

THJ Series



High Temperature Tantalum Chip Capacitor



FEATURES

- Improved reliability – 2x standard
- 175°C @ 0.5V_R continuous operation
- CV range: 0.10-220μF / 6.3-50V
- 5 case sizes available
- Low ESR options on approval
- High temperature automotive and industry applications



LEAD-FREE
LEAD-FREE COMPATIBLE
COMPONENT

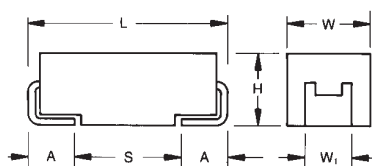


RoHS
COMPLIANT

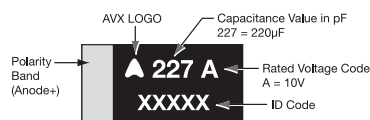
SnPb termination option is not
RoHS compliant.

APPLICATIONS

- Automotive ECU and ABS control electronics
- Geothermal instrumentation



MARKING A, B, C, D, E CASE



CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L±0.20 (0.008)	W±0.20 (0.008) -0.10 (0.004)	H±0.20 (0.008) -0.10 (0.004)	W ₁ ±0.20 (0.008)	A±0.30 (0.012) -0.20 (0.008)	S Min.
A	1206	3216-18	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	1210	3528-21	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	2312	6032-28	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	2917	7343-31	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	2917	7343-43	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)

W₁ dimension applies to the termination width for A dimensional area only.

HOW TO ORDER

THJ	B	105	*	035	R	JN	—
Type	Case Size See table above	Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	Tolerance K=±10% M=±20%	Rated DC Voltage 006=6.3Vdc 010=10Vdc 016=16Vdc 020=20Vdc 025=25Vdc 035=35Vdc 050=50Vdc	Packaging R = Pure Tin 7" Reel S = Pure Tin 13" Reel A = Gold Plating 7" Reel (Contact Manufacturer) B = Gold Plating 13" Reel (Contact Manufacturer) H = Tin Lead 7" Reel (Contact Manufacturer) K = Tin Lead 13" Reel (Contact Manufacturer) H, K = Non RoHS	Standard Suffix OR 0100 Low ESR in mΩ	Additional characters may be added for special requirements V = Dry pack Option

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C							
Capacitance Range:	0.10 μF to 220 μF							
Capacitance Tolerance:	±10%; ±20%							
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
Temperature Range:	-55°C to 175°C voltage derating.							
Reliability:	0.5% per 1000 hours at 85°C, V _R with 0.1Ω/V series impedance, 60% confidence level, 3.5 Fits at 40°C, 0.5V _R							
Termination Finish:	Sn Plating (standard), Gold and SnPb Plating upon request							
	Meets requirements of AEC-Q200							



High Temperature Tantalum Chip Capacitor

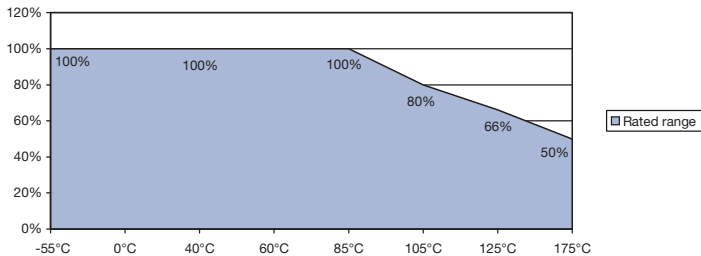
CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated voltage (V_R) to 85°C (Voltage Code)						
μF	Code	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
0.10 0.15 0.22	104 154 224						A A A	
0.33 0.47 0.68	334 474 684					A A	A B B	
1.0 1.5 2.2	105 155 225			A, A(1500)	A	A B, B(1500)	A/B C C	
3.3 4.7 6.8	335 475 685	A A A	A A A	A A/B A/B	B	C	C C D	D D D
10 15 22	106 156 226	A B B	A/B B B	B B C, C(500)	C	C D	D D D, D(300)	D/E
33 47 68	336 476 686	B C C	C C D	C C/D D	D	D	E, E(150)	
100 150 220	107 157 227	D D	D E	E				

Released ratings, (ESR ratings in mOHms in parentheses)

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.

THJ 175°C Voltage vs Temperature Rating



THJ Series



High Temperature Tantalum Chip Capacitor

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL Max. (μA)	DF Max. (%)	ESR Max. @ 100kHz (Ω)	100kHz RMS Current (mA)				MSL
										25°C	85°C	125°C	175°C	
6.3 Volt @ 85°C														
THJA475*006#JN	A	4.7	6.3	85	3	175	0.5	6	6	112	101	45	22	1
THJA685*006#JN	A	6.8	6.3	85	3	175	0.5	4.5	2.6	170	153	68	34	1
THJA106*006#JN	A	10	6.3	85	3	175	0.6	4.5	2.2	185	166	74	37	1
THJB156*006#JN	B	15	6.3	85	3	175	0.9	6	2.5	184	166	74	37	1
THJB226*006#JN	B	22	6.3	85	3	175	1.4	6	2.5	184	166	74	37	1
THJB336*006#JN	B	33	6.3	85	3	175	1.9	6	2.2	197	177	79	39	1
THJC476*006#JN	C	47	6.3	85	3	175	3.0	6	1.6	262	236	105	52	1
THJC686*006#JN	C	68	6.3	85	3	175	4.3	6	1.5	271	244	108	54	1
THJD107*006#JN	D	100	6.3	85	3	175	6	4.5	0.4	612	551	245	122	1 ¹⁾
THJD157*006#JN	D	150	6.3	85	3	175	9.5	6	0.9	408	367	163	82	1 ¹⁾
10 Volt @ 85°C														
THJA335*010#JN	A	3.3	10	85	5	175	0.5	6	5.5	117	105	47	23	1
THJA475*010#JN	A	4.7	10	85	5	175	0.5	4.5	2.9	161	145	64	32	1
THJA685*010#JN	A	6.8	10	85	5	175	0.7	4.5	2.6	170	153	68	34	1
THJA106*010#JN	A	10	10	85	5	175	1	6	2.7	167	150	67	33	1
THJB106*010#JN	B	10	10	85	5	175	1	4.5	1.8	217	196	87	43	1
THJB156*010#JN	B	15	10	85	5	175	1.5	4.5	1.5	238	214	95	48	1
THJB226*010#JN	B	22	10	85	5	175	2.2	6	2.4	188	169	75	38	1
THJC336*010#JN	C	33	10	85	5	175	3.3	6	1.6	262	236	105	52	1
THJC476*010#JN	C	47	10	85	5	175	4.7	4.5	0.5	469	422	188	94	1
THJD686*010#JN	D	68	10	85	5	175	6.8	4.5	0.4	612	551	245	122	1 ¹⁾
THJD107*010#JN	D	100	10	85	5	175	10	6	0.9	408	367	163	82	1 ¹⁾
THJE227*010#JN	E	220	10	85	5	175	22	10	0.5	574	517	230	115	1 ¹⁾
16 Volt @ 85°C														
THJA225*016#JN	A	2.2	16	85	8	175	0.5	4.5	3	158	142	63	32	1
THJA225*016#1500	A	2.2	16	85	8	175	0.5	4.5	1.5	224	201	89	45	1
THJA335*016#JN	A	3.3	16	85	8	175	0.5	6	5	122	110	49	24	1
THJA475*016#JN	A	4.7	16	85	8	175	0.8	4.5	2.9	161	145	64	32	1
THJB475*016#JN	B	4.7	16	85	8	175	0.8	6	3.5	156	140	62	31	1
THJA685*016#JN	A	6.8	16	85	8	175	1.1	6	3.5	146	132	59	29	1
THJB685*016#JN	B	6.8	16	85	8	175	1.1	6	2.5	184	166	74	37	1
THJB106*016#JN	B	10	16	85	8	175	1.6	4.5	2.8	174	157	70	35	1
THJB156*016#JN	B	15	16	85	8	175	2.4	6	2	206	186	82	41	1
THJC226*016#JN	C	22	16	85	8	175	3.5	6	1.6	262	236	105	52	1
THJC226*016#0500	C	22	16	85	8	175	3.5	4.5	0.5	469	422	188	94	1
THJC336*016#JN	C	33	16	85	8	175	5.3	6	1.5	271	244	108	54	1
THJC476*016#JN	C	47	16	85	8	175	7.5	6	0.9	371	334	148	74	1
THJD476*016#JN	D	47	16	85	8	175	7.5	6	0.9	408	367	163	82	1 ¹⁾
THJD686*016#JN	D	68	16	85	8	175	10.9	4.5	0.9	408	367	163	82	1 ¹⁾
THJE107*016#JN	E	100	16	85	8	175	16	8	0.4	642	578	257	128	1 ¹⁾
20 Volt @ 85°C														
THJA155*020#JN	A	1.5	20	85	10	175	0.5	6	6.5	107	97	43	21	1
THJB335*020#JN	B	3.3	20	85	10	175	0.7	6	3	168	151	67	34	1
THJC156*020#JN	C	15	20	85	10	175	3.0	6	1.7	254	229	102	51	1
THJD336*020#JN	D	33	20	85	10	175	6.6	6	0.9	408	367	163	82	1 ¹⁾
25 Volt @ 85°C														
THJA474*025#JN	A	0.47	25	85	12	175	0.5	4	14	73	66	29	15	1
THJA684*025#JN	A	0.68	25	85	12	175	0.5	4	10	87	78	35	17	1
THJA105*025#JN	A	1.0	25	85	12	175	0.5	3	5.2	120	108	48	24	1
THJB225*025#JN	B	2.2	25	85	12	175	0.6	6	4.5	137	124	55	27	1
THJB225*025#1500	B	2.2	25	85	12	175	0.6	6	1.5	238	214	95	48	1
THJC685*025#JN	C	6.8	25	85	12	175	1.7	6	2	235	211	94	47	1
THJC106*025#JN	C	10	25	85	12	175	2.5	6	1.8	247	222	99	49	1
THJD226*025#JN	D	22	25	85	12	175	5.5	6	0.9	408	367	163	82	1 ¹⁾
THJD336*025#JN	D	33	25	85	12	175	8.3	6	0.9	408	367	163	82	1 ¹⁾
35 Volt @ 85°C														
THJA104*035#JN	A	0.1	35	85	17	175	0.5	4	24	56	50	22	11	1
THJA154*035#JN	A	0.15	35	85	17	175	0.5	4	21	60	54	24	12	1
THJA224*035#JN	A	0.22	35	85	17	175	0.5	4	18	65	58	26	13	1
THJA334*035#JN	A	0.33	35	85	17	175	0.5	4	15	71	64	28	14	1
THJB474*035#JN	B	0.47	35	85	17	175	0.5	4	10	92	83	37	18	1
THJB684*035#JN	B	0.68	35	85	17	175	0.5	4	8	103	93	41	21	1
THJA105*035#JN	A	1.0	35	85	17	175	0.5	4	7.5	100	90	40	20	1
THJB105*035#JN	B	1.0	35	85	17	175	0.5	4	6.5	114	103	46	23	1
THJC155*035#JN	C	1.5	35	85	17	175	0.5	6	4.5	156	141	63	31	1
THJC225*035#JN	C	2.2	35	85	17	175	0.8	6	3.5	177	160	71	35	1
THJC335*035#JN	C	3.3	35	85	17	175	1.2	6	2.5	210	189	84	42	1
THJC475*035#JN	C	4.7	35	85	17	175	1.6	6	2.2	224	201	89	45	1
THJD685*035#JN	D	6.8	35	85	17	175	2.4	6	1.3	340	306	136	68	1 ¹⁾

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (μ F)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL Max. (μ A)	DF Max. (%)	ESR Max. @ 100kHz (Ω)	100kHz RMS Current (mA)				MSL
										25°C	85°C	125°C	175°C	
THJD106*035#JN	D	10	35	85	17	175	3.5	6	1	387	349	155	77	1 ¹⁾
THJD156*035#JN	D	15	35	85	17	175	5.3	6	0.9	408	367	163	82	1 ¹⁾
THJD226*035#JN	D	22	35	85	17	175	7.7	6	0.6	500	450	200	100	1 ¹⁾
THJD226*035#0300	D	22	35	85	17	175	7.7	6	0.3	707	636	283	141	1 ¹⁾
THJE336*035#JN	E	33	35	85	17	175	11.6	6	0.5	574	517	230	115	1 ¹⁾
THJE336*035#0150	E	33	35	85	17	175	11.6	6	0.15	1049	944	420	210	1 ¹⁾
50 Volt @ 85°C														
THJD335*050#JN	D	3.3	50	85	25	175	1.7	6	1.1	369	332	148	74	1 ¹⁾
THJD475*050#JN	D	4.7	50	85	25	175	2.4	6	0.9	463	417	185	93	1 ¹⁾
THJD685*050#JN	D	6.8	50	85	25	175	3.4	6	0.7	408	367	163	82	1 ¹⁾
THJD106*050#JN	D	10	50	85	25	175	5	6	0.7	463	417	185	93	1 ¹⁾
THJE106*050#JN	E	10	50	85	25	175	5	6	0.7	486	437	194	97	1 ¹⁾

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

All PNs also available with Dry pack option - MSL 3 (see How to order).

¹⁾ -Dry pack option (see How to order) is recommended for reduction of stress during soldering.

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

The EIA & CECC standards for low ESR Solid Tantalum Capacitors allow an ESR movement to 1.25 times catalogue limit post mounting.

For typical weight and composition see page 273.

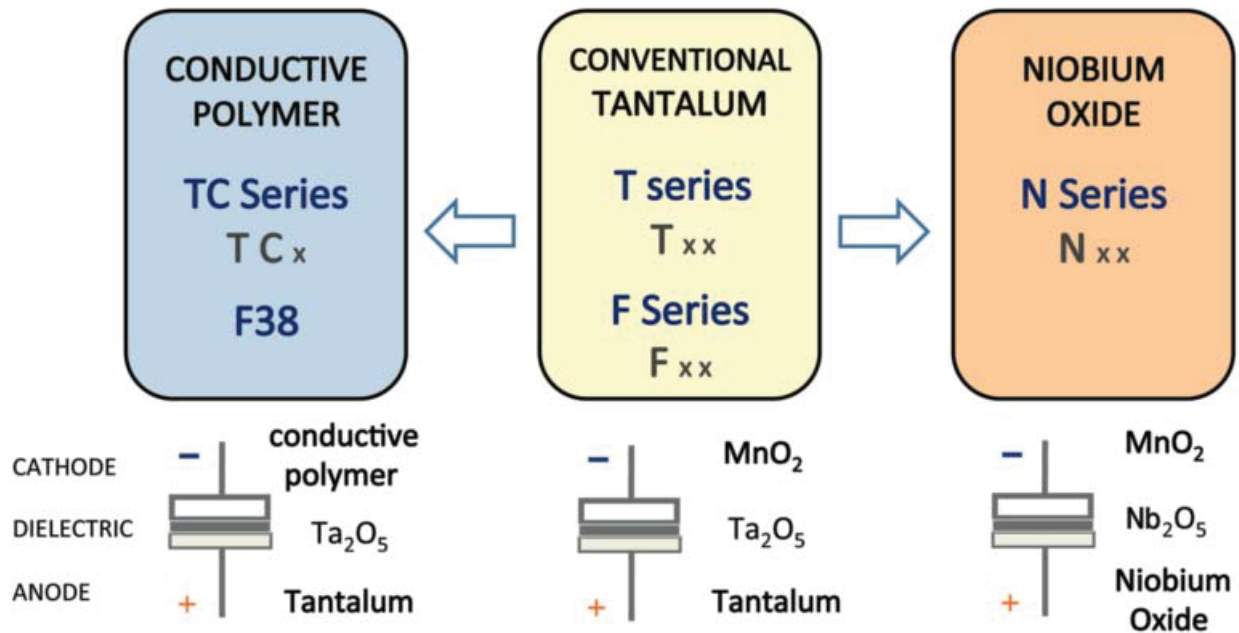
NOTE: AVX reserves the right to supply higher voltage ratings or tighter tolerance part in the same case size, to the same reliability standards.

QUALIFICATION TABLE

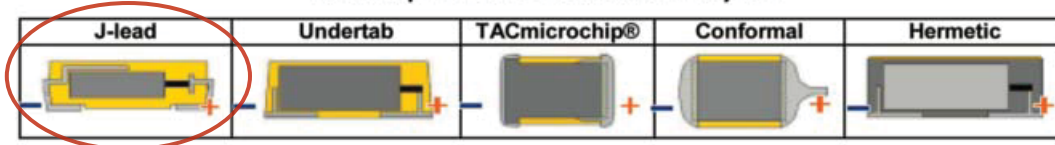
TEST	THJ series (Temperature range -55°C to +175°C)									
	Condition			Characteristics						
Endurance	Apply rated voltage (Ur) at 85°C and / or category voltage (Uc) at 175°C for 2000 hours through a circuit impedance of $\leq 0.1\Omega/V$. Stabilize at room temperature for 1-2 hours before measuring.			Visual examination	no visible damage					
				DCL	1.25 x initial limit					
				$\Delta C/C$	within $\pm 10\%$ of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					
Storage Life	Store at 175°C, no voltage applied, for 2000 hours. Stabilize at room temperature for 1-2 hours before measuring.			Visual examination	no visible damage					
				DCL	1.25 x initial limit					
				$\Delta C/C$	within $\pm 10\%$ of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					
Biased Humidity	Apply rated voltage (Ur) at 85°C, 85% relative humidity for 1000 hours. Stabilize at room temperature and humidity for 1-2 hours before measuring.			Visual examination	no visible damage					
				DCL	2 x initial limit					
				$\Delta C/C$	within $\pm 10\%$ of initial value					
				DF	1.2 x initial limit					
				ESR	1.25 x initial limit					
Temperature Stability	Step	Temperature°C	Duration(min)		+20°C	-55°C	+20°C	+125°C	+175°C	+20°C
	1	+20	15	DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
	2	-55	15	$\Delta C/C$	n/a	+0/-10%	$\pm 5\%$	+10/-0%	+18/-0%	$\pm 5\%$
	3	+20	15	DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	IL*
	4	+125	15							
	5	+175	15	ESR	1.25 x IL*	2.5 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*
Surge Voltage	Apply 1.3x category voltage (Uc) at 175°C for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000 Ω			Visual examination	no visible damage					
				DCL	initial limit					
				$\Delta C/C$	within $\pm 5\%$ of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					
Mechanical Shock	MIL-STD-202, Method 213, Condition F			Visual examination	no visible damage					
				DCL	initial limit					
				$\Delta C/C$	within $\pm 5\%$ of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					
Vibration	MIL-STD-202, Method 204, Condition D			Visual examination	no visible damage					
				DCL	initial limit					
				$\Delta C/C$	within $\pm 5\%$ of initial value					
				DF	initial limit					
				ESR	1.25 x initial limit					

*Initial Limit

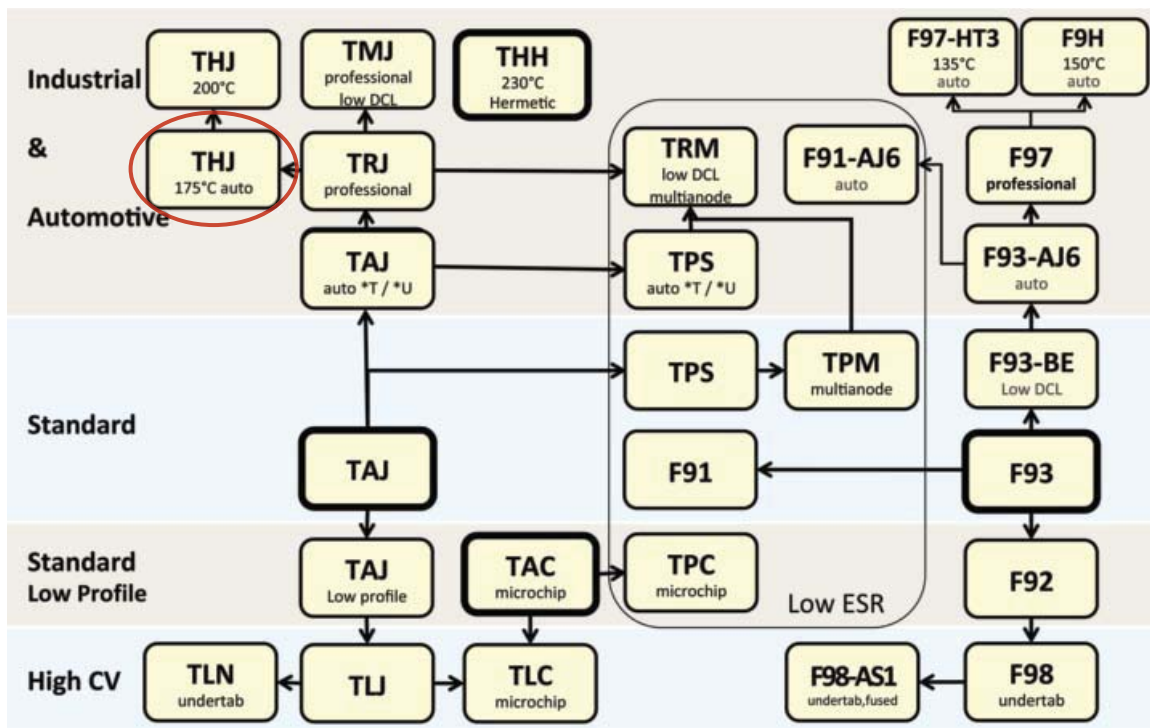
AVX SOLID ELECTROLYTIC CAPACITOR ROADMAP



Five Capacitor Construction Styles



SERIES LINE UP: CONVENTIONAL SMD MnO₂



Mouser Electronics

Authorized Distributor

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

AVX:

THJC336K010R	THJB106K016RJN	THJB156K006R	THJA104M035RJN	THJA155K020RJN	THJA224M035RJN
THJA225K016RJN	THJA225M016RJN	THJA334M035RJN	THJA335K016AJN	THJA475K006RJN	
THJA475M006RJN	THJA685K016RJN	THJA685M016RJN	THJB226K006RJN	THJB226M006RJN	
THJB335K020RJN	THJB335M020RJN	THJB336K006RJN	THJB336M006RJN	THJB475K016RJN	
THJB685K016RJN	THJB685M016RJN	THJC106K025RJN	THJC155M035RJN	THJC156K020RJN	
THJC226K016RJN	THJC226M016RJN	THJC336K016AJN	THJC336K016RJN	THJC336M016RJN	
THJC475M035RJN	THJC475M035SJN	THJC476K006RJN	THJD106K035RJN	THJD106M035RJN	
THJD107K010RJN	THJB105M035RJN	THJB474K035RJN	THJA475K016RJN	THJB156K016RJN	
THJA105K025RJN	THJA154K035RJN	THJB475K016BJN	THJC226K016SJN	THJC475K035HJN	
THJD226K035HJN	THJA106K006RJN	THJD157K006RJN	THJE336K035RJN	THJC335K035RJN	
THJC106M025RJN	THJD226M025RJN	THJD336M020RJN	THJD156K035RJN	THJD156M035RJN	
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THJD106M050RJN	THJE106M050RJN	THJE335K050RJN	THJE335M050RJN	THJE685K050RJN	
THJE685M050RJN	THJA105M025RJN	THJA105M035RJN	THJA106M006RJN	THJA154M035RJN	
THJA155M020RJN	THJA335K010RJN	THJA335M010RJN	THJA335M016RJN	THJA474M025RJN	
THJA475M010RJN	THJA475M016RJN	THJA684M025RJN			