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Specification Sheet

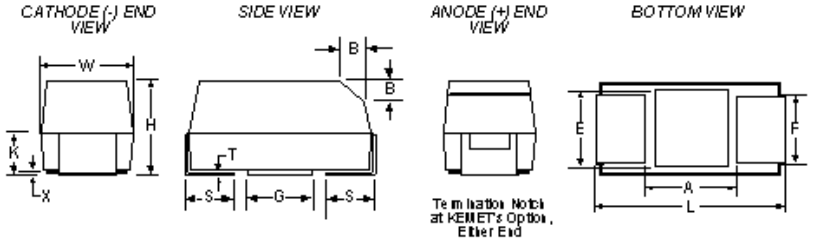
T520 Series – KO-CAP – KEMET Organic Capacitor
Low ESR Tantalum Chip Capacitor with Polymer Electrode

KEMET introduces new ratings to its popular T520 Series KEMET Organic - KO - Capacitor. The KO-CAP is a Tantalum capacitor, with Ta anode and Ta_2O_5 dielectric. However, a conductive, organic, polymer replaces the MnO_2 as the cathode plate of the capacitor. This results in very low ESR and improved cap retention at high frequency. The KO-CAP also exhibits a benign failure mode, which eliminates the ignition failures that can occur in standard Tantalum types. Note also that KO-CAPs may be operated at voltages up to 80% of rated voltage with equivalent or better reliability than standard tantalums operated at 50% of rated voltage.

The new T520 series captures the best features of multilayer ceramic caps (low ESR and high frequency cap retention), aluminum electrolytics (benign failure mode), and proven solid tantalum technology (volumetric efficiency, surface mount capability, and no wearout mechanism). The KO-CAP can reduce component counts, eliminate through-hole assembly by replacing cumbersome leaded aluminum capacitors, and offer a more cost effective solution to high-cost high-cap ceramic capacitors. These benefits allow the designer to save both board space and money.

The T520 operating temperature range is -55ºC to +105ºC. Above 85ºC, the capacitor voltage rating drops to 0.8 times rated voltage at 105ºC.

Outline Drawing



Dimensions - Millimeters

Case Size KEMET	Case Size EIA	L	W	H	K ±0.20	F ±0.1	S ±0.3	X(Ref)	T(Ref)	A(Min)	G(ref)	E(ref)
B	3528-21	3.5 ± 0.2	2.8 ± 0.2	1.9 ± 0.2	1.1	2.2	0.8	0.10 ± 0.10	0.13	1.1	1.8	2.2
V	7343-20	7.3 ± 0.3	4.3 ± 0.3	1.9 ± 0.1	1.1	2.4	1.3	0.05	0.13	3.8	3.5	3.5
D	7343-31	7.3 ± 0.3	4.3 ± 0.3	2.8 ± 0.3	1.5	2.4	1.3	0.10 ± 0.10	0.13	3.8	3.5	3.5
X	7343-43	7.3 ± 0.3	4.3 ± 0.3	4.0 ± 0.3	2.3	2.4	1.3	0.10 ± 0.10	0.13	3.8	3.5	3.5

T520 Ratings & Part Number Reference

Cap µF (±20%)	Case Size	KEMET Part Number	DC Leakage µA +25ºC Max	DF % 120 Hz + 25ºC Max	ESR mΩ 100kHz 25º Max	Ripple Current A rms 100 kHz Max		
						25ºC	85ºC	105ºC
100	B/3528-21	T520B107M003AS	30	8%	70	1.10	0.99	0.44
330	*V/7343-20*	*T520V337M003AS*	*99*	*10%*	*25*	*2.20*	*2.00*	*0.90*
68	B/3528-21	T520B686M004AS	27	8%	70	1.10	0.99	0.44
220	V/7343-20	T520V227M004AS	88	10%	45	1.70	1.50	0.70
220	V/7343-20	T520V227M004AS4350	88	10%	25	2.20	2.00	0.90
470	D/7343-31	T520D477M004AS	188	10%	40	1.90	1.70	0.80
680	*X/7343-43*	*T520X687M004AS*	*272*	*10%*	*35*	*2.20*	*2.00*	*0.90*
47	B/3528-21	T520B476M006AS	30	8%	70	1.10	0.99	0.44
150	V/7343-20	T520V157M006AS	95	10%	45	1.70	1.50	0.70
150	*V/7343-20*	*T520V157M006AS4350*	*95*	*10%*	*25*	*2.20*	*2.00*	*0.90*
150	D/7343-31	T520D157M006AS	95	10%	55	1.70	1.50	0.70
220	D/7343-31	T520D227M006AS	139	10%	50	1.70	1.60	0.70
220	D/7334-31	T520D227M006AS4350	139	10%	40	1.90	1.70	0.80
330	D/7343-31	T520D337M006AS	208	10%	45	1.80	1.60	0.70
330	D/7343-31	T520D337M006AS4350	208	10%	40	1.90	1.70	0.80
330	*D/7343-31*	*T520D337M006AS4351*	*208*	*10%*	*25*	*2.40*	*2.20*	*1.00*
470	X/7343-43	T520X477M006AS	296	10%	40	2.00	1.80	0.80
68	V/7343-20	T520V686M010AS	68	10%	60	1.40	1.20	0.50
100	*V/7343-20*	*T520V107M010AS*	*100*	*10%*	*50*	*1.60*	*1.40*	*0.60*
100	D/7343-31	T520D107M010AS	100	10%	80	1.40	1.20	0.50
100	D/7343-31	T520D107M010AS4350	100	10%	55	1.70	1.50	0.70
150	D/7343-31	T520D157M010AS	150	10%	55	1.70	1.50	0.70
150	D/7343-31	T520D157M010AS4350	150	10%	40	1.90	1.70	0.80
220	*D/7343-31*	*T520D227M010AS*	*220*	*10%*	*40*	*1.90*	*1.70*	*0.80*
330	X/7343-43	T520X337M010AS	330	10%	40	2.00	1.80	0.80
47	*D/7343-31*	*T520D476M016AS*	*75*	*10%*	*70*	*1.50*	*1.35*	*0.60*

Note: New values are listed in italics and blue.

T520 Ordering Information

T 520 V 157 M 006 A S

Tantalum

Series
T520 - Polymer Tantalum Capacitor

Case Size
B, V, D, X

Capacitance Picofarad Code
First two digits represent significant figures.
Third digit specifies number of zeros to follow.

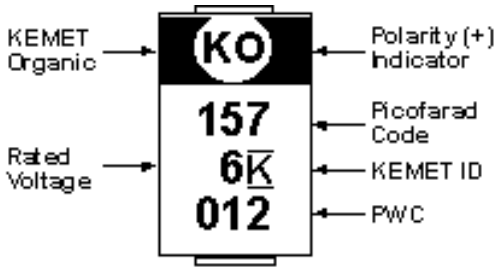
Capacitance Tolerance
M = ± 20%

Voltage
Note: 006=6.3

Failure Rate
A - Not Applicable

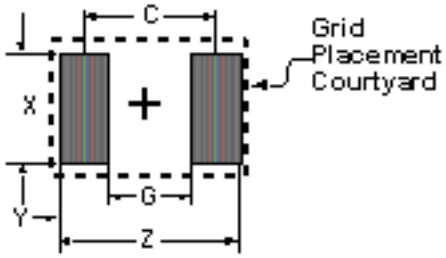
Lead Material
S - Standard Solder Coated

Component Marking

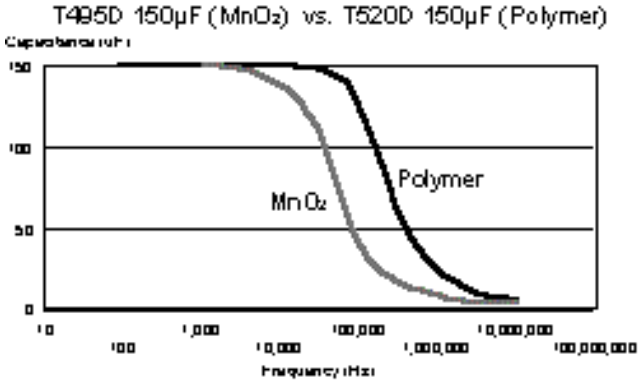


012 = 12th week of 2000

Recommended Mounting Pad Geometries - Millimeters



Capacitance



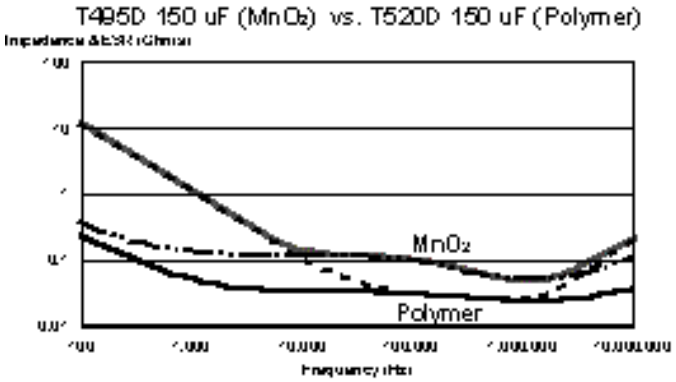
Land Pattern Dimensions for Reflow Solder

KEMET/EIA Size Code	Pad Dimensions				
	Z	G	X	Y (ref)	C (ref)
B/3528-21	5.00	1.10	2.50	1.95	2.75
V/7343-20, D/7343-31, X/7343-43	8.90	3.80	2.70	2.55	6.35

Tape & Reel Packaging

Case Codes		Tape & Reel Dimensions				
KEMET	EIA	Tape Width mm	Pitch mm ± 0.1		Reel Quantity	
			Part	Sprocket	180mm (7" dia)	330mm (13" dia)
B	3528-21	8 ± 0.3	4	4	2000	8000
V	7343-20	12 ± 0.3	8	4	1000	3000
D	7343-31	12 ± 0.3	8	4	500	2500
X	7343-43	12 ± 0.3	8	4	500	2000

ESR and Impedance



T520 Series Construction