

# Type MTP Wet Tantalum Capacitors



- Maximum CV / Unit Volume
- Ruggedized Construction
- Low Dissipation Factor
- Low DC Leakage
- 100% 25°C DCL Screening
- 100% Voltage Age @ 85°C - 8 Hours
- 100 % Cap & DF Screening
- Monthly Lot Conformance
- Reliability: 2.0%/1000 Hrs.

## GENERAL SPECIFICATIONS

Operating Temperature:  
-55°C to +85°C

Voltage Range:  
6 to 60 VDC

Reverse Voltage:  
None

Capacitance Range:  
3.3  $\mu$ F to 470  $\mu$ F

Tolerance Range:  
 $\pm$ 10%,  $\pm$ 20%

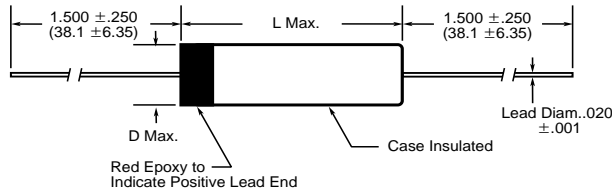
DC Leakage:  
At +25°C - 2.0  $\mu$ A max  
At +85°C - 6.0 to 10.0  $\mu$ A max

Max RMS Ripple Current @ 85°C:  
Case Code: D A B C  
Milliamps: 7.5 12.5 50 140

Case Sizes: (Four)  
.115 x .300 to .225 x .778

**Some Typical Applications**  
Timing Circuits  
Filter Coupling  
Energy Storage  
By-Pass Circuits

### Physical Specifications



CASE	D INCHES(mm)	L INCHES(mm)	APPROX WT GRAMS
D	.115 (2.92)	.300 (7.62)	0.40
A	.115 (2.92)	.403 (10.23)	0.50
B	.145 (3.68)	.600 (15.24)	1.00
C	.225 (5.72)	.778 (19.76)	2.60

(1 Gram = .035 oz.)

### Part Number Nomenclature

- |            |            |          |            |          |          |          |
|------------|------------|----------|------------|----------|----------|----------|
| <b>MTP</b> | <b>156</b> | <b>K</b> | <b>006</b> | <b>P</b> | <b>1</b> | <b>D</b> |
| (1)        | (2)        | (3)      | (4)        | (5)      | (6)      | (7)      |
- MTP Series - Sub-miniature
  - Capacitance Code (Expressed in Picofarads)  
First 2 digits: Significant Figures  
Third digit: Number of zeros (Example: 156 = 15  $\mu$ F)
  - Capacitance Tolerance:  
M =  $\pm$ 20%, K =  $\pm$ 10%
  - DC Voltage Rating:  
Zeros are used to precede the voltage rating where necessary to complete the three digit block
  - P = Polar
  - 1 = Mylar Sleeve
  - Case Size Code

Cap ( $\mu$ F)	Volts DC	Case Size	Catalog Number	Max DCL $\mu$ A		Max ESR $\Omega$	Max Z $\Omega$	Max % $\Delta$ C from +25°C	
				+25°C	+85°C			+25°C	-55°C
15	6	D	MTP156*006P1D	2.0	6.0	15.9	300	-40	+15
47	6	A	MTP476*006P1A	2.0	6.0	9.6	85	-60	+15
150	6	B	MTP157*006P1B	2.0	8.0	3.9	35	-50	+15
180	6	B	MTP187*006P1B	2.0	8.0	3.4	32	-50	+15
450	6	C	MTP457*006P1C	2.0	10.0	1.9	25	-60	+15
470	6	C	MTP477*006P1C	2.0	10.0	1.8	23	-60	+15
10	10	D	MTP106*010P1D	2.0	6.0	18.6	380	-40	+15
33	10	A	MTP336*010P1A	2.0	6.0	11.3	100	-40	+15
100	10	B	MTP107*010P1B	2.0	8.0	4.0	46	-45	+15
120	10	B	MTP127*010P1B	2.0	8.0	3.5	42	-50	+15
300	10	C	MTP307*010P1C	2.0	10.0	1.8	31	-60	+15
330	10	C	MTP337*010P1C	2.0	10.0	1.6	31	-60	+15
22	15	A	MTP226*015P1A	2.0	6	12.1	120	-40	+12
68	15	B	MTP686*015P1B	2.0	8.0	6.2	58	-45	+12
80	15	B	MTP806*015P1B	2.0	8.0	5.3	50	-45	+12
200	15	C	MTP207*015P1C	2.0	10.0	2.0	37	-50	+12
220	15	C	MTP227*015P1C	2.0	10.0	1.8	36	-50	+12
6.8	20	D	MTP685*020P1D	2.0	6.0	27.3	445	-35	+11
15	20	A	MTP156*020P1A	2.0	6.0	17.7	150	-40	+11
47	20	B	MTP476*020P1B	2.0	8.0	6.8	73	-40	+11
60	20	B	MTP606*020P1B	2.0	8.0	7.1	60	-45	+11
150	20	C	MTP157*020P1C	2.0	10.0	2.7	38	-50	+11

\* Insert Proper Letter Code For Tolerance: M =  $\pm$ 20%, K =  $\pm$ 10%

Cap ( $\mu$ F)	Volts DC	Case Size	Catalog Number	Max DCL $\mu$ A		Max ESR $\Omega$	Max Z $\Omega$	Max % $\Delta$ C from +25°C	
				+25°C	+85°C			+25°C	-55°C
6	30	D	MTP605*030P1D	2.0	6.0	30.9	459	-40	+10
10	30	A	MTP106*030P1A	2.0	6.0	21.2	200	-35	+10
45	30	B	MTP456*030P1B	2.0	8.0	7.1	80	-35	+10
120	30	C	MTP127*030P1C	2.0	10.0	3.3	42	-45	+10
4.7	35	D	MTP475*035P1D	2.0	6.0	39.5	570	-30	+10
10	35	A	MTP106*035P1A	2.0	6.0	21.2	240	-35	+10
100	35	C	MTP107*035P1C	2.0	10.0	4.0	48	-45	+10
4	50	D	MTP405*050P1D	2.0	6.0	39.8	600	-30	+10
6.8	50	A	MTP685*050P1A	2.0	6.0	31.2	310	-30	+10
30	50	B	MTP306*050P1B	2.0	8.0	9.7	120	-30	+10
33	50	B	MTP336*050P1B	2.0	8.0	8.8	120	-30	+10
68	50	C	MTP686*050P1C	2.0	10.0	4.3	54	-40	+10
78	50	C	MTP786*050P1C	2.0	10.0	3.7	52	-40	+10
3.3	60	D	MTP335*060P1D	2.0	6.0	48.2	680	-25	+9
4.7	60	A	MTP475*060P1A	2.0	6.0	39.5	400	-30	+9
6.8	60	A	MTP685*060P1A	2.0	6.0	31.2	367	-30	+9
10	60	B	MTP106*060P1B	2.0	8.0	23.9	217	-35	+9
15	60	B	MTP156*060P1B	2.0	8.0	17.7	174	-35	+9
22	60	B	MTP226*060P1B	2.0	8.0	14.5	140	-30	+9
33	60	C	MTP336*060P1C	2.0	10.0	7.2	75	-35	+9
47	60	C	MTP476*060P1C	2.0	10.0	5.6	62	-40	+9
68	60	C	MTP686*060P1C	2.0	10.0	4.3	51	-40	+9

# Type MTPH Wet Tantalum Capacitors



Wet Tantalum Capacitors



- Maximum CV / Unit Volume
- Ruggedized Construction
- Very Low Dissipation Factor
- Very Low DC Leakage
- 100% "Hot" 85°C
- DCL Screening
- 100% Voltage Age @ 85°C - 48 Hours
- Quality Assurance Testing on Each Production Lot to MIL-STD-202
- Accelerated Life: .65%/AQL
- Recorded Available Test Data
- Reliability: 0.1%/1000 Hrs.

## GENERAL SPECIFICATIONS

Operating Temperature:  
-55°C to +85°C

Voltage Range:  
6 to 60VDC

Reverse Voltage:  
None

Capacitance Range:  
4.7  $\mu$ F to 470  $\mu$ F

Tolerance Range:  
 $\pm$ 10%,  $\pm$ 20%

DC Leakage:  
At +25°C - 2.0  $\mu$ A max  
At +85°C - 6.0 to 10.0  $\mu$ A max

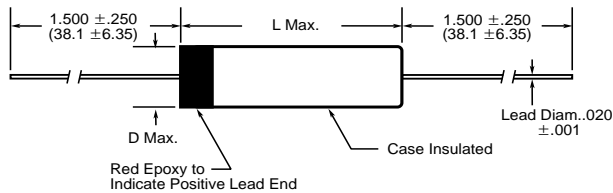
Max RMS Ripple Current @ 85°C:  
Case Code: A B C  
Milliamps: 12.5 50 140

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Energy Storage  
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				+25°C	+85°C			+25°C	-55°C
47	6	A	MTPH476*006P1A	2.0	6.0	9.6	85	-60	+15
150	6	B	MTPH157*006P1B	2.0	8.0	3.9	35	-50	+15
180	6	B	MTPH187*006P1B	2.0	8.0	3.4	32	-50	+15
450	6	C	MTPH457*006P1C	2.0	10.0	1.9	25	-60	+15
470	6	C	MTPH477*006P1C	2.0	10.0	1.8	23	-60	+15
33	10	A	MTPH336*010P1A	2.0	6.0	11.3	100	-40	+15
100	10	B	MTPH107*010P1B	2.0	8.0	4.0	46	-45	+15
120	10	B	MTPH127*010P1B	2.0	8.0	3.5	42	-50	+15
300	10	C	MTPH307*010P1C	2.0	10.0	1.8	31	-60	+15
330	10	C	MTPH337*010P1C	2.0	10.0	1.6	31	-60	+15
22	15	A	MTPH226*015P1A	2.0	6	12.1	120	-40	+12
68	15	B	MTPH686*015P1B	2.0	8.0	6.2	58	-45	+12
80	15	B	MTPH806*015P1B	2.0	8.0	5.3	50	-45	+12
200	15	C	MTPH207*015P1C	2.0	10.0	2.0	37	-50	+12
220	15	C	MTPH227*015P1C	2.0	10.0	1.8	36	-50	+12
15	20	A	MTPH156*020P1A	2.0	6.0	17.7	150	-40	+11
47	20	B	MTPH476*020P1B	2.0	8.0	6.8	73	-40	+11
60	20	B	MTPH606*020P1B	2.0	8.0	7.1	60	-45	+11
150	20	C	MTPH157*020P1C	2.0	10.0	2.7	38	-50	+11

Cap ( $\mu$ F)	Volts DC	Case Size	Catalog Number	Max DCL $\mu$ A		Max ESR $\Omega$	Max Z $\Omega$	Max % $\Delta$ C from +25°C	
				+25°C	+85°C			+25°C	-55°C
10	30	A	MTPH106*030P1A	2.0	6.0	21.2	200	-35	+10
45	30	B	MTPH456*030P1B	2.0	8.0	7.1	80	-35	+10
120	30	C	MTPH127*030P1C	2.0	10.0	3.3	42	-45	+10
10	35	A	MTPH106*035P1A	2.0	6.0	21.2	240	-35	+10
100	35	C	MTPH107*035P1C	2.0	10.0	4.0	48	-45	+10
6.8	50	A	MTPH685*050P1A	2.0	6.0	31.2	310	-30	+10
30	50	B	MTPH306*050P1B	2.0	8.0	9.7	120	-30	+10
33	50	B	MTPH336*050P1B	2.0	8.0	8.8	120	-30	+10
68	50	C	MTPH686*050P1C	2.0	10.0	4.3	54	-40	+10
78	50	C	MTPH786*050P1C	2.0	10.0	3.7	52	-40	+10
4.7	60	A	MTPH475*060P1A	2.0	6.0	39.5	400	-30	+9
6.8	60	A	MTPH685*060P1A	2.0	6.0	31.2	367	-30	+9
10	60	B	MTPH106*060P1B	2.0	8.0	23.9	217	-35	+9
15	60	B	MTPH156*060P1B	2.0	8.0	17.7	174	-35	+9
22	60	B	MTPH226*060P1B	2.0	8.0	14.5	140	-30	+9
33	60	C	MTPH336*060P1C	2.0	10.0	7.2	75	-35	+9
47	60	C	MTPH476*060P1C	2.0	10.0	5.6	62	-40	+9
68	60	C	MTPH686*060P1C	2.0	10.0	4.3	51	-40	+9

\* Insert Proper Letter Code For Tolerance: M =  $\pm$ 20%, K =  $\pm$ 10%