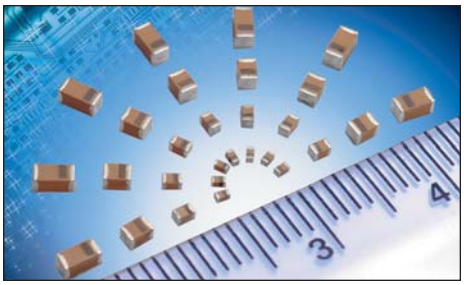
TLC Series

Tantalum Solid Electrolytic Chip Capacitors
Consumer Series

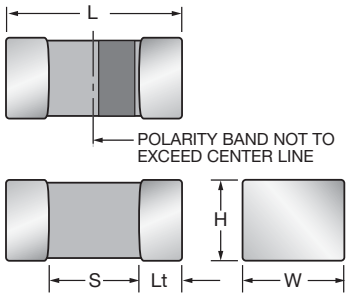


The consumer TLC series of TACmicrochip® tantalum capacitors offers high capacitance vs. voltage ratio based on stable MnO_2 electrode capacitors. The TLC series complies with RoHS requirements and it is an environmentally friendly component ready for lead-free assembly systems. The TLC series is suitable for wide range of consumer electronic applications such as the latest portable handheld electronics, cellular phones, PDAs or other digital equipment and cameras.

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

- Super High Volumetric Efficiency
- Environmentally Friendly Component
- Small & Low Profile Case Sizes
- Leadfree Assembly Systems
- Consumer Applications



CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	Length (L)	Width (W)	Height (H)	Termination Spacing(S)	Minimum Termination Length (Lt)	Average Mass
A	1206	3216-18	3.20 +0.20 -0.20 (0.126 +0.008 -0.008)	1.60 +0.20 -0.20 (0.063 +0.008 -0.008)	1.60 +0.20 -0.20 (0.063 +0.008 -0.008)	1.80 min (0.071 min)	0.15 (0.006)	44.6mg
C	1206	3216-10	3.20 +0.20 -0.20 (0.126 +0.008 -0.008)	1.60 +0.20 -0.20 (0.063 +0.008 -0.008)	1.00 max (0.039 max)	1.80 min (0.071 min)	0.15 (0.006)	TBA
H	0805	2012-10	2.00 +0.20 -0.00 (0.079 +0.008 -0.000)	1.35 +0.15 -0.00 (0.053 +0.006 -0.000)	1.00 max (0.039 max)	0.70 min (0.028 min)	0.15 (0.006)	17.1mg
J	0603	1608-08	1.60 +0.20 -0.00 (0.063 +0.008 -0.000)	0.85 +0.15 -0.00 (0.033 +0.006 -0.000)	0.75 max (0.030 max)	0.55 min (0.022 min)	0.15 (0.006)	5.8mg
K	0402	1005-07	1.00 +0.20 -0.00 (0.039 +0.008 -0.000)	0.50 +0.20 -0.00 (0.020 +0.008 -0.000)	0.50 +0.20 -0.00 (0.020 +0.008 -0.000)	0.40 min (0.016 min)	0.10 (0.004)	2.0mg
L	0603	1608-10	1.60 +0.20 -0.00 (0.063 +0.008 -0.000)	0.85 +0.15 -0.00 (0.033 +0.006 -0.000)	0.85 +0.15 -0.00 (0.033 +0.006 -0.000)	0.55 min (0.022 min)	0.15 (0.006)	8.6mg
M	0803	2008-10	2.00 +0.20 -0.00 (0.079 +0.008 -0.000)	0.85 +0.15 -0.00 (0.033 +0.006 -0.000)	0.85 +0.15 -0.00 (0.033 +0.006 -0.000)	0.70 min (0.028 min)	0.15 (0.006)	9.9mg
Q	0805	2012-12	2.00 +0.20 -0.00 (0.079 +0.008 -0.000)	1.35 +0.15 -0.00 (0.053 +0.006 -0.000)	1.20 max (0.047 max)	0.70 min (0.028 min)	0.15 (0.006)	21.0mg
R	0805	2012-15	2.00 +0.20 -0.00 (0.079 +0.008 -0.000)	1.35 +0.15 -0.00 (0.053 +0.006 -0.000)	1.35 +0.15 -0.00 (0.053 +0.006 -0.000)	0.70 min (0.028 min)	0.15 (0.006)	29.9mg
S	1206	3216-12	3.20 +0.20 -0.20 (0.126 +0.008 -0.008)	1.60 +0.20 -0.20 (0.063 +0.008 -0.008)	1.20 max (0.047 max)	1.80 min (0.071 min)	0.15 (0.006)	33.0mg
T	1411	3528-12	3.50 +0.20 -0.20 (0.138 +0.008 -0.008)	2.80 +0.20 -0.10 (0.110 +0.008 -0.004)	1.20 max (0.047 max)	2.00 min (0.079 min)	0.15 (0.006)	65.0mg
U	0805	2012-06	2.00 +0.20 -0.00 (0.079 +0.008 -0.000)	1.35 +0.15 -0.00 (0.053 +0.006 -0.000)	0.60 max (0.039 max)	0.70 min (0.028 min)	0.15 (0.006)	8.9mg
V	1206	3216-08	3.20 +0.20 -0.20 (0.126 +0.008 -0.008)	1.60 +0.20 -0.20 (0.063 +0.008 -0.008)	0.75 max (0.030 max)	1.80 min (0.071 min)	0.15 (0.006)	19.1mg
Z	0602	1605-07	160 +0.20 -0.00 (0.063 +0.008 -0.000)	0.50 +0.20 -0.00 (0.020 +0.008 -0.000)	0.50 +0.20 -0.00 (0.020 +0.008 -0.000)	0.55 min (0.022 min)	0.15 (0.006)	4.5mg

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PACKAGING SUFFIX/QUANTITY

Case Size	Standard Tin Termination		Gold Termination		Tape Type/Width
	4¼ inch Reel	7 inch Reel	4¼ inch Reel	7 inch Reel	
A	XTA / 500	RTA / 2,000	FTA / 500	ATA / 2,000	Plastic / 8mm
H	XTA / 500	RTA / 3,500	FTA / 500	ATA / 3,500	Plastic / 8mm
J	XTA / 500	RTA / 3,500	FTA / 500	ATA / 3,500	Plastic / 8mm
K	QTA / 1,000	PTA / 10,000	–	–	Plastic / 8mm
L	XTA / 500	RTA / 3,500	FTA / 500	ATA / 3,500	Plastic / 8mm
M	XTA / 500	RTA / 2,500	FTA / 500	ATA / 2,500	Plastic / 8mm
R	XTA / 500	RTA / 2,500	FTA / 500	ATA / 2,500	Plastic / 8mm
T	XTA / 500	RTA / 2,500	FTA / 500	ATA / 2,500	Plastic / 8mm
U	XTA / 500	RTA / 3,500	FTA / 500	ATA / 3,500	Plastic / 8mm
V	XTA / 500	RTA / 2,500	FTA / 500	ATA / 2,500	Plastic / 8mm

HOW TO ORDER

TLC	L	226	M	006	RTA
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** M=±20%	**Rated DC Voltage** 003=3Vdc 004=4Vdc 002=2Vdc 006=6.3Vdc 010=10Vdc 016=16Vdc 020=20Vdc 025=25Vdc 035=35Vdc	**Packaging** See table above

TECHNICAL SPECIFICATIONS

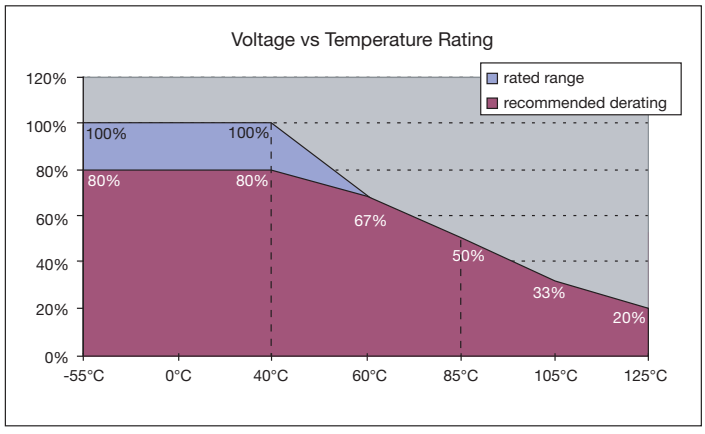
Technical Data:		All technical data relate to an ambient temperature of +25°C								
Capacitance Range:		0.47 µF to 220 µF								
Capacitance Tolerance:		±20%								
Rated Voltage (V_R)	-55°C ≤ +40°C:	2	3	4	6.3	10	16	20	25	35
Category Voltage (V_C)	at 85°C:	1	1.5	2	3.2	5.0	8.0	10.0	12.5	17.5
Category Voltage (V_C)	at 125°C:	0.4	0.6	0.8	1.3	2.0	3.2	4.0	5.0	7.0
Temperature Range:		-55°C to +125°C with category voltage								
Reliability:		0.2% per 1000 hours at 85°C, 0.5xV_R with 0.1Ω/V series impedance with 60% confidence level								

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5 RMS with DC bias of 1.5V. DCL is measured at rated voltage after 5 minutes.

ESR allowed to move up to 1.25 times catalog limit post mounting.

DCL allowed to move up to 2.00 times catalog limit post mounting.

NOTE: AVX reserves the right to supply a higher voltage rating in the same case size, to the same reliability standards.



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CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Voltage Rating DC (V_R) to 40°C								
µF	Code	2.0V	3.0V	4.0V	6.3V	10V	16V	20V	25V	35V
0.33	334						J		L	
0.47	474						K			
0.68	684									
1.0	105						J	J	L	R
1.5	155									
2.2	225					J/K	J	L/H	H/R	
3.3	335						L			
4.7	475			K	U/K	J				
6.8	685		K	K		U				
10	106		K	J/K/Z	J/K/Z	J/U	V	R		
15	156					L/H				
22	226		J	J	L	L/M				
33	336			L	L/H	H				
47	476	L	L	H/L	H	R/Q/C				
68	686			R	R	R/A				
100	107		H	C/H/Q	R	T				
150	157									
220	227	R	S	A/T						
330	337									
470	477	A								
680	687									

Developmental Ratings - subject to change

RATINGS & PART NUMBER REFERENCE

AVX Part No.	EIA Code	EIA Metric	Case Size	Cap (µF)	Rated Voltage (V)	DCL (µA) Max.	ESR Max. (Ω) @100kHz
TLCL476M002#	0603	1608-10	L	47	2.0	0.9	7.5
TLCR227M002#	0805	2012-15	R	220	2.0	4.4	5.0
TLCA477M002#	1206	3216-18	A	470	2.0	9.4	1.0
TLCK685M003#	0402	1005-07	K	6.8	3.0	0.5	15
TLCK106M003#	0402	1005-07	K	10	3.0	0.5	15
TLCJ226M003#	0603	1608-08	J	22	3.0	0.7	7.5
TLCL476M003#	0603	1608-10	L	47	3.0	1.4	7.5
TLCH107M003#	0805	2012-10	H	100	3.0	3.0	5
TLCS227M003#	1206	3216-12	S	220	3.0	6.6	2
TLCK475M004#	0402	1005-07	K	4.7	4.0	0.5	15
TLCK685M004#	0402	1005-07	K	6.8	4.0	0.5	15
TLCJ106M004#	0603	1608-08	J	10	4.0	0.5	7.5
TLCK106M004#	0402	1005-07	K	10	4.0	0.5	15
TLCZ106M004#	0602	1605-07	Z	10	4.0	0.5	15
TLCJ226M004#	0603	1608-08	J	22	4.0	0.9	7.5
TLCL336M004#	0603	1608-10	L	33	4.0	1.3	7.5
TLCH476M004#	0805	2012-10	H	47	4.0	1.9	5
TLCL476M004#	0603	1608-10	L	47	4.0	1.9	7.5
TLCR686M004#	0805	2012-15	R	68	4.0	2.7	5
TLCH107M004#	0805	2012-10	H	100	4.0	4.0	5
TLCC107M004#	1205	3216-10	C	100	4.0	4.0	2.0
TLCQ107M004#	0805	2012-12	Q	100	4.0	4.0	5
TLCA227M004#	1206	3216-18	A	220	4.0	8.8	1.0
TLCT227M004#	1210	3528-12	T	220	4.0	8.8	1
TLCK475M006#	0402	1005-07	K	4.7	6.3	0.5	15
TLCU475M006#	0805	2012-06	U	4.7	6.3	0.5	5
TLCJ106M006#	0603	1608-08	J	10	6.3	0.6	7.5
TLCK106M006	0402	1005-07	K	10	6.3	0.6	15
TLCZ106M006#	0602	1605-07	Z	10	6.3	0.6	15
TLCL226M006#	0603	1608-10	L	22	6.3	1.4	7.5
TLCH336M006#	0805	2012-10	H	33	6.3	2.0	5
TLCL336M006#	0603	1608-10	L	33	6.3	2.1	7.5
TLCH476M006#	0805	2012-10	H	47	6.3	3.0	5
TLCR686M006#	0805	2012-15	R	68	6.3	4.3	5
TLCR107M006#	0805	2012-15	R	100	6.3	6.0	5
TLCJ225M010#	0603	1608-08	J	2.2	10	0.5	7.5

AVX Part No.	EIA Code	EIA Metric	Case Size	Cap (µF)	Rated Voltage (V)	DCL (µA) Max.	ESR Max. (Ω) @100kHz
TLCK225M010#	0402	1005-07	K	2.2	10	0.5	15
TLCJ475M010#	0603	1608-08	J	4.7	10	0.5	7.5
TLCU685M010#	0805	2012-06	U	6.8	10	0.7	5
TLCJ106M010#	0603	1608-08	J	10	10	1.0	7.5
TLCU106M010#	0805	2012-06	U	10	10	1.0	5
TLCL156M010#	0603	1608-08	L	15	10	1.5	7.5
TLCH156M010#	0805	2012-10	H	15	10	1.5	5
TLCL226M010#	0603	1608-10	L	22	10	2.2	7.5
TLCM226M010#	0803	2008-10	M	22	10	2.2	7.5
TLCH336M010#	0805	2012-10	H	33	10	3.3	5
TLCC476M010#	1205	3216-10	C	47	10	4.7	2
TLCQ476M010#	0805	2012-12	Q	47	10	4.7	5
TLCR476M010#	0805	2012-15	R	47	10	4.7	5
TLCA686M010#	1206	3216-18	A	68	10	6.8	1
TLCR686M010#	0805	2012-15	R	68	10	6.8	5
TLCT107M010#	1210	3528-12	T	100	10	10	1
TLCJ334*016#	0603	1608-08	J	0.33	16	0.5	7.5
TLCK474M016#	0402	1005-07	K	0.47	16	0.5	15
TLCJ105M016#	0603	1608-08	J	1.0	16	0.5	7.5
TLCJ225M016#	0603	1608-08	J	2.2	16	0.5	7.5
TLCL335M016#	0603	1608-10	L	3.3	16	0.5	7.5
TLCV106M016#	1206	1206-08	V	10	16	1.6	2
TLCJ105M020#	0603	1608-08	J	1.0	20	0.5	7.5
TLCH225M020#	0805	2012-10	H	2.2	20	0.5	5
TLCL225M020#	0603	1608-10	L	2.2	20	0.5	7.5
TLCR106M020#	0805	2012-15	R	10	20	2.0	5
TLCL334*025#	0603	1608-10	L	0.33	25	0.5	7.5
TLCL105M025#	0603	1608-10	L	1.0	25	0.5	7.5
TLCR225M025#	0805	2012-15	R	2.2	25	0.6	5
TLCH225M025#	0805	2012-10	H	2.2	25	0.6	5
TLCR105M035#	0805	2012-15	R	1.0	35	0.5	5

Refer to packaging suffix table for options. Developmental Ratings - subject to change.

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.

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