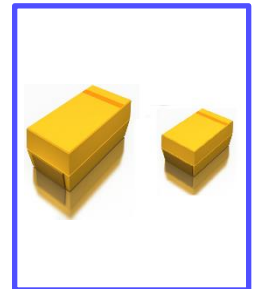


FEATURES	
<ul style="list-style-type: none"> <li>- Surface Mount (SMT) Tantalum Capacitors</li> <li>- Meets or Exceeds EIA 535 BAAC and IECQ standards (QC300801/US001, IS-28)</li> <li>- Capacitance range: 0.1µF to 1500µF</li> <li>- Voltage range: 4 to 50 WVDC</li> <li>- Down sized, extended range values</li> <li>- Low profile sizes: XL, AL, BL, CL, DL</li> <li>- Surge tested for maximum robustness</li> <li>- Operating Temperature range -55°C to +125°C</li> </ul>	<ul style="list-style-type: none"> <li>- Precision molded case with flat surfaces for vacuum pick-up</li> <li>- Laser marking and bold videcon – readable polarity</li> <li>- Compliant terminations</li> <li>- Glue pad on underside for bonding to circuit board prior to soldering</li> <li>- Encapsulant material satisfies the UL 94 V0 flammability classification</li> <li>- MSL (moisture sensitivity level) per IPC/Jedec J-STD-020B is level 1</li> </ul>



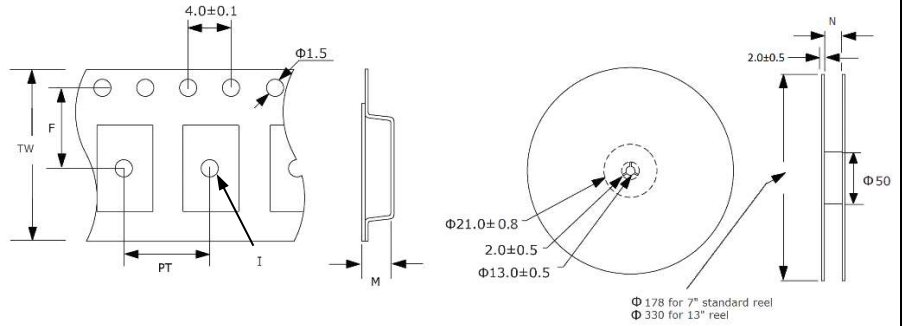
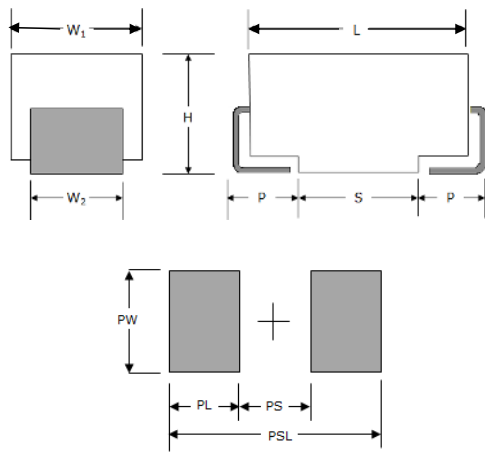
PART NUMBERING GUIDE	
<p><b>SERIES TYPE</b> → PCT 10 / 35 D K (optional) ←</p> <p><b>CAPACITANCE</b> in microfarads (µF) Ex. 0.68µF would be .68</p> <p><b>VOLTAGE</b> 4 6(6.3) 10 16 20 25 35 50</p>	<p><b>OPTIONAL</b> -13 = 13 inch diameter Tape &amp; Reel &lt;blank&gt; = 7 inch standard Tape &amp; Reel</p> <p><b>TOLERANCE</b> M = (±20%) K = (±10%)</p> <p><b>CASE SIZE</b> A (3216-18) B (3528-21) C (6032-28) D (7343-31) H (7343-43) Z (7361-38) XL (2012-12) Low Profile AL (3216-12) Low Profile BL (3528-12) Low Profile CL (6032-15) Low Profile DL (7343-20) Low Profile</p>

ELECTRICAL SPECIFICATION	
Technical Data:	All technical data relate to an ambient temperature of +25°C
Capacitance Range	0.10µF to 1500µF
Capacitance Tolerance	±10% (K); ±20% (M)
Rated Voltage DC (V <sub>R</sub> ) ≤+85°C	4      6.3      10      16      20      25      35      50
Category Voltage DC (V <sub>C</sub> ) ≤+125°C	2.7      4      7      10      13      17      23      33
Surge Voltage (V <sub>S</sub> ) ≤+85°C	5.2      8      13      20      26      32      46      65
Surge Voltage (V <sub>S</sub> ) ≤+125°C	3.2      5      8      13      16      20      28      40
Temperature Range	-55°C to +125°C with 2/3 V <sub>r</sub> (linear derating) required for operation above +85°C
Reliability	Level M (1% per 1000 hours at rated voltage (V <sub>R</sub> ), rated temperature (85°C) and 0.1Ω/volt circuit impedance.
Qualifications	Fixed Tantalum Specifications: EIA 525BAAC and IECQ standards (QC300801/US001, IS-28) Solder-ability: Sn Plated Terminations – meets requirements of IEC 68 2.20 test Ta and MIL-STD=202, Method 208 MSL (moisture sensitivity level): Level 1 of IPC/Jedec J-STD-020B

CASE SIZE CROSS REFERENCE: CAPACITANCE AND VOLTAGE RATING (Rated Voltage DC@ 85°C)								
Cap (µF)	4V	6.3V	10V	16V	20V	25V	35V	50V
0.10					AL, XL		A, AL, XL	A, AL
0.15					AL, XL	XL	A, AL, XL	A, AL, B
0.22					AL, XL	XL	A, AL, XL	A, AL, B
0.33					AL, XL	XL	A, AL, XL	AL, BL
0.47					AL, XL	AL, XL	A, AL, B, BL, XL	A, AL, B, BL, C
0.68				AL, XL	AL, BL, XL	AL, XL	A, AL, B, BL	A, B, C
1.0			AL, XL	A, AL, BL, XL	A, AL, BL, XL	A, AL, XL	A, AL, B, BL	A, B, C, CL
1.5		AL, XL	AL, XL	A, AL, XL	A, AL, BL, XL	A, AL, B	A, B, BL, C	B, C, D
2.2	AL, XL	AL, XL	A, AL, XL	A, AL, XL	A, AL, B, BL, XL	A, B, BL	A, B, BL, C	B, C, D
3.3	AL, XL	AL, XL	AL, BL, XL	A, AL, B, BL, XL	A, B, BL	A, B, BL, C, CL	B, C, D	C, D, DL
4.7	AL, XL	AL, BL, XL	A, AL, BL, XL	A, AL, B, BL	A, B, BL	A, B, BL, C, CL	C, D, DL, H	C, D, DL
6.8	AL, BL, XL	AL, BL, XL	A, AL, BL, XL	A, AL, B, BL, C	A, B, BL, C	B, C, CL	C, D, DL	C, D, DL
10.0	AL, BL, XL	A, AL, BL, XL	A, AL, B, BL, XL	A, B, BL, C, CL	B, C, CL	B, C, CL, D	C, D, DL, H	D, H
15.0	AL, BL, XL	A, AL, B, BL, XL	A, AL, B, BL, CL	A, B, BL, C, CL	B, C, CL	C, D, DL	C, D, DL	D, H
22.0	AL, BL, XL	A, AL, BL, CL	A, B, BL, C, CL	B, C, CL, D	B, C, CL, D, DL	C, D, DL	D, DL, H	Z
33.0	A, AL, BL, CL	A, B, BL, C, CL	A, B, C, CL	B, C, CL, D, DL	C, D, DL	D, H	D, H, Z	
47.0	A, BL, CL	A, B, BL, C, CL	B, C, CL, D, DL	C, CL, D, DL	C, D, DL, H	D, DL, H	H, Z	
68.0	A, B, BL, CL	B, C, CL, D	B, C, D	C, D, DL	C, D, DL, H	H	Z	
100.0	A, B, BL, CL	B, C, CL, D, DL	B, C, CL, D, DL	C, D, DL, H	D, H	H, Z		
150.0	B, C, CL, DL	B, C, CL, D, DL	C, D, DL, H	D, DL, H	H	Z		
220.0	B, C, CL, D, DL	C, D, DL, H	C, D, DL, H	H				
330.0	C, D, DL	C, D, DL, H	D, H	J				
470.0	C, D, DL, H	D, DL, H	H					
680.0	D, DL, H	H						
1000.0	D, H	H, Z						
1500.0	H							

**OUTLINE DRAWING AND PAD PRINT**

**TAPE AND REEL DIMENSION**

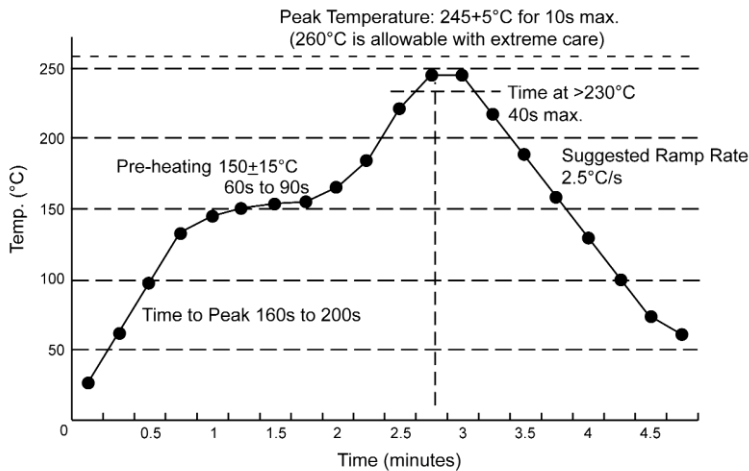


(3) 0805 Footprint Compatible  
(4) 1206 Footprint Compatible  
NOTE: Dimensions in millimeters (mm)

NEMCO Size	EIA Size	L ±0.2	W1 ±0.2	H (MAX)	W2 ±0.1	P ±0.3	S Min.	PSL	PL	PS	PW	TW ±0.3	PT (Pitch)	M (MAX)	I	N ±1	F ±0.05
A(4)	3216-18	3.2	1.6	1.6	1.2	0.8	1.10	3.8	1.4	1.0	1.8	8	4	2.3	1.0	9.5	3.5
B	3528-21	3.5	2.8	1.9	2.2	0.8	1.40	4.0	1.4	1.2	2.8	8	4	2.6	1.0	9.5	3.5
C	6032-28	6.0	3.2	2.6	2.2	1.3	2.90	6.5	2.0	2.5	2.8	12	8	3.3	1.5	13	5.5
D	7343-31	7.3	4.3	2.9	2.4	1.3	4.40	8.0	2.0	4.0	3.0	12	8	3.6	1.5	13	5.5
H	7343-43	7.3	4.3	4.1	2.4	1.3	4.40	8.0	2.0	4.0	3.0	12	8	4.8	1.5	13	5.5
Z	7361-38	7.3	6.1	3.45	3.1	1.4	4.40	8.0	2.0	4.0	3.7	12	8	4.8	1.5	13	5.5
XL(3)	2012-12	2.05	1.3	1.2	1.2	0.5	0.85	2.7	1.0	0.8	1.6	8	4	1.9	1.0	9.5	3.5
AL(4)	3216-12	3.2	1.6	1.2	1.2	0.8	1.10	3.8	1.4	1.0	1.8	8	4	1.9	1.0	9.5	3.5
BL	3528-12	3.5	2.8	1.2	2.2	0.8	1.40	4.0	1.4	1.2	2.8	8	4	1.9	1.0	9.5	3.5
CL	6032-15	6.0	3.2	1.5	2.2	1.3	2.90	6.5	2.0	2.5	2.8	8	4	1.9	1.0	9.5	3.5
DL	7343-20	7.3	4.3	2.0	2.4	1.3	4.40	8.0	2.0	4.0	3.0	8	4	1.7	1.0	9.5	3.5

**REFLOW PROFILE**

**MARKING**

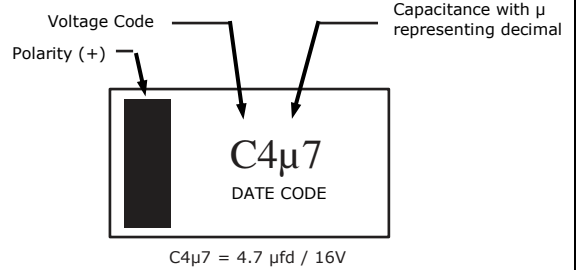


Tantalum capacitors are lead-free system compatible system components, meeting the requirements of J-STD-020 standard. Maximum peak temperature 260°C for 10 seconds maximum, 3 reflow cycles.

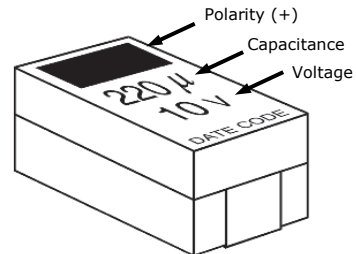
There are several important general soldering considerations for tantalum capacitors.

- Soldering temperature and time should be the minimum for a good connection.
- Recommended soldering profiles are designed to insure that the temperature of the internal construction of the capacitors does not exceed +220°C.
- Positioning capacitors near components radiating heat such as power transistors should be avoided.
- Allow for an increase to ESR ratings of 1.25 x catalog limit post PCB assembly.

**Case Sizes: XL, A, AL, B, BL**



**Case Sizes: C, CL, D, DL, H, Z**



Voltage VDC	4V	6.3V	10V	16V	20V	25V	35V	50V
Voltage Code	G	J	A	C	D	E	V	T

NEMCO reserves the right to supply a higher voltage rating, tighter tolerance and/or lower ESR in the same case size, to the same reliability standards.

**RATINGS AND PART NUMBER REFERENCE**

4 V DC @ 85°C (2.7 V DC @ 125°C)					
Capacitance (µF)	Case Size	Nemco Part No.	DCL (µA) max	tan δ max. (%)	ESR @ 100kHz max. (Ω)
2.2	AL	PCT2.2 / 4AL _	0.5	6	25.0
2.2	XL	PCT2.2 / 4XL _	0.5	6	25.0
3.3	AL	PCT3.3 / 4AL _	0.5	6	18.0
3.3	XL	PCT3.3 / 4XL _	0.5	6	20.0
4.7	AL	PCT4.7 / 4AL _	0.5	6	10.0
4.7	XL	PCT4.7 / 4XL _	0.5	6	12.0
6.8	AL	PCT6.8 / 4AL _	0.5	6	8.0
6.8	BL	PCT6.8 / 4BL _	0.5	6	6.0
6.8	XL	PCT6.8 / 4XL _	0.5	6	5.2
10.0	AL	PCT10 / 4AL _	0.5	6	6.0
10.0	BL	PCT10 / 4BL _	0.6	6	5.0
10.0	XL	PCT10 / 4XL _	0.5	6	7.0
15.0	AL	PCT15 / 4AL _	0.6	8	4.0
15.0	BL	PCT15 / 4BL _	0.6	6	2.0
15.0	XL	PCT15 / 4XL _	0.6	8	4.0
22.0	AL	PCT22 / 4AL _	0.9	8	3.5
22.0	BL	PCT22 / 4BL _	0.9	6	1.9
22.0	XL	PCT22 / 4XL _	0.9	8	3.8
33.0	A	PCT33 / 4A _	1.3	6	3.0
33.0	AL	PCT33 / 4AL _	1.3	8	1.7
33.0	BL	PCT33 / 4BL _	1.3	6	1.7
33.0	CL	PCT33 / 4CL _	1.3	6	0.6
47.0	A	PCT47 / 4A _	1.9	8	2.6
47.0	BL	PCT47 / 4BL _	1.9	10	2.0
47.0	CL	PCT47 / 4CL _	1.9	6	0.5
68.0	A	PCT68 / 4A _	2.7	10	1.5
68.0	B	PCT68 / 4B _	2.7	6	1.8
68.0	BL	PCT68 / 4BL _	2.7	15	1.5
68.0	CL	PCT68 / 4CL _	2.7	6	0.4
100.0	A	PCT100 / 4A _	4.0	30	1.4
100.0	B	PCT100 / 4B _	4.0	8	0.9
100.0	BL	PCT100 / 4BL _	4.0	14	1.4
100.0	CL	PCT100 / 4CL _	4.0	6	1.3
150.0	B	PCT150 / 4B _	6.0	10	1.5
150.0	C	PCT150 / 4C _	6.0	6	0.3
150.0	CL	PCT150 / 4CL _	6.0	6	1.3
150.0	DL	PCT150 / 4DL _	6.0	6	0.4
220.0	B	PCT220 / 4B _	8.8	12	1.1
220.0	C	PCT220 / 4C _	8.8	8	1.2
220.0	CL	PCT220 / 4CL _	8.8	8	1.2
220.0	D	PCT220 / 4D _	8.8	8	0.9
220.0	DL	PCT220 / 4DL _	8.8	8	0.3
330.0	C	PCT330 / 4C _	13.2	8	0.3
330.0	D	PCT330 / 4D _	13.2	8	0.9
330.0	DL	PCT330 / 4DL _	13.2	12	0.4
470.0	C	PCT470 / 4C _	18.8	14	0.3
470.0	D	PCT470 / 4D _	18.8	12	0.9
470.0	DL	PCT470 / 4DL _	18.8	14	0.9
470.0	H	PCT470 / 4H _	18.8	10	0.5
680.0	D	PCT680 / 4D _	27.2	14	0.5
680.0	DL	PCT680 / 4DL _	27.2	25	0.2
680.0	H	PCT680 / 4H _	27.2	14	0.9
1000.0	D	PCT1000 / 4D _	40.0	60	0.2
1000.0	H	PCT1000 / 4H _	40.0	14	0.4
1500.0	H	PCT1500 / 4H _	60.0	30	0.2

6.3 V DC @ 85°C (4 V DC @ 125°C)					
Capacitance (µF)	Case Size	Nemco Part No.	DCL (µA) max	tan δ max. (%)	ESR @ 100kHz max. (Ω)
1.5	AL	PCT1.5 / 6AL _	0.5	6	25.0
1.5	XL	PCT1.5 / 6XL _	0.5	6	25.0
2.2	AL	PCT2.2 / 6AL _	0.5	6	18.0
2.2	XL	PCT2.2 / 6XL _	0.5	6	20.0
3.3	AL	PCT3.3 / 6AL _	0.5	6	9.0
3.3	XL	PCT3.3 / 6XL _	0.5	6	12.0
4.7	AL	PCT4.7 / 6AL _	0.5	6	7.5
4.7	BL	PCT4.7 / 6BL _	0.5	6	6.0
4.7	XL	PCT4.7 / 6XL _	0.5	6	7.0
6.8	AL	PCT6.8 / 6AL _	0.5	6	2.6
6.8	BL	PCT6.8 / 6BL _	0.5	6	5.0
6.8	XL	PCT6.8 / 6XL _	0.5	8	7.0
10.0	A	PCT10 / 6A _	0.6	6	4.0
10.0	AL	PCT10 / 6AL _	0.6	8	4.0
10.0	BL	PCT10 / 6BL _	0.6	6	4.0
10.0	XL	PCT10 / 6XL _	0.6	8	6.0
15.0	A	PCT15 / 6A _	0.9	6	3.5
15.0	AL	PCT15 / 6AL _	0.9	8	4.0
15.0	B	PCT15 / 6B _	1.0	6	2.5
15.0	BL	PCT15 / 6BL _	1.0	6	3.5
15.0	XL	PCT15 / 6XL _	0.9	8	4.1
22.0	A	PCT22 / 6A _	1.4	6	3.0
22.0	AL	PCT22 / 6AL _	1.3	10	1.8
22.0	B	PCT22 / 6B _	1.4	6	2.5
22.0	BL	PCT22 / 6BL _	1.4	8	2.5
22.0	CL	PCT22 / 6CL _	1.3	6	0.6
33.0	A	PCT33 / 6A _	2.1	8	3.2
33.0	B	PCT33 / 6B _	2.1	6	2.2
33.0	BL	PCT33 / 6BL _	2.1	10	2.5
33.0	C	PCT33 / 6C _	2.1	6	1.8
33.0	CL	PCT33 / 6CL _	2.1	6	1.8
47.0	A	PCT47 / 6A _	2.8	10	1.6
47.0	B	PCT47 / 6B _	3.0	6	2.0
47.0	BL	PCT47 / 6BL _	2.8	10	1.6
47.0	C	PCT47 / 6C _	3.0	6	1.6
47.0	CL	PCT47 / 6CL _	3.0	6	1.5
68.0	B	PCT68 / 6B _	4.0	8	0.9
68.0	C	PCT68 / 6C _	4.3	6	1.5
68.0	CL	PCT68 / 6CL _	4.3	6	1.5
68.0	D	PCT68 / 6D _	4.3	6	0.9
100.0	B	PCT100 / 6B _	6.3	10	1.7
100.0	C	PCT100 / 6C _	6.3	6	0.9
100.0	CL	PCT100 / 6CL _	6.3	6	0.9
100.0	D	PCT100 / 6D _	6.3	6	0.9
100.0	DL	PCT100 / 6DL _	6.3	6	0.9
150.0	B	PCT150 / 6B _	9.5	10	1.2
150.0	C	PCT150 / 6C _	9.5	6	1.3
150.0	CL	PCT150 / 6CL _	9.0	8	0.3
150.0	D	PCT150 / 6D _	9.5	6	0.9
150.0	DL	PCT150 / 6DL _	9.0	6	0.4
220.0	C	PCT220 / 6C _	13.9	8	1.2
220.0	D	PCT220 / 6D _	13.9	8	0.4
220.0	DL	PCT220 / 6DL _	13.9	10	0.9
220.0	H	PCT220 / 6H _	13.9	8	0.4
330.0	C	PCT330 / 6C _	19.8	12	0.5
330.0	D	PCT330 / 6D _	20.8	8	0.4
330.0	DL	PCT330 / 6DL _	20.8	8	0.4
330.0	H	PCT330 / 6H _	20.8	8	0.4
470.0	D	PCT470 / 6D _	28.0	12	0.4
470.0	DL	PCT470 / 6DL _	28.2	20	0.2
470.0	H	PCT470 / 6H _	28.0	10	0.4
680.0	H	PCT680 / 6H _	42.8	10	0.5
1000.0	H	PCT1000 / 6H _	60.0	20	0.2
1000.0	Z	PCT1000 / 6Z _	60.0	16	0.4

\_ Insert tolerance M(±20%) or K(±10%) to complete the Nemco part number

NEMCO reserves the right to supply a higher voltage rating, tighter tolerance and/or lower ESR in the same case size, to the same reliability standards.

**RATINGS AND PART NUMBER REFERENCE**

10 V DC @ 85°C (7 V DC @ 125°C)					
Capacitance (µF)	Case Size	Nemco Part No.	DCL (µA) max	tan δ max. (%)	ESR @ 100kHz max. (Ω)
1.0	AL	PCT1 / 10AL	0.5	4	25.0
1.0	XL	PCT1 / 10XL	0.5	4	25.0
1.5	AL	PCT1.5 / 10AL	0.5	6	20.0
1.5	XL	PCT1.5 / 10XL	0.5	6	20.0
2.2	A	PCT2.2 / 10A	0.5	6	7.0
2.2	AL	PCT2.2 / 10AL	0.5	6	12.0
2.2	XL	PCT2.2 / 10XL	0.5	6	15.0
3.3	AL	PCT3.3 / 10AL	0.5	6	8.0
3.3	BL	PCT3.3 / 10BL	0.5	6	6.0
3.3	XL	PCT3.3 / 10XL	0.5	6	8.0
4.7	A	PCT4.7 / 10A	0.5	6	5.0
4.7	AL	PCT4.7 / 10AL	0.5	6	5.0
4.7	BL	PCT4.7 / 10BL	0.5	6	5.0
4.7	XL	PCT4.7 / 10XL	0.5	6	9.0
6.8	A	PCT6.8 / 10A	0.7	6	4.0
6.8	AL	PCT6.8 / 10AL	0.7	6	4.0
6.8	B	PCT6.8 / 10B	0.7	6	3.0
6.8	BL	PCT6.8 / 10BL	0.7	6	4.0
6.8	XL	PCT6.8 / 10XL	0.7	6	5.2
10.0	A	PCT10 / 10A	1.0	6	3.0
10.0	AL	PCT10 / 10AL	1.0	8	4.0
10.0	B	PCT10 / 10B	1.0	6	2.5
10.0	BL	PCT10 / 10BL	1.0	6	3.0
10.0	XL	PCT10 / 10XL	1.0	20	6.0
15.0	A	PCT15 / 10A	1.5	6	3.2
15.0	AL	PCT15 / 10AL	1.5	6	2.0
15.0	B	PCT15 / 10B	1.5	6	2.8
15.0	BL	PCT15 / 10BL	1.5	8	2.8
15.0	CL	PCT15 / 10CL	1.5	6	0.7
22.0	A	PCT22 / 10A	2.2	8	3.0
22.0	B	PCT22 / 10B	2.2	6	2.4
22.0	BL	PCT22 / 10BL	2.2	8	2.2
22.0	C	PCT22 / 10C	2.2	6	1.8
22.0	CL	PCT22 / 10CL	2.2	6	0.6
33.0	A	PCT33 / 10A	3.3	8	1.7
33.0	B	PCT33 / 10B	3.3	6	1.8
33.0	C	PCT33 / 10C	3.3	6	1.6
33.0	CL	PCT33 / 10CL	3.3	6	1.6
47.0	B	PCT47 / 10B	4.7	8	1.0
47.0	C	PCT47 / 10C	4.7	6	1.2
47.0	CL	PCT47 / 10CL	4.7	6	1.4
47.0	D	PCT47 / 10D	4.7	6	0.9
47.0	DL	PCT47 / 10DL	4.7	6	0.5
68.0	B	PCT68 / 10B	6.8	6	1.4
68.0	C	PCT68 / 10C	6.8	6	1.3
68.0	D	PCT68 / 10D	6.8	6	0.9
100.0	B	PCT100 / 10B	10.0	8	1.4
100.0	C	PCT100 / 10C	10.0	8	1.2
100.0	CL	PCT100 / 10CL	10.0	6	0.4
100.0	D	PCT100 / 10D	10.0	6	0.9
100.0	DL	PCT100 / 10DL	10.0	6	0.9
150.0	C	PCT150 / 10C	15.0	8	0.9
150.0	D	PCT150 / 10D	15.0	8	0.9
150.0	DL	PCT150 / 10DL	15.0	6	1.2
150.0	H	PCT150 / 10H	15.0	8	0.9
220.0	C	PCT220 / 10C	22.0	8	0.5
220.0	D	PCT220 / 10D	22.0	8	0.5
220.0	DL	PCT220 / 10DL	22.0	10	0.5
220.0	H	PCT220 / 10H	22.0	8	0.5
330.0	D	PCT330 / 10D	33.0	8	0.9
330.0	H	PCT330 / 10H	33.0	8	0.9
470.0	H	PCT470 / 10H	47.0	10	0.5

16 V DC @ 85°C (10 V DC @ 125°C)					
Capacitance (µF)	Case Size	Nemco Part No.	DCL (µA) max	tan δ max. (%)	ESR @ 100kHz max. (Ω)
0.68	AL	PCT.68 / 16AL	0.5	4	25.0
0.68	XL	PCT.68 / 16XL	0.5	4	25.0
1.0	A	PCT1 / 16A	0.5	4	11.0
1.0	AL	PCT1 / 16AL	0.5	4	15.0
1.0	BL	PCT1 / 16BL	0.5	4	5.0
1.0	XL	PCT1 / 16XL	0.5	4	20.0
1.5	A	PCT1.5 / 16A	0.5	6	8.0
1.5	AL	PCT1.5 / 16AL	0.5	6	12.0
1.5	XL	PCT1.5 / 16XL	0.5	6	10.0
2.2	A	PCT2.2 / 16A	0.5	6	6.5
2.2	AL	PCT2.2 / 16AL	0.5	6	6.0
2.2	BL	PCT2.2 / 16BL	0.5	6	6.5
2.2	XL	PCT2.2 / 16XL	0.5	6	6.5
3.3	A	PCT3.3 / 16A	0.5	6	5.0
3.3	AL	PCT3.3 / 16AL	0.5	6	5.0
3.3	B	PCT3.3 / 16B	0.5	6	4.5
3.3	BL	PCT3.3 / 16BL	0.5	6	5.0
3.3	XL	PCT3.3 / 16XL	0.5	8	5.0
4.7	A	PCT4.7 / 16A	0.8	6	4.0
4.7	AL	PCT4.7 / 16AL	0.8	8	4.5
4.7	B	PCT4.7 / 16B	0.8	6	3.5
4.7	BL	PCT4.7 / 16BL	0.8	6	4.5
6.8	A	PCT6.8 / 16A	1.1	6	3.5
6.8	AL	PCT6.8 / 16AL	1.1	8	2.4
6.8	B	PCT6.8 / 16B	1.1	6	2.5
6.8	BL	PCT6.8 / 16BL	1.1	6	3.5
6.8	C	PCT6.8 / 16C	1.1	6	2.5
10.0	A	PCT10 / 16A	1.6	8	3.0
10.0	B	PCT10 / 16B	1.6	6	2.8
10.0	BL	PCT10 / 16BL	1.6	8	2.2
10.0	C	PCT10 / 16C	1.6	6	2.0
10.0	CL	PCT10 / 16CL	1.6	6	2.0
15.0	A	PCT15 / 16A	2.4	6	2.0
15.0	B	PCT15 / 16B	2.4	6	2.5
15.0	BL	PCT15 / 16BL	2.4	6	2.0
15.0	C	PCT15 / 16C	2.4	6	1.8
15.0	CL	PCT15 / 16CL	2.4	6	0.7
22.0	B	PCT22 / 16B	3.5	6	2.3
22.0	C	PCT22 / 16C	3.5	6	1.0
22.0	CL	PCT22 / 16CL	3.5	6	1.6
22.0	D	PCT22 / 16D	3.5	6	1.1
33.0	B	PCT33 / 16B	5.3	8	2.1
33.0	C	PCT33 / 16C	5.3	6	1.5
33.0	CL	PCT33 / 16CL	5.3	6	1.5
33.0	D	PCT33 / 16D	5.3	6	0.9
33.0	DL	PCT33 / 16DL	5.3	6	0.9
47.0	C	PCT47 / 16C	7.5	6	0.5
47.0	CL	PCT47 / 16CL	7.5	6	0.4
47.0	D	PCT47 / 16D	7.5	6	0.9
47.0	DL	PCT47 / 16DL	7.5	6	0.7
68.0	C	PCT68 / 16C	10.9	6	1.3
68.0	D	PCT68 / 16D	10.9	6	0.9
68.0	DL	PCT68 / 16DL	10.9	6	0.9
100.0	C	PCT100 / 16C	16.0	8	1.0
100.0	D	PCT100 / 16D	16.0	6	0.6
100.0	DL	PCT100 / 16DL	16.0	8	0.9
100.0	H	PCT100 / 16H	16.0	6	0.9
150.0	D	PCT150 / 16D	24.0	6	0.9
150.0	DL	PCT150 / 16DL	24.0	15	0.3
150.0	H	PCT150 / 16H	24.0	8	0.3
220.0	H	PCT220 / 16H	35.2	10	0.5
330.0	H	PCT330 / 16H	52.8	30	0.4

\_ Insert tolerance M(±20%) or K(±10%) to complete the Nemco part number

NEMCO reserves the right to supply a higher voltage rating, tighter tolerance and/or lower ESR in the same case size, to the same reliability standards.

**RATINGS AND PART NUMBER REFERENCE**

20 V DC @ 85°C (13V DC @ 125°C)					
Capacitance (µF)	Case Size	Nemco Part No.	DCL (µA) max	tan δ max. (%)	ESR @ 100kHz max. (Ω)
0.10	AL	PCT.1 / 20AL _	0.5	4	25.0
0.10	XL	PCT.1 / 20XL _	0.5	4	25.0
0.15	AL	PCT.15 / 20AL _	0.5	4	25.0
0.15	XL	PCT.15 / 20XL _	0.5	4	25.0
0.22	AL	PCT.22 / 20AL _	0.5	4	25.0
0.22	XL	PCT.22 / 20XL _	0.5	4	25.0
0.33	AL	PCT.33 / 20AL _	0.5	4	25.0
0.33	XL	PCT.33 / 20XL _	0.5	4	25.0
0.47	AL	PCT.47 / 20AL _	0.5	4	25.0
0.47	XL	PCT.47 / 20XL _	0.5	4	25.0
0.68	AL	PCT.68 / 20AL _	0.5	4	25.0
0.68	BL	PCT.68 / 20BL _	0.5	4	15.0
0.68	XL	PCT.68 / 20XL _	0.5	4	20.0
1.0	A	PCT1 / 20A _	0.5	4	9.0
1.0	AL	PCT1 / 20AL _	0.5	4	12.0
1.0	BL	PCT1 / 20BL _	0.5	4	9.0
1.0	XL	PCT1 / 20XL _	0.5	4	20.0
1.5	A	PCT1.5 / 20A _	0.5	6	6.5
1.5	AL	PCT1.5 / 20AL _	0.5	6	5.4
1.5	BL	PCT1.5 / 20BL _	0.5	6	6.5
1.5	XL	PCT1.5 / 20XL _	0.5	6	9.6
2.2	A	PCT2.2 / 20A _	0.5	6	5.3
2.2	AL	PCT2.2 / 20AL _	0.5	6	4.5
2.2	B	PCT2.2 / 20B _	0.5	6	3.5
2.2	BL	PCT2.2 / 20BL _	0.5	6	6.0
2.2	XL	PCT2.2 / 20XL _	0.5	6	6.0
3.3	A	PCT3.3 / 20A _	0.7	6	4.5
3.3	B	PCT3.3 / 20B _	0.7	6	3.0
3.3	BL	PCT3.3 / 20BL _	0.7	6	3.0
4.7	A	PCT4.7 / 20A _	0.9	6	4.0
4.7	B	PCT4.7 / 20B _	0.9	6	3.0
4.7	BL	PCT4.7 / 20BL _	0.9	6	3.0
6.8	A	PCT6.8 / 20A _	1.4	6	2.4
6.8	B	PCT6.8 / 20B _	1.4	6	2.5
6.8	BL	PCT6.8 / 20BL _	1.4	6	2.6
6.8	C	PCT6.8 / 20C _	1.4	6	2.0
10.0	B	PCT10 / 20B _	2.0	6	2.1
10.0	C	PCT10 / 20C _	2.0	6	2.2
10.0	CL	PCT10 / 20CL _	2.0	6	1.9
15.0	B	PCT15 / 20B _	3.0	6	2.0
15.0	C	PCT15 / 20C _	3.0	6	1.7
15.0	CL	PCT15 / 20CL _	3.0	6	1.7
22.0	B	PCT22 / 20B _	4.4	6	1.8
22.0	C	PCT22 / 20C _	4.4	6	1.6
22.0	CL	PCT22 / 20CL _	4.4	6	1.6
22.0	D	PCT22 / 20D _	4.4	6	0.9
22.0	DL	PCT22 / 20DL _	4.4	6	0.9
33.0	C	PCT33 / 20C _	6.6	6	1.5
33.0	D	PCT33 / 20D _	6.6	6	0.9
33.0	DL	PCT33 / 20DL _	6.6	6	0.6
47.0	C	PCT47 / 20C _	9.4	6	0.5
47.0	D	PCT47 / 20D _	9.4	6	0.9
47.0	DL	PCT47 / 20DL _	9.4	6	0.9
47.0	H	PCT47 / 20H _	9.4	6	0.9
68.0	C	PCT68 / 20C _	13.6	8	0.5
68.0	D	PCT68 / 20D _	13.6	6	0.4
68.0	DL	PCT68 / 20DL _	13.6	6	0.9
68.0	H	PCT68 / 20H _	13.6	6	0.9
100.0	D	PCT100 / 20D _	20.0	6	0.5
100.0	H	PCT100 / 20H _	20.0	6	0.4
150.0	H	PCT150 / 20H _	30.0	8	0.3

25 V DC @ 85°C (17 V DC @ 125°C)					
Capacitance (µF)	Case Size	Nemco Part No.	DCL (µA) max	tan δ max. (%)	ESR @ 100kHz max. (Ω)
0.15	XL	PCT.15 / 25XL _	0.5	4	24.0
0.22	XL	PCT.22 / 25XL _	0.5	4	21.0
0.33	XL	PCT.33 / 25XL _	0.5	4	17.0
0.47	AL	PCT.47 / 25AL _	0.5	4	14.0
0.47	XL	PCT.47 / 25XL _	0.5	4	15.0
0.68	AL	PCT.68 / 25AL _	0.5	4	10.0
0.68	XL	PCT.68 / 25XL _	0.5	4	13.0
1.0	A	PCT1 / 25A _	0.5	4	8.0
1.0	AL	PCT1 / 25AL _	0.5	4	8.0
1.0	XL	PCT1 / 25XL _	0.5	4	8.0
1.5	A	PCT1.5 / 25A _	0.5	6	7.5
1.5	AL	PCT1.5 / 25AL _	0.5	6	5.4
1.5	B	PCT1.5 / 25B _	0.5	6	5.0
1.5	BL	PCT1.5 / 25BL _	0.5	6	5.0
2.2	A	PCT2.2 / 25A _	0.6	6	7.0
2.2	B	PCT2.2 / 25B _	0.6	6	4.5
2.2	BL	PCT2.2 / 25BL _	0.6	6	4.5
2.2	CL	PCT2.2 / 25CL _	0.6	6	4.5
3.3	A	PCT3.3 / 25A _	0.8	6	3.7
3.3	B	PCT3.3 / 25B _	0.8	6	3.5
3.3	BL	PCT3.3 / 25BL _	0.8	6	3.5
3.3	C	PCT3.3 / 25C _	0.8	6	2.8
3.3	CL	PCT3.3 / 25CL _	0.8	6	1.6
4.7	A	PCT4.7 / 25A _	1.2	6	3.1
4.7	B	PCT4.7 / 25B _	1.2	6	1.5
4.7	BL	PCT4.7 / 25BL _	1.2	6	3.1
4.7	C	PCT4.7 / 25C _	1.2	6	2.4
4.7	CL	PCT4.7 / 25CL _	1.2	6	1.2
6.8	B	PCT6.8 / 25B _	1.7	6	2.8
6.8	C	PCT6.8 / 25C _	1.7	6	2.0
6.8	CL	PCT6.8 / 25CL _	1.7	6	2.0
10.0	B	PCT10 / 25B _	2.5	6	2.5
10.0	C	PCT10 / 25C _	2.5	6	1.8
10.0	CL	PCT10 / 25CL _	2.5	6	1.8
10.0	D	PCT10 / 25D _	2.5	6	1.2
15.0	C	PCT15 / 25C _	3.8	6	1.6
15.0	D	PCT15 / 25D _	3.8	6	1.0
15.0	DL	PCT15 / 25DL _	3.8	6	1.0
22.0	C	PCT22 / 25C _	5.5	6	1.4
22.0	D	PCT22 / 25D _	5.5	6	0.9
22.0	DL	PCT22 / 25DL _	5.5	6	0.9
33.0	D	PCT33 / 25D _	8.3	6	0.9
33.0	H	PCT33 / 25H _	8.3	6	0.9
47.0	D	PCT47 / 25D _	11.8	6	0.9
47.0	DL	PCT47 / 25DL _	11.8	6	0.9
47.0	H	PCT47 / 25H _	11.8	6	0.9
68.0	H	PCT68 / 25H _	17.0	6	0.9
100.0	H	PCT100 / 25H _	25.0	10	0.3
100.0	Z	PCT100 / 25Z _	25.0	8	0.4
150.0	Z	PCT150 / 25Z _	37.5	10	0.4

\_ Insert tolerance M(±20%) or K(±10%) to complete the Nemco part number

NEMCO reserves the right to supply a higher voltage rating, tighter tolerance and/or lower ESR in the same case size, to the same reliability standards.

**RATINGS AND PART NUMBER REFERENCE**

35 V DC @ 85°C (23 V DC @ 125°C)					
Capacitance (µF)	Case Size	Nemco Part No.	DCL (µA) max	tan δ max. (%)	ESR @ 100kHz max. (Ω)
0.10	A	PCT.1 / 35A _	0.5	4	24.0
0.10	AL	PCT.1 / 35AL _	0.5	4	24.0
0.10	XL	PCT.1 / 35XL _	0.5	4	29.0
0.15	A	PCT.15 / 35A _	0.5	4	21.0
0.15	AL	PCT.15 / 35AL _	0.5	4	21.0
0.15	XL	PCT.15 / 35XL _	0.5	4	24.0
0.22	A	PCT.22 / 35A _	0.5	4	18.0
0.22	AL	PCT.22 / 35AL _	0.5	4	18.0
0.22	XL	PCT.22 / 35XL _	0.5	4	21.0
0.33	A	PCT.33 / 35A _	0.5	4	15.0
0.33	AL	PCT.33 / 35AL _	0.5	4	15.0
0.33	XL	PCT.33 / 35XL _	0.5	4	17.0
0.47	A	PCT.47 / 35A _	0.5	4	12.0
0.47	AL	PCT.47 / 35AL _	0.5	4	12.0
0.47	B	PCT.47 / 35B _	0.5	4	10.0
0.47	BL	PCT.47 / 35BL _	0.5	4	10.0
0.47	XL	PCT.47 / 35XL _	0.5	4	15.0
0.68	A	PCT.68 / 35A _	0.5	4	8.0
0.68	AL	PCT.68 / 35AL _	0.5	4	8.0
0.68	B	PCT.68 / 35B _	0.5	4	8.0
0.68	BL	PCT.68 / 35BL _	0.5	4	8.0
1.0	A	PCT1 / 35A _	0.5	4	7.5
1.0	AL	PCT1 / 35AL _	0.5	4	7.5
1.0	B	PCT1 / 35B _	0.5	4	6.5
1.0	BL	PCT1 / 35BL _	0.5	4	6.5
1.5	A	PCT1.5 / 35A _	0.5	6	7.5
1.5	B	PCT1.5 / 35B _	0.5	6	5.2
1.5	BL	PCT1.5 / 35BL _	0.5	6	5.2
1.5	C	PCT1.5 / 35C _	0.5	6	4.5
2.2	A	PCT2.2 / 35A _	0.8	6	4.5
2.2	B	PCT2.2 / 35B _	0.8	6	4.2
2.2	BL	PCT2.2 / 35BL _	0.8	6	4.2
2.2	C	PCT2.2 / 35C _	0.8	6	3.5
3.3	B	PCT3.3 / 35B _	1.2	6	3.5
3.3	C	PCT3.3 / 35C _	1.2	6	2.5
3.3	CL	PCT3.3 / 35CL _	1.2	6	1.6
3.3	D	PCT3.3 / 35D _	1.2	6	2.5
4.7	B	PCT4.7 / 35B _	1.2	6	3.1
4.7	C	PCT4.7 / 35C _	1.6	6	2.2
4.7	D	PCT4.7 / 35D _	1.6	6	1.5
6.8	C	PCT6.8 / 35C _	2.4	6	1.8
6.8	D	PCT6.8 / 35D _	2.4	6	1.3
6.8	DL	PCT6.8 / 35DL _	2.3	6	0.9
10.0	C	PCT10 / 35C _	3.5	6	1.6
10.0	D	PCT10 / 35D _	3.5	6	1.0
10.0	DL	PCT10 / 35DL _	3.5	6	1.0
10.0	H	PCT10 / 35H _	3.5	6	0.9
15.0	C	PCT15 / 35C _	5.3	6	1.4
15.0	D	PCT15 / 35D _	5.3	6	0.9
15.0	DL	PCT15 / 35DL _	5.3	6	0.6
22.0	D	PCT22 / 35D _	7.7	6	0.9
22.0	DL	PCT22 / 35DL _	7.7	6	0.5
22.0	H	PCT22 / 35H _	7.7	6	0.5
33.0	D	PCT33 / 35D _	11.6	6	0.9
33.0	H	PCT33 / 35H _	11.6	6	0.9
33.0	Z	PCT33 / 35Z _	11.6	6	0.5
47.0	H	PCT47 / 35H _	16.5	6	0.9
47.0	Z	PCT47 / 35Z _	16.5	6	0.4
68.0	Z	PCT68 / 35Z _	23.8	6	0.5

50 V DC @ 85°C (33 V DC @ 125°C)					
Capacitance (µF)	Case Size	Nemco Part No.	DCL (µA) max	tan δ max. (%)	ESR @ 100kHz max. (Ω)
0.10	A	PCT.1 / 50A _	0.5	4	22.0
0.10	AL	PCT.1 / 50AL _	0.5	4	19.0
0.15	A	PCT.15 / 50A _	0.5	4	15.0
0.15	AL	PCT.15 / 50AL _	0.5	4	16.0
0.15	B	PCT.15 / 50B _	0.5	4	17.0
0.22	A	PCT.22 / 50A _	0.5	4	18.0
0.22	AL	PCT.22 / 50AL _	0.5	4	13.0
0.22	B	PCT.22 / 50B _	0.5	4	14.0
0.33	B	PCT.33 / 50B _	0.5	4	12.0
0.33	AL	PCT.33 / 50AL _	0.5	4	11.0
0.33	BL	PCT.33 / 50BL _	0.5	4	11.0
0.47	A	PCT.47 / 50A _	0.5	4	9.5
0.47	AL	PCT.47 / 50AL _	0.5	4	9.5
0.47	B	PCT.47 / 50B _	0.7	4	9.5
0.47	BL	PCT.47 / 50BL _	0.5	4	9.5
0.47	C	PCT.47 / 50C _	0.5	4	8.0
0.68	A	PCT.68 / 50A _	0.5	4	7.9
0.68	B	PCT.68 / 50B _	0.5	4	8.0
0.68	C	PCT.68 / 50C _	0.5	4	7.0
1.0	A	PCT1 / 50A _	0.5	4	6.6
1.0	B	PCT1 / 50B _	0.5	4	7.0
1.0	C	PCT1 / 50C _	0.5	4	5.5
1.0	CL	PCT1 / 50CL _	0.5	6	4.4
1.5	B	PCT1.5 / 50B _	0.8	8	5.4
1.5	C	PCT1.5 / 50C _	0.8	6	4.5
1.5	D	PCT1.5 / 50D _	0.8	6	4.0
2.2	B	PCT2.2 / 50B _	1.1	8	4.5
2.2	C	PCT2.2 / 50C _	1.1	8	2.5
2.2	D	PCT2.2 / 50D _	1.1	6	2.5
3.3	C	PCT3.3 / 50C _	1.6	6	2.5
3.3	D	PCT3.3 / 50D _	1.7	6	2.0
3.3	DL	PCT3.3 / 50DL _	1.7	4	1.7
4.7	C	PCT4.7 / 50C _	0.5	4	1.4
4.7	D	PCT4.7 / 50D _	2.4	6	1.4
4.7	DL	PCT4.7 / 50DL _	2.4	6	1.2
6.8	C	PCT6.8 / 50C _	3.4	6	1.0
6.8	D	PCT6.8 / 50D _	3.4	6	1.0
6.8	DL	PCT6.8 / 50DL _	3.4	6	0.9
10.0	D	PCT10 / 50D _	5.0	6	0.8
10.0	H	PCT10 / 50H _	5.0	6	1.0
15.0	D	PCT15 / 50D _	7.5	4	0.6
15.0	H	PCT15 / 50H _	7.5	6	0.6
22.0	Z	PCT22 / 50Z _	11.0	8	0.6

\_ Insert tolerance M(±20%) or K(±10%) to complete the Nemco part number

NEMCO reserves the right to supply a higher voltage rating, tighter tolerance and/or lower ESR in the same case size, to the same reliability standards.

**PACKAGING REFERENCE**

CASE SIZE	CASE SIZE	STANDARD PACKAGING	AVAILABLE
NEMCO	EIA IECQ	7" Reel Quantity	13" Reel Quantity
A	3216-18	<b>2000</b>	8000
B	3528-21	<b>2000</b>	8000
C	6032-28	<b>500</b>	3000
D	7343-31	<b>500</b>	2500
H	7343-43	<b>400</b>	1500
Z	7361-37	<b>400</b>	1500
<u>Low Profile Sizes</u>			
XL	2012-12	<b>2500</b>	10000
AL	3216-12	<b>2500</b>	10000
BL	3528-12	<b>2500</b>	10000
CL	6032-15	<b>1000</b>	5000
DL	7343-20	<b>1000</b>	5000