

TCN PulseCap™ Series



High Capacitance Tantalum Solid Electrolytic Chip Capacitors Undertab Series With Conductive Polymer Electrode



FEATURES

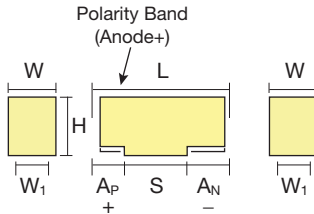
- Large case size for maximum capacitance
- Conductive polymer electrode reduces ignition failure mode
- Low ESR
- Undertab terminations layout:
 - High Volumetric Efficiency
 - High PCB assembly density
 - High capacitance in smaller dimensions
- 3x reflow 260°C compatible
- 1 case size available

APPLICATIONS

- Pulse energy battery support
- Power backup in SSDs



LEAD-FREE
LEAD-FREE COMPATIBLE
COMPONENT



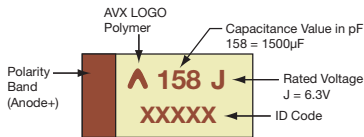
CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L+0.30 (0.012) -0.30 (0.012)	W+0.30 (0.012) -0.30 (0.012)	H max.	W ₁ ±0.20 (0.008)	A _P +0.30 (0.012) -0.20 (0.008)	A _N +0.30 (0.012) -0.20 (0.008)
4	2924	7361-20	7.30 (0.287)	6.00 (0.240)	2.00 (0.079)	4.75 (0.187)	2.00 (0.079)	3.20 (0.126)

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

MARKING

4 CASE



HOW TO ORDER

TCN

Type

4

Case Size
See table above

158

Capacitance Code
pF code: 1st two digits represent significant figures, 3rd digit represents multiplier

M

Tolerance
M = ±20%

006

Rated DC Voltage
006 = 6.3Vdc
016 = 16Vdc
025 = 25Vdc

R

Packaging
R = Pure Tin 7" Reel

0055

ESR in mΩ

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C				
Capacitance Range:	100 µF to 1500 µF				
Capacitance Tolerance:	±20%				
Leakage Current DCL:	0.1CV				
Rated Voltage (V _R)	≤ +85°C:	6.3	16	25	
Surge Voltage (V _S)	≤ +85°C:	8	21	33	
Temperature Range:	-55°C to +85°C/105°C				
Reliability:	1% per 1000 hours at 85°C, V _R with 0.1Ω/V series impedance with 60% confidence level				

TCN PulseCap™ Series



High Capacitance Tantalum Solid Electrolytic Chip Capacitors Undertab Series With Conductive Polymer Electrode

CAPACITANCE AND RATED VOLTAGE RANGE (FIGURE DENOTES CASE SIZE)

Capacitance		Voltage Rating DC (V _R) to 85°C		
µF	Code	6.3V (G)	16V (J)	25V (C)
100	107			3*
150	157			4(70)
220	227		4(70)	
330	337		4(70)	
1000	108	3*/4(55)		
1500	158	4(55)		

Available Codes (ESR ratings in mOhms in brackets)

Engineering samples - please contact manufacturer

*Codes under development – subject to change

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

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Cap (µF)	Rated Voltage (V)	Rated Temp (°C)	Category Voltage (V)	Category Temp (°C)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	MSL	100kHz Ripple Current (mA)			Product Category
											25°C	85°C	105°C	
6.3 Volt @ 85°C														
TCN4108M006#0055	4	1000	6.3	85	6.3	85	600	20	55	4	1860	1302	–	85°C
TCN4158M006#0055	4	1500	6.3	85	6.3	85	900	20	55	4	1860	1302	–	85°C
16 Volt @ 85°C														
TCN4227M016#0070	4	220	16	105	16	105	352	20	70	4	1650	1155	660	105°C
TCN4337M016#0070	4	330	16	85	16	85	528	20	70	4	1650	1155	–	85°C
25 Volt @ 85°C														
TCN4157M025#0070	4	150	25	85	20	105	375	6	70	4	1650	1155	660	105°C

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

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 2.2 volts. DCL is measured at rated voltage after 5 minutes.

ESR allowed to move up to 1.25 times catalogue limit post mounting

For typical weight and composition see page 220.

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

TCN PulseCap™ Series



High Capacitance Tantalum Solid Electrolytic Chip Capacitors Undertab Series With Conductive Polymer Electrode

PRODUCT CATEGORY 105°C

TEST	105°C series (Temperature range -55°C to +105°C)							
	Condition			Characteristics				
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine after application of 105°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.			Visual examination	no visible damage			
				DCL	1.25 x initial limit			
				ΔC/C	within +20/-30% of initial value			
				DF	1.5 x initial limit			
				ESR	2 x initial limit			
Storage Life	105°C, 0V, 2000h			Visual examination	no visible damage			
				DCL (V _R ≤ 75V)	1.25 x initial limit			
				DCL (V _R > 75V)	2 x initial limit			
				ΔC/C	within ±20% of initial value			
				DF	1.5 x initial limit			
				ESR	2 x initial limit			
Humidity	Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature.			Visual examination	no visible damage			
				DCL	3 x initial limit			
				ΔC/C	within +30/-20% of initial value			
				DF	1.5 x initial limit			
				ESR	2 x initial limit			
Temperature Stability	Step	Temperature°C	Duration(min)					
	1	+20±2	15					
	2	-55+0/-3	15					
	3	+20±2	15					
	4	+85+3/-0	15					
	5	+105+3/-0	15					
	6	+20±2	15					
Surge Voltage	Test temperature: 105°C+3/0°C Test voltage: Category voltage at 105°C Surge voltage: 1.3 x category voltage at 105°C Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge			Visual examination	no visible damage			
				DCL	initial limit			
				ΔC/C	within +20/-30% of initial value			
				DF	1.25 x initial limit			

*Initial Limit

PRODUCT CATEGORY 85°C

TEST	85°C series (Temperature range -55°C to +85°C)							
	Condition			Characteristics				
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.			Visual examination	no visible damage			
				DCL	1.25 x initial limit			
				ΔC/C	within +20/-30% of initial value			
				DF	1.5 x initial limit			
				ESR	2 x initial limit			
Storage Life	85°C, 0V, 2000 _h			Visual examination	no visible damage			
				DCL	1.25 x initial limit			
				ΔC/C	within ±20% of initial value			
				DF	1.5 x initial limit			
				ESR	2 x initial limit			
Humidity	Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature.			Visual examination	no visible damage			
				DCL	5 x initial limit			
				ΔC/C	within +40/-20% of initial value			
				DF	1.5 x initial limit			
				ESR	2 x initial limit			
Temperature Stability	Step	Temperature°C	Duration(min)					
	1	+20±2	15					
	2	-55+0/-3	15					
	3	+20±2	15					
	4	+85+3/-0	15					
	5	+20±2	15					
Surge Voltage	Test temperature: 85+3/0°C Test voltage: Rated voltage Surge voltage: 1.3 x rated voltage Series protection resistance 1000±100Ω. Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge			Visual examination	no visible damage			
				DCL	initial limit			
				ΔC/C	within +20/-30% of initial value			
				DF	1.25 x initial limit			

*Initial Limit