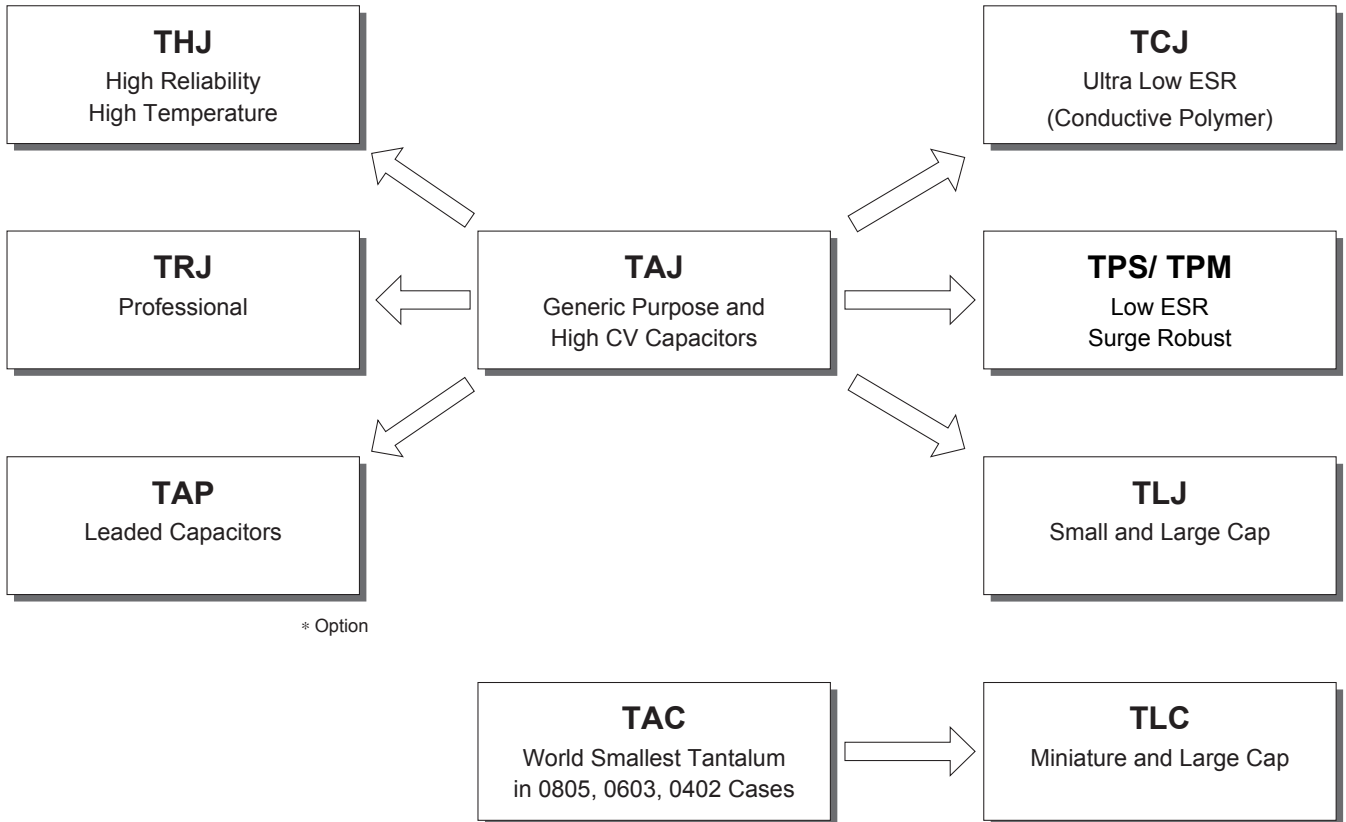
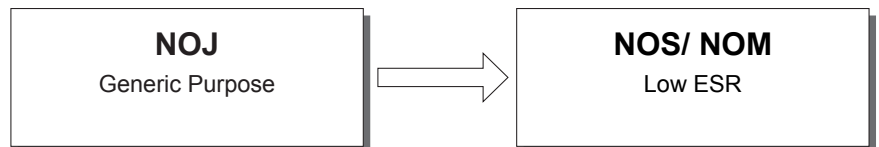


AVX, the world's leading manufacturer of Tantalum capacitors, has now released the world first Niobium Oxide Capacitors. AVX Niobium Oxide Capacitors are drawing worldwide attention because of their non-burn technology and availability and stability of raw materials supply. AVX is committed to total customer satisfaction by delivering products of the highest quality, providing strong technical support, and at competitive prices. With one of the fullest lineups in the capacitor business, AVX can satisfy a broad range of customer needs in a myriad of applications.

Tantalum Series Guide



Niobium Oxide Series Guide



THJ Series (175°C Guaranteed)/ TRJ Series (125°C Guaranteed) Tantalum Capacitors Automotive Products



Ph Free

RoHS Compliant

Features

<THJ Series>

- Operational temperature is up to +175°C with derating voltage
- High reliability 0.5%/ 1000H

<TRJ Series>

- Operational temperature is up to +125°C with derating voltage
- High reliability 0.5%/ 1000H

Applications

- Automotive Equipments

How to Order

THJ C 106 M 025 Y
① ② ③ ④ ⑤ ⑥

TRJ C 106 M 025 R
① ② ③ ④ ⑤ ⑥

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

K*	±10%	M	±20%
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*Optional

- Rated DC Voltage

ex.		025	25VDC
006	6.3VDC	050	50VDC

- Packaging

THJ Series

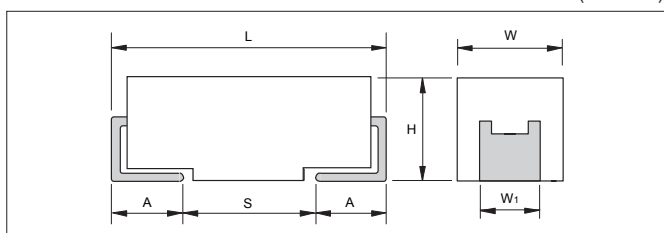
Y	Plastic Tape (7" Reel)
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TRJ Series

R	Plastic Tape (7" Reel)
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Case Dimensions

(Unit: mm)



Code	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

Specifications <THJ Series>

Rated Voltage (V_R) ≤+ 85°C	6.3	10	16	20	25	35	50
Category Voltage (V_C) ≤+125°C	4	7	10	13	17	23	33
Category Voltage (V_C) ≤+175°C	3	5	8	10	12	17	25
Surge Voltage (V_S) ≤+ 85°C	8	13	20	26	32	46	65
Surge Voltage (V_S) ≤+125°C	5	8	13	16	20	28	40
Surge Voltage (V_S) ≤+175°C	4	6	10	12	15	21	30
Operating Temperature Range	-55°C to +175°C						
Failure Rate	0.5%/ 1000H (85°C, Rated Voltage, 0.1Ω/ V)						

Specifications <TRJ Series>

Rated Voltage (V_R) ≤+ 85°C	6.3	10	16	20	25	35	50
Category Voltage (V_C) ≤+125°C	4	7	10	13	17	23	33
Surge Voltage (V_S) ≤+ 85°C	8	13	20	26	32	46	65
Surge Voltage (V_S) ≤+125°C	5	8	13	16	20	28	40
Operating Temperature Range	-55°C to +125°C						
Failure Rate	0.5%/ 1000H (85°C, Rated Voltage, 0.1Ω/ V)						

Capacitance and Voltage Range <THJ Series>

Capacitance μF	CODE	Capacitance Range (letter denotes case code) Rated Voltage					
		6.3V	10V	16V	20V	25V	35V 50V
0.10	104						A
0.15	154						A
0.22	224						A
0.33	334						A
0.47	474					A	B
0.68	684					A	B
1.0	105			A		A	A/B
1.5	155			A		A	C
2.2	225			A		B	C
3.3	335			A	B		C
4.7	475	A	A	A/B			C
6.8	685	A	A	A/B			D
10	106	A	B	B		C	D
15	156	B	B	B	C		D
22	226	B	B	C		D	D
33	336	B	C	C	D		E
47	476	C	C	D			
68	686	C	D	D			
100	107	D	D				
150	157	D					

Capacitance and Voltage Range <TRJ Series>

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

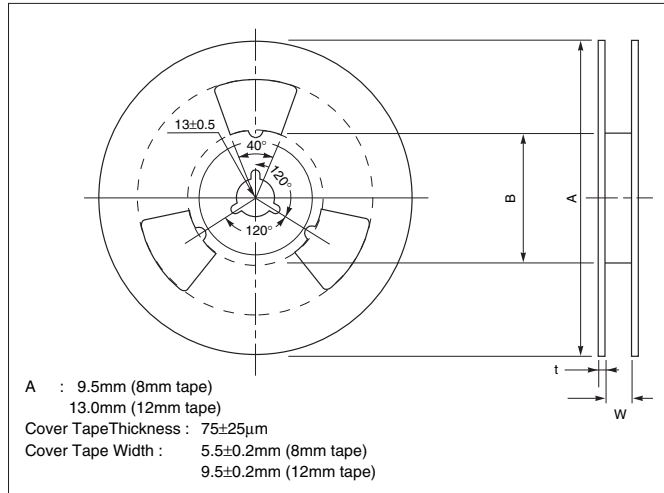
Note: Voltage ratings are minimum values. AVX reserves the right to supply higher voltage ratings in the same case size, to the same reliability standards.

Packaging

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

• Reel

(Unit: mm)

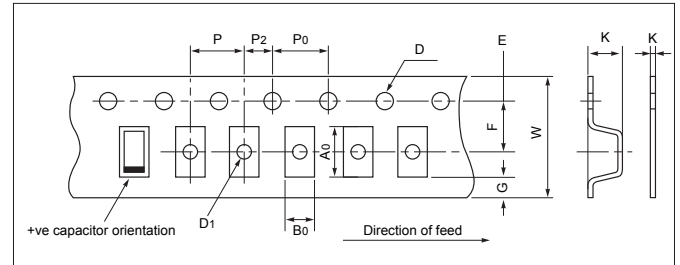


Reel Size	Tape width (mm)	A	B	C	W	t
180mm (7")	12	178±2.00	50 min.	13.0±0.50	12.4+1.5/-0	1.50±0.50
180mm (7")	8	178±2.00	50 min.	13.0±0.50	8.4+1.5/-0	1.50±0.50

• 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	500
	TCJ	D	12	8	500
	TLJ	E	12	8	400
	TRJ	F	12	8	1000
	THJ	G	8	4	2500
	NOJ	H	8	4	2500
	NOS	J	8	4	4000
	NOM	K	8	4	3000
		P	8	4	2500
		R	8	4	2500
		S	8	4	2500
		T	8	4	2500
		V	12	8	400
		W	12	8	1000
	X	12	8	1000	
	Y	12	8	1000	
TAC	K	8	2	10000	
	TLC	L	8	4	3500
		R	8	4	2500
	H	8	4	3500	
	U	8	4	3500	
	T	8	4	2500	

• Carrier Tape



Tape dimensions comply to EIA 481 A.

Dimensions A0 and B0 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.

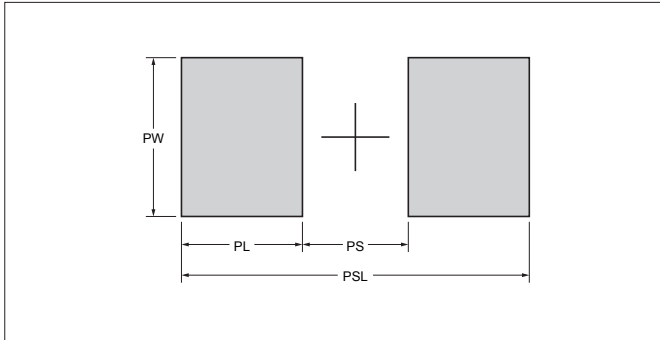
(Unit: mm)

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.

• Carrier Tape

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
	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	F	3.35±0.1	6.4±0.1	2.2±0.1
	THJ	G	1.83±0.1	3.57±0.1	1.65±0.1
	NOJ	H	3.15±0.1	3.77±0.1	1.66±0.1
	NOS	J	1±0.05	1.8±0.05	1±0.05
	NOM	K	1.95±0.1	3.55±0.1	1.15±0.1
		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
		V	6.43±0.1	7.44±0.1	3.84±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	
TAC	K	0.75 ^{+0.1} _{-0.05}	1.35±0.05	0.75±0.05	
	TLC	L	1.025 ^{+0.025} _{-0.0}	1.95±0.05	1.1±0.05
		R	1.7 ^{+0.05} _{-0.0}	2.45±0.05	1.7±0.05
	H	1.7 ^{+0.05} _{-0.0}	2.45±0.05	1.1±0.05	
	U	1.7 ^{+0.05} _{-0.0}	2.45±0.05	0.8±0.05	
	T	1.83 ^{+0.1} _{-0.0}	3.57±0.1	1.87±0.1	

Recommended Land Pattern

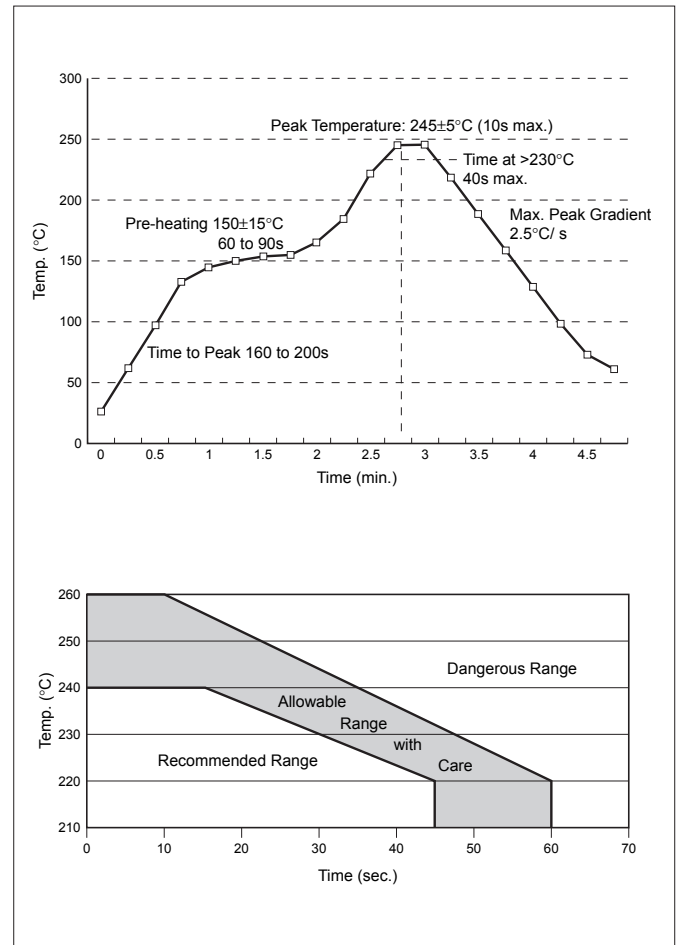


(Unit: mm)

Case size	PSL	PL	PS	PW	
TAJ TPS TPM TCJ TLJ TRJ THJ NOJ NOS NOM	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
	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
	J	2.80	1.10	0.60	1.00
	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
	V	8.00	2.00	4.00	3.70
	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
Z	8.00	2.00	4.00	3.00	
TAC TLC	K	2.20	0.90	0.40	0.70
	L	2.80	1.10	0.60	1.00
	R/ H/ U	3.20	1.30	0.60	1.50
	A	4.40	1.60	1.20	1.80
	T	4.70	1.70	1.30	3.00

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.

$$I_{max} = V_{rated} / (0.65 + \text{Catalog ESR})$$

So for example for D case/ 100uF/ 10V capacitor (Catalog ESR = 0.9 Ohms)

This would be :

$$I_{max} = 10 / (0.65 + 0.9) \approx 6.45 \text{Amps}$$

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.

- 10% of rated DC voltage to a maximum of 1V at 25°C.
- 3% of rated DC voltage to a maximum of 0.5V at 85°C.
- 1% of category DC voltage to a maximum of 0.1V at 125°C.