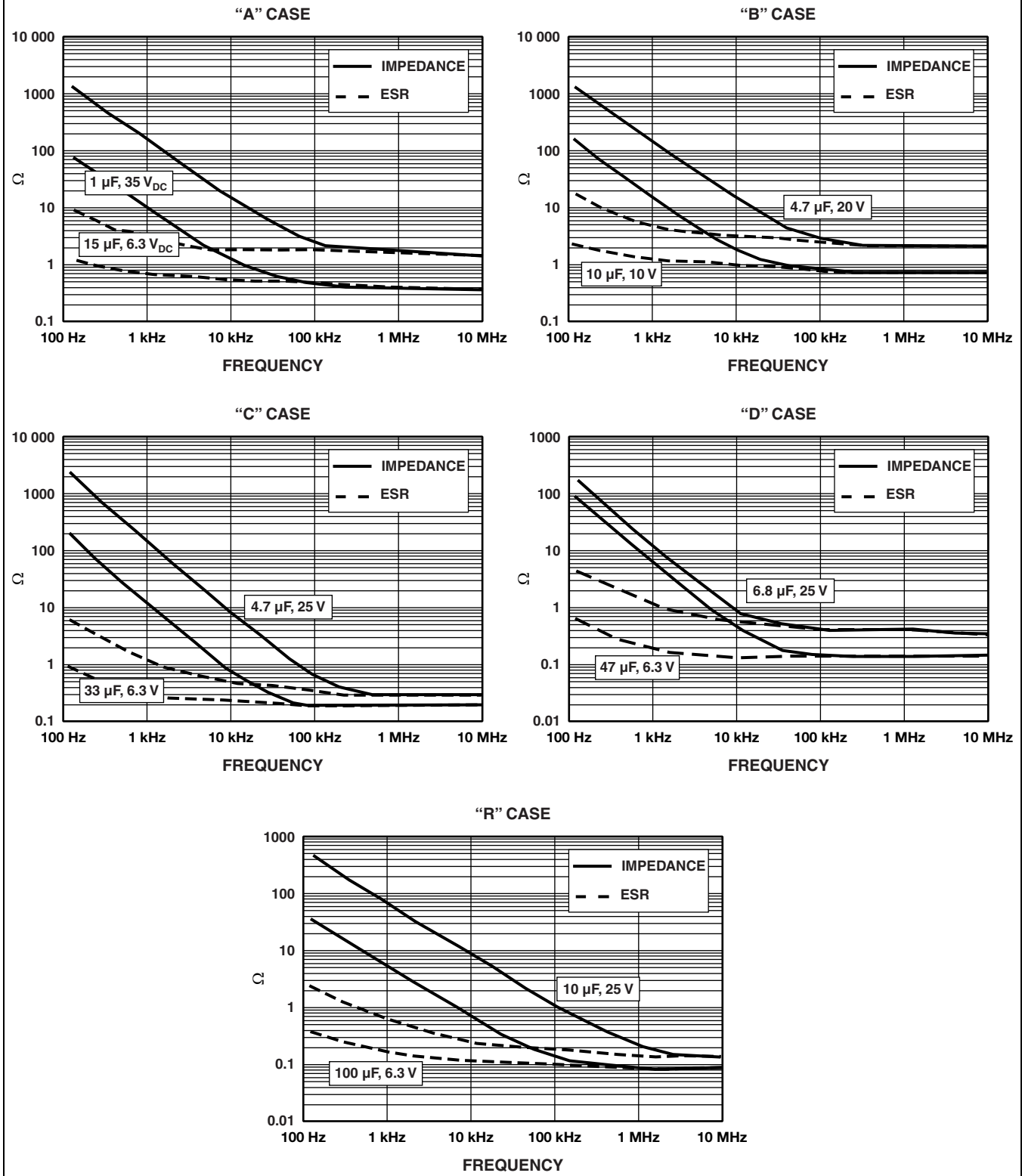
RECOMMENDED VOLTAGE DERATING GUIDELINES (for temperatures below + 85 °C)	
STANDARD CONDITIONS. FOR EXAMPLE: OUTPUT FILTERS	
Capacitor Voltage Rating	Operating Voltage
4.0	2.5
6.3	3.6
10	6.0
16	10
20	12
25	15
35	24
50	28
SEVERE CONDITIONS. FOR EXAMPLE: INPUT FILTERS	
Capacitor Voltage Rating	Operating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



CASE CODE/PART NUMBER X-REF	
OLD	NEW
A2_	A2_15H
B2_	B2_15H
C2_	C2_15H
D2_	D2_15H
R2_	R2_15H
U2_	C2_20H
V2_	D2_20H
W2_	R2_20H



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







POWER DISSIPATION		
CASE CODE	HEIGHT	MAXIMUM PERMISSIBLE POWER DISSIPATION AT + 25 °C (W) IN FREE AIR
A	13H	0.055
A	15H	0.060
B	15H	0.080
B	20H	0.085
C	15H	0.100
C	16H	0.100
C	20H	0.110
D	15H	0.125
D	20H	0.140
M	20H	0.175
R	15H	0.150
R	16H	0.155
R	18H	0.165
R	20H	0.175

STANDARD PACKAGING QUANTITY			
CASE CODE	HEIGHT	UNITS PER REEL	
		7" REEL	13" REEL
A	Any	2500	10 000
B	Any	2000	8000
C	Any	1000	4000
D	Any	1000	4000
M	20H	1000	2500
R	15H	1000	4000
R	16H; 18H; 20H	1000	2500

PRODUCT INFORMATION	
Conformal Coated Guide • Recommended Pad Layouts • Carrier Tape Information • Reflow Profiles	<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>



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## 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.**

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А