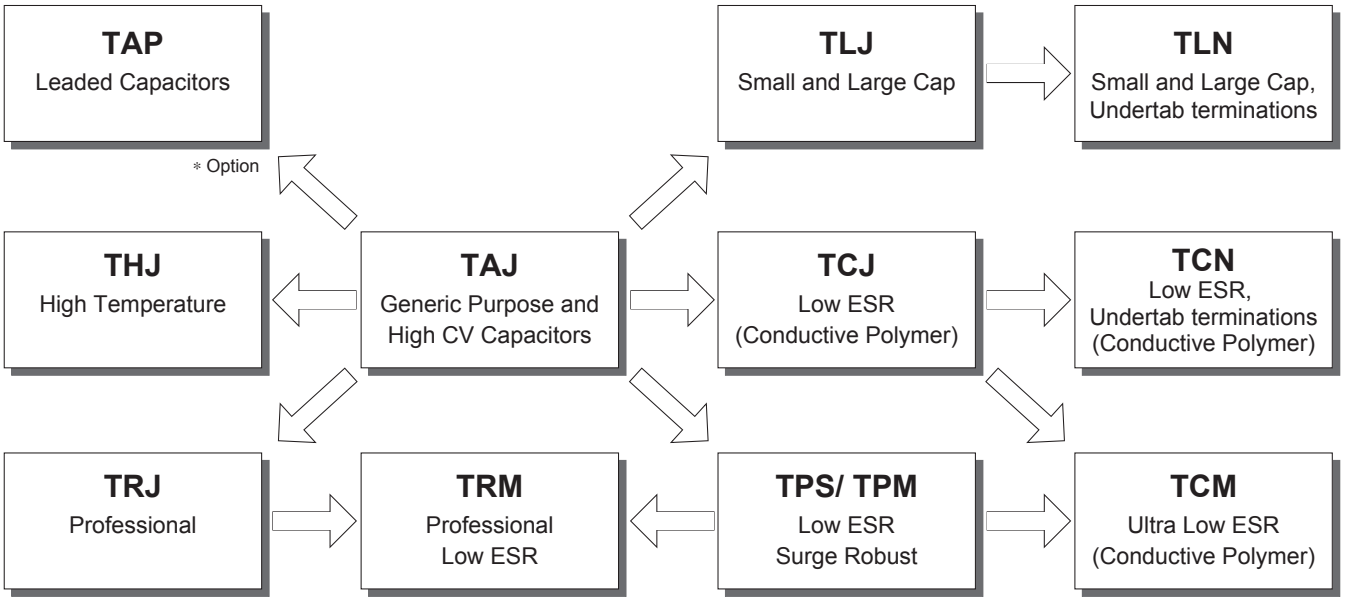
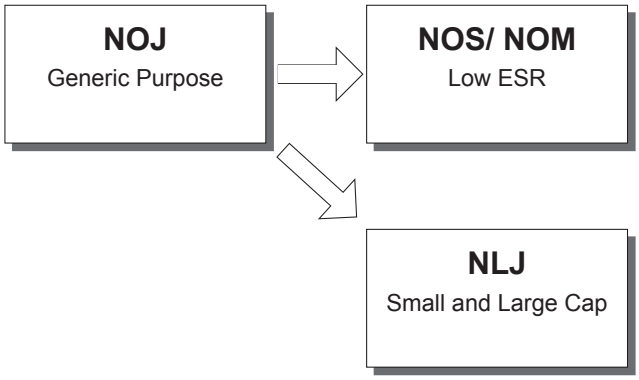
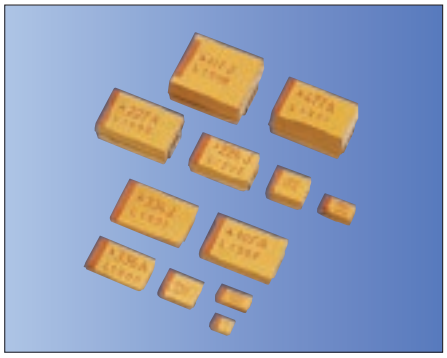
Tantalum Series Guide



Niobium Oxide Series Guide



TAJ Series (Standard), TPS/ TPM Series (Low ESR) Tantalum Capacitors



RoHS Compliant

Features

- 50V type is available
- 2200µF/ 2.5V (V case) is available
- 25mΩESR type is available
  50 for TPS series

Applications

- Electronic Equipment in General
- CPU's
- Power Supply Circuit

How to Order

TAJ	B	107	M	010	Y	NJV	
①	②	③	④	⑤	⑥	⑧	
TPS	B	107	M	010	Y	0400	V
①	②	③	④	⑤	⑥	⑦	⑧
TPM	E	108	M	004	R	0018	
①	②	③	④	⑤	⑥	⑦	

① Series
② Case Size (See Table)
③ Capacitance (pF)
(Code: 2 Significant Digits and Number of Zeros)
④ Tolerance

K	±10%	**M**	±20%

⑤ Rated DC Voltage

ex.		**006**	6.3VDC
002	2.5VDC	**016**	16VDC

⑥ Packaging
TAJ/ TPS Series

Y	Plastic Tape (7" Reel)

TPM Series

R	Plastic Tape (7" Reel)

⑦ ESR

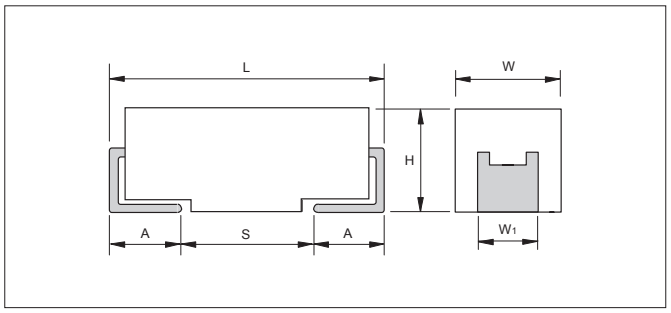
ex.	**0100**	100mΩ

⑧ Dry pack

NJV	TAJ Series
V	TPS Series

Case Dimensions

(Unit: mm)



Case size	L	W	H	W_1	A	S min.
A	3.2±0.2	1.6 $^{+0.2}_{-0.1}$	1.6 $^{+0.2}_{-0.1}$	1.2±0.2	0.8 $^{+0.3}_{-0.2}$	1.1
B	3.5±0.2	2.8 $^{+0.2}_{-0.1}$	1.9 $^{+0.2}_{-0.1}$	2.2±0.2	0.8 $^{+0.3}_{-0.2}$	1.4
C	6.0±0.2	3.2 $^{+0.2}_{-0.1}$	2.6 $^{+0.2}_{-0.1}$	2.2±0.2	1.3 $^{+0.3}_{-0.2}$	2.9
D	7.3±0.2	4.3 $^{+0.2}_{-0.1}$	2.9 $^{+0.2}_{-0.1}$	2.4±0.2	1.3 $^{+0.3}_{-0.2}$	4.4
E	7.3±0.2	4.3 $^{+0.2}_{-0.1}$	4.1 $^{+0.2}_{-0.1}$	2.4±0.2	1.3 $^{+0.3}_{-0.2}$	4.4
U	7.3±0.2	6.1 $^{+0.2}_{-0.1}$	4.1 $^{+0.2}_{-0.1}$	3.1±0.2	1.3 $^{+0.3}_{-0.2}$	4.4
V	7.3±0.2	6.1 $^{+0.2}_{-0.1}$	3.45±0.3	3.1±0.2	1.3 $^{+0.3}_{-0.2}$	4.4
F	6.0±0.2	3.2 $^{+0.2}_{-0.1}$	2.0 max.	2.2±0.2	1.3 $^{+0.3}_{-0.2}$	2.9
H	3.5±0.2	2.8 $^{+0.2}_{-0.1}$	1.5 max.	2.2±0.2	0.8 $^{+0.3}_{-0.2}$	1.4
K	3.2±0.2	1.6 $^{+0.2}_{-0.1}$	1.0 max.	1.2±0.2	0.8 $^{+0.3}_{-0.2}$	1.1
P	2.05±0.2	1.35 $^{+0.2}_{-0.1}$	1.5 max.	1.0±0.2	0.5 $^{+0.3}_{-0.2}$	0.85
R	2.05±0.2	1.3 $^{+0.2}_{-0.1}$	1.2 max.	1.0±0.2	0.5 $^{+0.3}_{-0.2}$	0.85
S	3.2±0.2	1.6 $^{+0.2}_{-0.1}$	1.2 max.	1.2±0.2	0.8 $^{+0.3}_{-0.2}$	1.1
T	3.5±0.2	2.8 $^{+0.2}_{-0.1}$	1.2 max.	2.2±0.2	0.8 $^{+0.3}_{-0.2}$	1.4
W	6.0±0.2	3.2 $^{+0.2}_{-0.1}$	1.5 max.	2.2±0.2	1.3 $^{+0.3}_{-0.2}$	2.9
X	7.3±0.2	4.3 $^{+0.2}_{-0.1}$	1.5 max.	2.4±0.2	1.3 $^{+0.3}_{-0.2}$	4.4
Y	7.3±0.2	4.3 $^{+0.2}_{-0.1}$	2.0 max.	2.4±0.2	1.3 $^{+0.3}_{-0.2}$	4.4

Specifications

Rated Voltage Code		002	004	006	010	016	020	025	035	050
Rated Voltage (V_R)	+ 85°C	2.5	4	6.3	10	16	20	25	35	50
Category Voltage (V_C)	+125°C	1.7	2.7	4	7	10	13	17	23	33
Surge Voltage (V_S)	+ 85°C	3.3	5.2	8	13	20	26	32	46	65
	+125°C	2.2	3.4	5	8	13	16	20	28	40
Operating Temperature Range		–55°C to +125°C								
Failure Rate		1%/ 1000H (85°C, Rated Voltage, 0.1Ω/ V), 60% confidence level								

Capacitance and Voltage Range

Capacitance		Capacitance Range (letter denotes case code)								
		Rated Voltage								
µF	CODE	2.5V	4V	6.3V	10V	16V	20V	25V	35V	50V
0.10	104								A	A
0.15	154								A	A/ B
0.22	224								A	A/ B
0.33	334								A	A/ B
0.47	474							A	A/ B	A/ B/ C
0.68	684							A	A/ B	A/ B/ C
1.0	105						A	A	A/ B	A/ B/ C
1.5	155						A	A/ B	A/ B/ C	B/ C/ D
2.2	225					A	A/ B	A/ B	A/ B/ C	B/ C/ D
3.3	335					A/ B	A/ B	A/ B	B/ C	C/ D
4.7	475				A	A/ B	A/ B	A/ B	B/ C/ D	C/ D
6.8	685				A	A/ B	A/ B/ C	B/ C	C/ D	C/ D
10	106			A	A	A/ B/ C	B/ C	B/ C/ D	C/ D/ E	D/ E/ V
15	156			A	A/ B	A/ B/ C	B/ C	C/ D	C/ D	D/ E/ V
22	226			A	A/ B	B/ C/ D	B/ C/ D	C/ D	D/ E	V
33	336	A	A	A	A/ B/ C	B/ C/ D	C/ D	D/ E	D/ E/ V	
47	476	A	A	A/ B/ C	B/ C	C/ D	C/ D/ E	D/ E	E/ V	
68	686	A	A/ B	B/ C	B/ C	C/ D	C/ D/ E	E/ V	V	
100	107	A/ B	A/ B	B/ C	B/ C/ D	C/ D/ E	D/ E/ V	E/ V		
150	157	B	B/ C	B/ C/ D	C/ D/ E	D/ E/ V	E/ V	V		
220	227	B/ D	B/ C/ D	C/ D/ E	C/ D/ E	E/ V				
330	337	D	C/ D	C/ D/ E	D/ E/ V	E				
470	477	C/ D	C/ D/ E	D/ E/ V	E/ U/ V					
680	687	C/ D/ E	D/ E	E/ V						
1000	108	D/ E	D/ E/ V	E/ V						
1500	158	D/ E/ V	E/ V							
2200	228	V								

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher voltage ratings in the same case size, to the same reliability standards.
Only M tolerance available for underlined parts.

Capacitance and Voltage Range (Low Profile)

Capacitance		Capacitance Range (letter denotes case code)								
		Rated Voltage								
µF	CODE	2.5V	4V	6.3V	10V	16V	20V	25V	35V	50V
0.10	104						R/ S		R/ S	S
0.15	154						R/ S	R	R/ S	S
0.22	224						R/ S	R	R/ S	P/ R/ S
0.33	334						R/ S	R	R/ S	P/ R/ S/ T
0.47	474						R/ S	R/ S	R/ S/ T	S/ T
0.68	684					R/ S	R/ S/ T	R/ S	P/ S/ T	
1.0	105				R/ S	R/ S/ T	R/ S/ T	P/ R/ S	P/ S/ T	W
1.5	155			R/ S	R/ S	R/ S	P/ R/ S/ T	P/ S/ T	T	W
2.2	225		R/ S	R/ S	R/ S	R/ S/ T	P/ R/ S/ T	T	T	
3.3	335		R/ S	R/ S	R/ S/ T	R/ S/ T	T	T/ W	W	Y
4.7	475	R	R/ S	R/ S/ T	R/ S/ T	K/ P/ S/ T	T	T/ W	W	Y
6.8	685	R	R/ S/ T	R/ S/ T	P/ R/ S/ T	S/ T	T	W	Y	Y
10	106	R/ S	R/ S/ T	P/ R/ S/ T	K/ P/ R/ S/ T	T/ W	W	W	X/ Y	
15	156	R	R/ S/ T	K/ P/ R/ S/ T	S/ T/ W	T/ W	W	Y	Y	
22	226	P/ R	K/ P/ R/ S/ T	K/ P/ S/ T/ W	T/ W	W	W/ Y	Y	Y	
33	336	K/ P/ S	K/ P/ S/ T/ W	T/ W	W	W/ Y	X/ Y	Y		
47	476	P/ S	T/ W	T/ W	H/ W/ Y	W/ X/ Y	X/ Y	Y		
68	686	T	T/ W	W	W/ Y	F/ X/ Y	Y			
100	107	T/ W	T/ W	W/ Y	W/ X/ Y	F/ Y				
150	157	T/ W	W/ Y	W/ X/ Y	F/ X/ Y	Y				
220	227	W/ Y	W/ X/ Y	F/ X/ Y	Y					
330	337	W/ Y	F/ X/ Y	Y						
470	477	F/ Y	Y	Y						
680	687	Y	Y							
1000	108	Y								

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher voltage ratings in the same case size, to the same reliability standards.
Only M tolerance available for underlined parts.

Capacitance and Voltage Range (ESR)

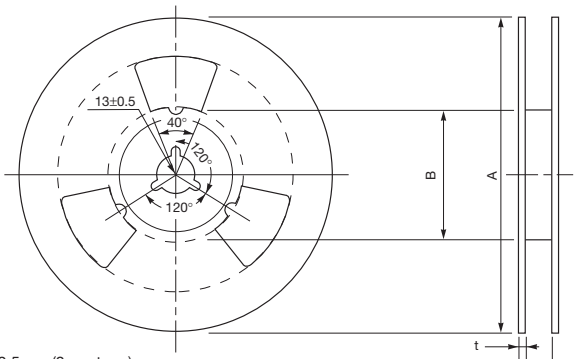
Capacitance		Capacitance Range (letter denotes case code.ESR in parentheses.)								
		Rated Voltage								
µF	CODE	2.5V	4V	6.3V	10V	16V	20V	25V	35V	50V
0.15	154									A (9000)
0.22	224								A (6000)	A (7000)
0.33	334								A (6000)	A (7000)
0.47	474							A (7000)	A (6000) B (4000)	A (6500) B (6000) C (2300)
0.68	684							A (6000)	A (6000)	B (4000)
1.0	105				R (9000)		A (3000) R (6000) S (6000) T (2000)	A (4000) R (2500, 4000)	A (3000) B (2000)	B (3000) C (2500)
1.5	155						A (3000)	A (3000)/ B (1800)	A (3000)/ B (2500)	C (1500, 2000)
2.2	225			R (7000)	A (1800)	A (1800, 3500) T (2000)	A (3000) B (1700)	A (2500) B (900, 1200, 2500)	A (1500) B (750, 1500, 2000) C (1000)	C (1500) D (1200)
3.3	335				T (1500)	A (3500) B (2500)	A (2500) B (1300)	A (1000, 1500) B (750, 1500, 2000)	B (1000) C (700)	C (1000) D (800)
4.7	475			S (4000)	A (1400) R (3000, 5000)	A (2000) B (800, 1500)	A (1800) B (750, 1000)	B (700, 900, 1500) C (700)	B (700, 1500) C (600)/ D (700)	C (800) D (300, 500, 700)
6.8	685			A (1800)	A (1800) T (1800)	A (1500) B (600, 1200)	A (1000) B (600, 1000) C (700)	B (700) C (500, 600, 700)	C (350) D (150, 400, 500)	D (200, 300, 500, 600)
10	106		R (3000)	A (1500) R (1000, 1500, 3000) T (1000)	A (900, 1800) B (1000) P (2000) S (900) T (1000, 2000)	A (1000) B (500, 800) C (500) T (800, 1000) W (500, 600)	B (500, 1000) C (500, 700) W (250, 500)	B (1800) C (300, 500) D (500)	C (600) D (125, 300) E (200) Y (250)	D (500) E (250, 300, 400, 500) D (140) E (120)
15	156			A (700, 1500)	A (1000) B (450, 600) T (1200)	B (500, 800) C (700)	B (500) C (400, 450)	C (220, 300) D (100, 300)	C (350, 450) D (100, 300) Y (250)	E (250)/ V (250) E (75, 100)
22	226			A (500, 900) B (375, 600) S (900)	A (900) B (400, 500, 700) C (300)/ T (800)	B (400, 600) C (150, 250, 300, 375) W (500)	B (400, 600) C (100, 150, 400) D (200, 300)	C (275, 400) D (100, 200, 300)	D (125, 200, 300, 400) E (125, 200, 300) Y (200) D (70) E (60, 100)	E (75, 100)
33	336			A (600) B (250, 350, 450, 600) T (800)	A (700) B (250, 425, 500, 650) C (150, 375, 500) W (350)	B (350, 500) C (100, 150, 225, 300) D (200) W (140, 175, 250, 400, 500) Y (300, 400)	C (300) D (100, 200)	D (100, 200, 300) E (100, 175, 200, 300) Y (200) D (65)	D (200, 300) E (100, 250, 300) V (200) E (50, 65)	
47	476		A (500)	A (800) B (250, 350, 500) C (300) T (1200)	B (250, 350, 500, 650) C (200, 350) D (100) W (125, 150, 250)	C (110, 350) D (80, 100, 150, 200) W (200) X (180) Y (250)	D (75, 100, 200) E (70, 125, 150, 200, 250) D (45, 55)	D (125, 150, 250) E (80, 100, 125) D (55)/ E (65)	E (200, 250) V (150, 200) E (55, 65)	
68	686			B (250, 350, 500) C (150, 200) W (110, 125, 250)	B (600) C (80, 100, 200, 300) D (100, 150) W (100, 150) Y (100, 200)	C (125, 200) D (70, 100, 150) F (200) X (150) Y (150, 200, 250) D (40, 50)	D (70, 150, 200, 300) E (125, 150, 200)	E (125, 200) V (80, 95, 150, 200) E (45, 55)	V (150, 200)	
100	107	B (200)	B (200, 250, 350, 500) W (100)	B (250, 400) C (75, 150) D (300) W (100, 150) Y (100)	B (400) C (75, 100, 150, 200) D (50, 65, 80, 100, 125, 150) E (125)/ W (150) X (85, 150, 200) Y (100, 150, 200) Y (45)	C (200) D (60, 100, 125, 150) E (55, 100, 125, 150) F (150, 200) Y (100, 150, 200) D (40, 50)	D (85, 100, 150) E (100, 150, 200) V (60, 85, 100, 200) E (35, 45)	E (150) V (100)		
150	157	B (150)	B (250) C (70, 80)	C (50, 90, 150, 200, 250) D (50, 125) Y (40, 50)	C (150) D (50, 85, 100) E (100)/ F (200) X (100) Y (100, 150, 200) Y (45)	D (60, 85, 100, 125, 150) E (100) V (45, 75) Y (200) E (30, 40)	V (80) E (35)	V (150)		
220	227	B (150, 200, 600) D (45)	D (40, 50, 100) Y (40, 50, 75)	C (70, 100, 125, 250) D (50, 100, 125) E (100) F (200) Y (100, 150) Y (30)	D (40, 50, 100, 150) E (50, 60, 70, 100, 125, 150) Y (100, 150, 200) D (35)	E (100, 150) V (50, 75, 100, 150) E (25, 40)				
330	337	Y (40)	C (100) D (35, 45, 100) F (200) X (100) D (25, 35)	C (80, 100) D (45, 50, 70, 100) E (50, 100, 125, 150) V (100) Y (100, 150) D (25, 35)	D (50, 65, 100, 150) E (40, 50, 60, 100) V (40, 60, 100) D (35) E (23, 35)	E (200)				
470	477	D (35) F (200) Y (100)	D (45, 100) E (35, 45, 100) D (25, 35)	D (45, 60, 100, 200) E (45, 50, 60, 100, 200) V (40, 55, 100) Y (150) D (30) E (18, 23, 30)	E (45, 50, 60, 100, 200) V (40, 60, 100) E (23, 30)					
680	687	D (35, 50) E (35, 50) Y (100)	D (45, 60, 100) E (40, 60, 100) D (25) E (18, 23)	E (45, 60, 100) V (35, 40, 50) E (18, 23)/ V (23)						
1000	108	E (30, 40) Y (100) D (25)	E (40, 60) V (25, 35, 40, 50) D (25, 45) E (18, 23)/ V (18)	E (100) V (40, 50) E (25)/ V (20)						
1500	158	D (100) E (50) V (30, 40) E (12, 15, 18)	E (50, 75) V (50, 75) E (15, 18)							
2200	228	E (18)								

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher voltage ratings in the same case size, to the same reliability standards.
Shaded portion indicates TPM series products.
Only M tolerance available for underlined parts.

Packaging

Tape and reel packaging for automatic component placement.
Please enter required suffix code, R or S on order.

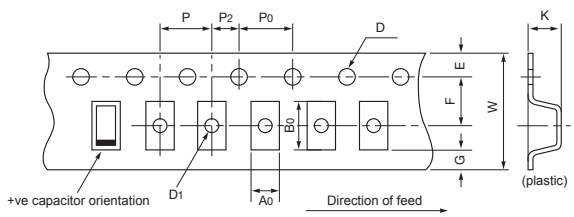
• Reel (Unit: mm)



A : 9.5mm (8mm tape)
13.0mm (12mm tape)
Cover TapeThickness : 75±25µm
Cover Tape Width : 5.5±0.2mm (8mm tape)
9.5±0.2mm (12mm tape)

Reel Size	Tape width (mm)	A	B	C	W	t
180mm (7")	12	180±2.00	50 min.	13.0±0.50	12.4+1.5/ −0	2.0±0.50
180mm (7")	8	180±2.00	50 min.	13.0±0.50	8.4+1.5/ −0	2.0±0.50

• Carrier Tape



Tape dimensions comply to EIA 481 A.
Dimensions Ao and Bo of the pocket and the tape thickness, K, are dependent on the components size.
Tape material do not affect component solderability during storage.
Carrier tape thickness < 0.4mm
For 16mm tape and 24mm tape, please contact factory.

(Unit: mm)

Code	8mm tape	12mm tape
P	4±0.1	8±0.1
G	0.75 min.	0.75 min.
F	3.5±0.05	5.5±0.05
E	1.75±0.1	1.75±0.1
W	8±0.3	12±0.3
P_2	2±0.05	2±0.05
P_0	4±0.1	4±0.1
D	1.5 $^{+0.2}_{-0.0}$	1.5 $^{+0.2}_{-0.0}$
D_1	1.0 min.	1.5 min.

• Taping

Series	Case Size	Tape Width (mm)	P (mm)	7" Reel (pcs.)
TAJ	A	8	4	2000
TPS	B	8	4	2000
TPM	C	12	8	500
TCJ	D	12	8	500
TLJ	E	12	8	400
TRJ	U	16	8	400
THJ	V	12	8	400
TRM	F	12	8	1000
TLN	G	8	4	2500
TCN	H	8	4	2500
TCM	K	8	4	3000
NOJ	L	8	4	2500
NOS	M	8	4	3000
NOM	N	8	4	3000
NLJ	P	8	4	2500
	R	8	4	2500
	S	8	4	2500
	T	8	4	2500
	W	12	8	1000
	X	12	8	1000
	Y	12	8	1000
	4	16	8	800
	6	24	12	500

• Carrier Tape (Unit: mm)

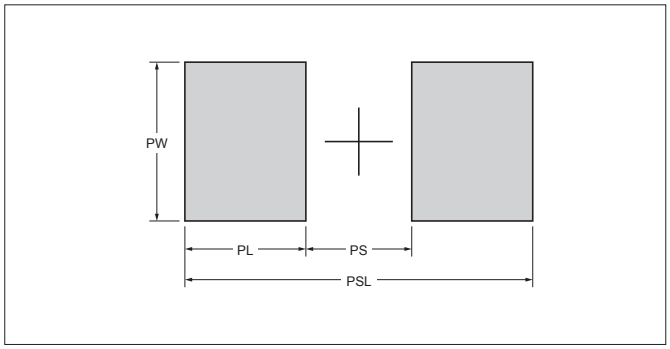
Series	Case Size	A0	B0	K
TAJ	A	1.83±0.1	3.57±0.1	1.87±0.1
TPS	B	3.15±0.1	3.77±0.1	2.22±0.1
TPM	C	3.45±0.1	6.4±0.1	2.92±0.1
TCJ	D	4.48±0.1	7.62±0.1	3.22±0.1
TLJ	E	4.5±0.1	7.5±0.1	4.5±0.1
TRJ	U	6.19±0.1	7.66±0.1	4.72±0.1
THJ	V	6.43±0.1	7.44±0.1	3.84±0.1
TRM	F	3.35±0.1	6.4±0.1	2.2±0.1
TLN	G	1.83±0.1	3.57±0.1	1.65±0.1
TCN	H	3.15±0.1	3.77±0.1	1.66±0.1
TCM	K	1.95±0.1	3.55±0.1	1.15±0.1
NOJ	L	3.10±0.1	3.80±0.1	1.30±0.1
NOS	M	1.60±0.1	2.35±0.1	1.10±0.1
NOM	N	1.60±0.1	2.30±0.1	1.10±0.1
NLJ	P	1.65±0.1	2.45±0.1	1.6±0.1
	R	1.65±0.1	2.45±0.1	1.3±0.1
	S	1.95±0.1	3.55±0.1	1.3±0.1
	T	3.2±0.1	3.8±0.1	1.3±0.1
	W	3.57±0.1	6.4±0.1	1.65±0.1
	X	4.67±0.1	7.62±0.1	1.65±0.1
	Y	4.67±0.1	7.62±0.1	2.15±0.1
	4	6.25±0.1	7.88±0.1	2.25±0.1
	6	8.55±0.1	15.60±0.1	2.25±0.1

• Moisture Sensitive Level (MSL)

Series	MSL
TAJ TPS THJ TRJ	1 (Some of them are MSL=3)
NOJ	• For D, E, V, X and Y case sizes : 3 • For the other than the above : 1 (MSL = 3 only for Low ESR)
NOS	• For D, E, V, X and Y case sizes : 3 • For the other than the above : 1

Series	MSL
TPM TCJ TLJ TRM TLN TCN TCM NOM NLJ	3

Recommended Land Pattern

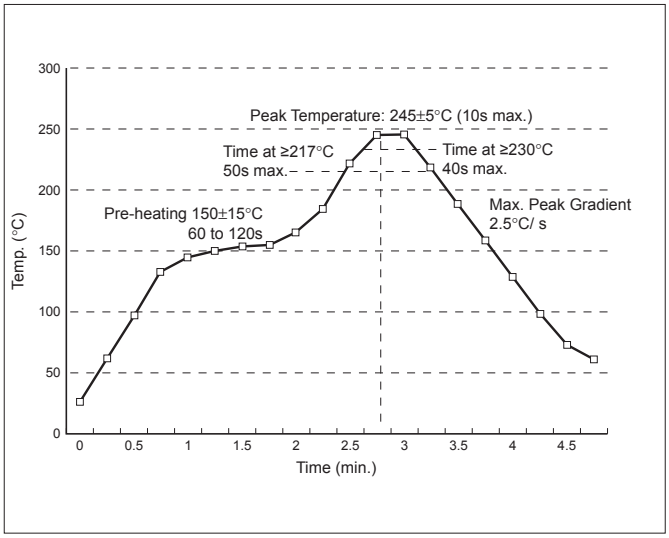


(Unit: mm)

Series	Case Size	PSL	PL	PS	PW
TAJ TPS TPM TCJ TLJ TRJ THJ TRM TCM NOJ NOS NOM NLJ	A	4.00	1.40	1.20	1.80
	B	4.00	1.40	1.20	2.80
	C	6.50	2.00	2.50	2.80
	D	8.00	2.00	4.00	3.00
	E	8.00	2.00	4.00	3.00
	U	8.00	2.00	4.00	3.70
	V	8.00	2.00	4.00	3.70
	F	6.50	2.00	2.50	2.80
	G	4.00	1.40	1.20	1.80
	H	4.00	1.40	1.20	2.80
	K	4.00	1.40	1.20	1.80
	N	2.70	0.95	0.80	1.60
	P	2.70	0.95	0.80	1.60
	R	2.70	0.95	0.80	1.60
	S	4.00	1.40	1.20	1.80
	T	4.00	1.40	1.20	2.80
	W	6.50	2.00	2.50	2.80
	X	8.00	2.00	4.00	3.00
	Y	8.00	2.00	4.00	3.00
TLN TCN	K	4.00	1.40	1.20	1.80
	L	3.50	1.15	1.20	2.40
	M	2.30	0.90	0.50	1.10
	N	2.00	0.70	0.60	1.10
	S	3.50	1.15	1.20	1.20
	T	3.50	1.15	1.20	2.40
	4	7.40	2.20	3.00	4.80
	6	15.20	3.00	9.20	5.50

Recommended Reflow Profile for Lead–Free Product

Allowable range of peak temp./ time combination for IR reflow



Please contact us for Lead–Free Products.

Manual Soldering Using Soldering Iron

Item	Condition
Max. Tip Temperature	370°C max.
Max. Exposure Time	3 sec. max.

Technical Summary

1. Voltage Derating
   We can offer to use AVX software “Select–a–Cap” to select a part number for safety use.
2. Surge Current
   As a general rule of thumb, the maximum current a tantalum capacitor can withstand is given by the following equation.
   Imax = Vrated/ (0.45 + Catalog ESR)
   So for example for TAJD226M035 (Catalog ESR = 0.9 Ohms)
   This would be :
   Imax = 35/ (0.45 + 0.9) ≒ 25.9A
3. If more aggressive mounting techniques are to be used, please contact AVX Tantalum for guidance.
4. Reverse Voltage
   The values quoted are not intended to cover continuous reverse operation.
   The peak reverse voltage applied to the capacitor must not exceed.
   a) 10% of rated DC voltage to a maximum of 1V at 25°C.
   b) 3% of rated DC voltage to a maximum of 0.5V at 85°C.
   c) 1% of rated DC voltage to a maximum of 0.1V at 105°C.
   d) 1% of category DC voltage to a maximum of 0.1V at 125°C.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

AVX:

TAJA225K010YNJ TAJB475K016YNJ TAJB476K010YNJ TAJA104M035YNJ TAJA105K020YNJ TAJA105M035YNJ TAJA156M006YNJ TAJA156M010YNJ TAJA226K006YNJ TAJA474K025YNJ TAJA475K010YNJ TAJA476K004Y TAJA476K004YNJ TAJB105K035YNJ TAJB105K050YNJ TAJB105M035YNJ TAJB105M050YNJ TAJB106K016YNJ TAJB106M016YNJ TAJB226K016YNJ TAJB226M006YNJ TAJB335M035YNJ TAJB475M010YNJ TAJB476K006Y TAJC226M025Y TAJC475M020Y TAJD106M050YNJ TAJD107K016YNJ TAJD107K020YNJ TAJD156K025YNJ TAJD156M035YNJ TAJD475M035YNJ TAJD476M016YNJ TAJE227K010YNJ TAJE476K025YNJ TAJE687M006Y TAJT106K016YNJ TAJT106M010YNJ TAJV107M025YNJ TAJW107K006Y TAJY107K016Y TAJA334K035YNJ TAJA334M035Y TAJB105K035RY TAJB156M020Y TAJB226M010YNJ TAJB685K016Y TAJB685K016YNJ TAJD336M010Y TAJD476K010YNJ TAJE107K016YNJ TAJE107M016YNJ TAJE477M010YNJ TAJE686K025Y TAJS105M020Y TAJD156K025RY TAJD475K050RY TAJB335K016RY TAJA105K016HY TAJB106K016RY TAJB154K050RY TAJB475K020RY TAJA475M010YNJ TAJA104K035YNJ TAJA105K016YNJ TAJA106K006YNJ TAJA106K010YNJ TAJA106K016YNJ TAJA106M010YNJ TAJA155K035YNJ TAJA224M035YNJ TAJA225K016Y TAJA226K004YNJ TAJA226M004YNJ TAJA335M016YNJ TAJA474M025Y TAJA475K020Y TAJA475K020YNJ TAJA685K010Y TAJB106K010YNJ TAJB106K020YNJ TAJB156M016RBY TAJB226K006YNJ TAJB226K010YNJ TAJB336K006YNJ TAJB336M016Y TAJB475K025Y TAJB475K035Y TAJB475M020YNJ TAJB685M016YNJ TAJB685M025Y TAJB686K006YNJ TAJB686M006Y TAJC106M010Y TAJC106M035Y TAJC155M035Y TAJC476K006Y TAJC476M006Y TAJC685M016Y TAJD226K020Y