



VISHAY INTERTECHNOLOGY, INC.



TANTALUM CAPACITORS

- Solid Electrolyte
- Solid Electrolyte Leaded
- Gelled Electrolyte Leaded



Solid Electrolyte

Tantalum Chip Capacitors



Type	Capacitance Range (µF)	Voltage Range (V)	Temperature Range	Case Size	Standard or Specification	
MOLDED CHIPS						
TR3	0.47 - 680	4 - 50	-55 °C to +125 °C	A, B, C, D, E	Very Low ESR, 100 % Surged (B, C, D, E)	
298D	1 - 220	4 - 25	-55 °C to +125 °C	M, P	Lead-frameless, 0805, 0603 Face-Down Terminations	
292D	1.0 - 47	3 - 20	-55 °C to +125 °C	P, R	Lead-frameless, 0805 size	
293D	0.1 - 680	4 - 50	-55 °C to +125 °C	A, B, C, D, E	Standard Type 793DX = CECC 30801-005 CTC3 = CECC30801-009 CTC4 = CECC 30801-011 793DE = CECC 3080-801	
593D	0.47 - 680	4 - 50	-55 °C to +125 °C	A, B, C, D, E	Low ESR, 100 % Surged (B, C, D, E)	
TH3	0.33 - 100	10 - 50	-55 °C to +125 °C	A, B, C, D, E	Extreme Temperature	
COATED CHIPS						
595D	0.1 - 1500	4 - 50	-55 °C to +125 °C	A, B, C, D, G, H, M, R, S, T	Similar to EIA; Maximum CV; T case, 0805	
594D	1.0 - 1500	4 - 50	-55 °C to +125 °C	B, C, D, R	Low ESR	
592D	1.0 - 3300	4 - 35	-55 °C to +125 °C	A, B, C, D, R, S, X	Low profile; Maximum CV	
591D	1.0 - 1000	4 - 35	-55 °C to +125 °C	A, B, C, D, R	Low profile; Low ESR	
572D	4.7 - 220	4 - 35	-55 °C to +125 °C	A, B, P, Q, S, T	Low profile; Maximum CV; Single-sided anode	
597D	22 - 1500	4 - 50	-55 °C to +125 °C	E, F, R, V	Multi-anode; Ultra low ESR	
695D	0.1 - 270	4 - 50	-55 °C to +125 °C	A, B, D, E, F, G, H	MIL-C-556365/4	
CWR06	0.1 - 100	4 - 50	-55 °C to +125 °C	A, B, C, D, E, F, G, H	MIL-C-556365/4	
195D	0.1 - 330	2 - 50	-55 °C to +125 °C	A, B, C, D, E, F, G, H, R, S, V, X, Y, Z	CCEC, 3801/006/008-CTC2	
194D	0.1 - 150	4 - 50	-55 °C to +125 °C	A, B, C, D, E, F, G, H	Midget conformal	
CC/EC	0.1 - 220	4 - 35	-55 °C to +125 °C	A, B, C, D, E, F, G, H	CCEC, 3801/006/008-CTC2	
FUSED CHIPS						
893D	1.0 - 220	6.3 - 50	-55 °C to +125 °C	C, D, E	100 ms @ 5 Amps	
MAIN FEATURES						
MOLDED CHIPS			Standard, large volume, low cost applications. For switch mode power supplies and dc-to-dc converters.			
COATED CHIPS			Height and space constraints, higher capacitance, low ESR technology.			
FUSED CHIPS			Increased reliability, safety requirements.			



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Type	Capacitance Range (μF)	Voltage Range (V)	Temperature Range	Case Size	Standard or Specification	
RADIAL LEADS - RESIN COATED						
489D	0.1 - 680	3 - 50	-55 °C to +85 °C	A, B, C, D, E, F, H, M, N, R	General purpose	
499D	0.1 - 680	3 - 50	-55 °C to +125 °C	A, B, C, D, E, F, H, M, N, R	Low leakage current	
199D	0.1 - 680	3 - 50	-55 °C to +125 °C	A, B, C, D, E, F	Low leakage current	
299D	0.1 - 680	3 - 50	-55 °C to +125 °C	A, B, C, D, E, F	Triple lead	
ETPW	0.1 - 330	3 - 50	-55 °C to +125 °C	1A, 1B, 2C, 2D, 2E, 3F, 3G, 4H, 5J, 5K, 5L, 6M, 6N, 6P, 6R	Low leakage current	
ETQW	0.1 - 330	3 - 50	-55 °C to +125 °C	1A, 1B, 2C, 2D, 2E, 3F, 3G, 4H, 5J, 5K, 5L, 6M, 6N, 6P, 6R	Low leakage current Pre-aged	
RADIAL AND AXIAL LEADS - MOLDED CASE						
790D	0.1 - 330	6.3 - 50	-55 °C to +125 °C	A, B, C, D	Radial leads; DIN 44350; DIN 44352	
173D	0.1 - 330	2 - 50	-55 °C to +125 °C	U, V, W, X, Y	Axial leads, molded	
HA	0.001 - 68	2 - 50	-55 °C to +125 °C	C0, C1, C2, C3, C4, C5, C6, C7, N1, N2, N3, N4, N5	Cylindrical, polar Cylindrical, non-polar; subminiature	
SHA	0.22 - 68	2 - 35	-55 °C to +125 °C	C0, C1, C2, C3, C4, C5, C6, C7, N1, N2, N3, N4, N5	Cylindrical, polar Cylindrical, non-Polar	
TC	0.1 - 470	2 - 50	-55 °C to +125 °C	C0, C1, C2, C3, C4, C5, C6, N1, N2, N3, N4	Cylindrical, polar Cylindrical, non-polar; subminiature	
STC	0.1 - 470	2 - 35	-55 °C to +125 °C	C0, C1, C2, C3, C4, C5, C6, C7, N1, N2, N3, N4, N5	Cylindrical, polar Cylindrical, non-polar	
AXIAL LEADS - HERMETICALLY SEALED						
150D	0.0027 - 330	6 - 125	-55 °C to +125 °C	A, B, R, S	Standard range	
152D	1.2 - 1000	6 - 50	-55 °C to +125 °C	A, B, R, S	Extended range	
CSR13	0.0056 - 330	6 - 125	-55 °C to +125 °C	A, B, C, D	MIL-C-39003/01	
CSR21	5.6 - 330	6.3 - 50	-55 °C to +125 °C	C, D	MIL-C-39003/09	
CSR23	1.2 - 1000	6 - 50	-55 °C to +125 °C	A, B, C, D	MIL-C-39003/03	
CSR33	1.2 - 1000	6 - 50	-55 °C to +125 °C	A, B, C, D	MIL-C-39003/06	
CTS13	0.1 - 330	6.3 - 63	-55 °C to +85 °C	A, B, C, D	CECC 30201-005	
CTS1	0.1 - 330	6.3 - 125	-55 °C to +125 °C	A, B, C, D	CECC 30201-002 IECQ 300201-FR 001	
749DX	0.068 - 1000	6.3 - 63	-55 °C to +125 °C	A, B, C, D	CECC 30201-001 CECC 30201-011 CECC 30201-012 CECC 30201-029 BS 9073 N001	
CTS32	1 - 330	6.3 - 63	-55 °C to +85 °C	A, B, C, D	CECC 30201-019	
550D	5.6 - 330	6 - 50	-55 °C to +125 °C	R, S	High current capability	
MAIN FEATURES						
RADIAL LEADS (Resin Coated)			Low cost, general purpose for manual or automatic insertions. Various lead style configurations.			
RADIAL LEADS (Molded Case)			Specially designed for high density printed circuit boards.			
AXIAL LEADS (Hermetically Sealed)			Recommended for hostile environments.			



Gelled Electrolyte

Leaded Tantalum Capacitors



Type	Capacitance Range (μF)	Voltage Range (V)	Temperature Range	Case Size	Standard or Specification	
ELASTOMER SEALED						
109D	1.7 - 2200	6 - 150	-55 °C to +125 °C	T1, T2, T3, T4	Standard range	
CT4	3.3 - 1000	10 - 150	-55 °C to +125 °C	A, B, C, D	CECC 30202-003	
SUPERTAN						
ST	10 - 1800	25 - 125	-55 °C to +125 °C	T1, T2, T3, T4, L2	Very high capacitance	
STE	750 - 10,000	10 - 75	-55 °C to +85 °C	T1, T2, T3, T4	Very high capacitance-extended ratings	
EPOXY END-FILL						
769D	3.6 - 2200	6 - 125	-55 °C to +125 °C	A, B, C, D	CECC 30202-013 BS 9073 F008 BS 9073 F0032	
GLASS TO TANTALUM HERMETIC SEAL						
138D	1.7 - 2200	6 - 125	-55 °C to +125 °C	T1, T2, T3, T4	Standard range	
738D	3.3 - 1200	6.3 - 125	-55 °C to +175 °C	A, B, C, D	BS 9073 F018	
CT9	3.9 - 2200	6.3 - 125	-55 °C to +175 °C	A, B, C, D	CECC 30202-004	
CLR65	1.7 - 1200	6 - 125	-55 °C to +125 °C	T1, T2, T3, T4	MIL-C-39006/09	
TANTALUM CASE, GLASS TO TANTALUM HERMETIC SEAL						
134D	10 - 680	50 - 125	-55 °C to +200 °C	T1, T2, T3, T4	High Capacitance	
135D	1.7 - 2200	6 - 125	-55 °C to +200 °C	T1, T2, T3, T4	Standard range	
735D	2.7 - 2200	6 - 125	-55 °C to +200 °C	A, B, C, D	CECC 30202-001	
735DE	2.7 - 2200	6 - 125	-55 °C to +200 °C	A, B, C, D	CECC 30202-801	
CT79	3.9 - 2200	6 - 125	-55 °C to +200 °C	A, B, C, D	CECC 30202-005	
CLR79	1.7 - 1200	6 - 125	-55 °C to +125 °C	T1, T2, T3, T4	MIL-C-39006/22	
CLR81	6.8 - 2200	6 - 125	-55 °C to +125 °C	T1, T2, T3, T4	MIL-C-39006/25	
MAIN FEATURES						
ELASTOMER SEALED			Silver case, low leakage current, long shelf life.			
EPOXY END-FILL			Silver case, low leakage current, higher CV per unit volume than any other part.			
GLASS TO TANTALUM HERMETIC SEAL			Low pressure applications, self healing capability.			
TANTALUM CASE, GLASS TO TANTALUM HERMETIC SEAL			Space and aeronautical applications, very high reliability. High temperature and vibration capabilities.			



Ordering Information Example



572D 336 X0 6R3 S 2 T

REEL SIZE AND PACKAGE ORIENTATION

T = 7", 180 mm reel, cathode nearest sprocket hole (standard)
W = 13", 330 mm reel, cathode nearest sprocket hole (standard)

TERMINATION

2 = 100 % Tin
4 = Gold plated

CASE CODE

See ratings and case codes table

DC VOLTAGE RATING

At +85 °C, in Volts.
Preceded by zeros if needed to complete the 3-digit block.
A decimal point is indicated by an "R" (6R3 = 6.3 Volts).

CAPACITANCE TOLERANCE CODE

X0 = ±20 %
X9 = ±10 %

CAPACITANCE CODE

In picofarads.
The first two digits are significant.
The third is the number of zeros following.

SPRAGUE TYPE NUMBER

Identifies the basic capacitor design



SEMICONDUCTORS:

Rectifiers • High-Power Diodes and Thyristors • Small-Signal Diodes • Zener and Suppressor Diodes
• FETs • RF Transistors • Optoelectronics • ICs • Modules and Assemblies

PASSIVE COMPONENTS:

Resistive Products • Magnetics • Capacitors • Strain Gage Transducers and Stress Analysis Systems

**One of the World's Largest
Manufacturers**
of Discrete Semiconductors and Passive Components

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