

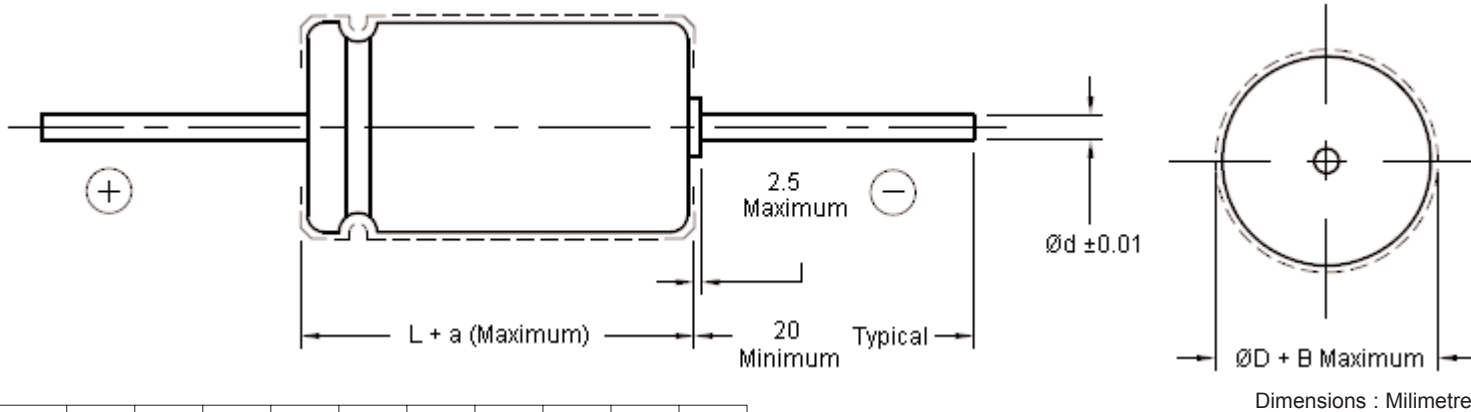


PART NO.

MCTEA - Series

REVISIONS

ECN #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
-	A	RELEASED	SID	31/3/12	AMU	31/3/12		16/4/12



Features:

- 85°C, 1,000 hours assured
- For general purpose application

$\varnothing D$	5	6	6.3	8	10	12.5	16	18	22	25
$\varnothing d$	0.6					0.8				
a	1.5				2					
B	0.5				1					

Item	Characteristic													
Operating Temperature Range	-40°C to +85°C													
Capacitance Tolerance	±20% (at 20°C, 120 Hz)													
Leakage Current	<table border="1"> <tr> <td>Rated Voltage</td> <td>≤100 V</td> <td>>100 V</td> </tr> <tr> <td>Time</td> <td>After 2 minutes</td> <td>After 5 minutes</td> </tr> <tr> <td>Leakage Current</td> <td>$I = 0.02 CV$ or $3 (\mu A)$ whichever is greater</td> <td> <table border="1"> <tr> <td>$CV \leq 1,000$</td> <td>$CV > 1,000$</td> </tr> <tr> <td>$I = 0.03 CV + 15 (\mu A)$</td> <td>$I = 0.02 CV + 25 (\mu A)$</td> </tr> </table> </td> </tr> </table>	Rated Voltage	≤100 V	>100 V	Time	After 2 minutes	After 5 minutes	Leakage Current	$I = 0.02 CV$ or $3 (\mu A)$ whichever is greater	<table border="1"> <tr> <td>$CV \leq 1,000$</td> <td>$CV > 1,000$</td> </tr> <tr> <td>$I = 0.03 CV + 15 (\mu A)$</td> <td>$I = 0.02 CV + 25 (\mu A)$</td> </tr> </table>	$CV \leq 1,000$	$CV > 1,000$	$I = 0.03 CV + 15 (\mu A)$	$I = 0.02 CV + 25 (\mu A)$
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TOLERANCES: UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.	DRAWN BY:	DATE:	DRAWING TITLE: Axial Aluminum Electrolytic Capacitors			
	SID	31/03/12				
	CHECKED BY:	DATE:	SIZE A	DWG NO. M10002777	ELECTRONIC FILE R47M1HB-0512P	REV A
	AMU	31/03/12				
	APPROVED BY:	DATE:	SCALE: NTS		U.O.M.: mm	
	16/04/12	SHEET: 1 OF 4				



PART NO.

MCTEA - Series

REVISIONS

ECN #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
-	A	RELEASED	SID	31/3/12	AMU	31/3/12		16/4/12

Item	Characteristic																																																																											
Disslpation Factor (Tan δ) (At 20°C, 120 Hz)	<table border="1"> <tr> <td>Rated Voltage</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Tan δ (maximum)</td> <td>0.23</td> <td>0.2</td> <td>0.17</td> <td>0.15</td> <td>0.12</td> <td>0.1</td> <td>0.09</td> <td>0.08</td> <td>0.12</td> <td>0.14</td> <td>0.17</td> <td>0.2</td> <td>0.24</td> <td>0.24</td> </tr> </table>	Rated Voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	Tan δ (maximum)	0.23	0.2	0.17	0.15	0.12	0.1	0.09	0.08	0.12	0.14	0.17	0.2	0.24	0.24																																													
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Low Temperature Characteristics	Impedance ratio shall not exceed the value given in the table below																																																																											
	<table border="1"> <tr> <td>Rated Voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Z (-25°C) ØD < 16</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> <td>6</td> <td>8</td> <td>12</td> <td>14</td> <td>16</td> </tr> <tr> <td>Z (+20°C) ØD ≥ 16</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>Z (-40°C) ØD < 16</td> <td>10</td> <td>8</td> <td>6</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>4</td> <td>8</td> <td>10</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>Z (+20°C) ØD ≥ 16</td> <td>18</td> <td>16</td> <td>12</td> <td>10</td> <td>8</td> <td>8</td> <td>6</td> <td>6</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	Z (-25°C) ØD < 16	6	4	3	3	2	2	2	2	3	6	8	12	14	16	Z (+20°C) ØD ≥ 16	8	6	4	4	3	3	3	3	-	-	-	-	-	-	Z (-40°C) ØD < 16	10	8	6	6	4	3	3	3	4	8	10	-	-	-	Z (+20°C) ØD ≥ 16	18	16	12	10	8	8	6	6	-	-	-	-	-	-
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450																																																													
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	Z (+20°C) ØD ≥ 16	8	6	4	4	3	3	3	3	-	-	-	-	-	-																																																													
Z (-40°C) ØD < 16	10	8	6	6	4	3	3	3	4	8	10	-	-	-																																																														
Z (+20°C) ØD ≥ 16	18	16	12	10	8	8	6	6	-	-	-	-	-	-																																																														
After 2,000 hours application of rated voltage at 85°C, capacitors meet the characteristics requirements listed at right																																																																												
<table border="1"> <tr> <td>Leakage Current</td> <td>Initial specified value or less</td> </tr> <tr> <td>Dissipation Factor</td> <td>Within 200% of specified value</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±20% or less of initial value</td> </tr> </table>	Leakage Current	Initial specified value or less	Dissipation Factor	Within 200% of specified value	Capacitance Change	Within ±20% or less of initial value																																																																						
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Shelf Life	After leaving capacitors under no load at 85°C for 1,000 hours and applying voltage they meet the specified value for load life characteristics listed above																																																																											
Ripple Current and Frequency Multipliers	<table border="1"> <tr> <td>Freq (Hz)</td> <td>60 (50)</td> <td>120</td> <td>500</td> <td>1 K</td> <td>10 K up</td> </tr> <tr> <td>Cap (µF)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Under 100</td> <td>0.7</td> <td>1</td> <td>1.3</td> <td>1.4</td> <td>1.5</td> </tr> <tr> <td>100 <C ≤1,000</td> <td>0.75</td> <td>1</td> <td>1.2</td> <td>1.3</td> <td>1.35</td> </tr> <tr> <td>1,000 up above</td> <td>0.8</td> <td>1</td> <td>1.1</td> <td>1.12</td> <td>1.15</td> </tr> </table>	Freq (Hz)	60 (50)	120	500	1 K	10 K up	Cap (µF)						Under 100	0.7	1	1.3	1.4	1.5	100 <C ≤1,000	0.75	1	1.2	1.3	1.35	1,000 up above	0.8	1	1.1	1.12	1.15																																													
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DRAWN BY:	DATE:
SID	31/03/12
CHECKED BY:	DATE:
AMU	31/03/12
APPROVED BY:	DATE:
	16/04/12

DRAWING TITLE:			
Axial Aluminum Electrolytic Capacitors			
SIZE	DWG NO.	ELECTRONIC FILE	REV
A	M10002777	R47M1HB-0512P	A
SCALE: NTS		U.O.M.: mm	SHEET: 2 OF 4



PART NO.

MCTEA - Series

REVISIONS

ECN #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
-	A	RELEASED	SID	31/3/12	AMU	31/3/12		16/4/12

Specification Table

Capacitance	Working Voltage	Diameter	Length	Part Number
µF	V dc	mm	mm	
1	50	5	12	MCTEA010M1HB-0512P
1	250	6.3	13	MCTEA010M2EB-0616 P
10	25	5	12	MCTEA100M1EB-0512P
10	50	5	12	MCTEA100M1HB-0613P
10	63	6.3	13	MCTEA100M1JB-0613P
10	100	6.3	13	MCTEA100M2AB-0613P
10	250	10	21	MCTEA100M2EB-1021P
10	450	13	27	MCTEA100M2WB-1327P
100	25	8	13	MCTEA101M1EB-0813P
100	50	10	17	MCTEA101M1HB-1017P
100	63	10	17	MCTEA101M1JB-1017P
100	35	8	16	MCTEA101M1VB-0816P
100	250	16	42	MCTEA101M2EB-1642P
100	450	25	52	MCTEA101M2WB-2552P
1,000	10	10	17	MCTEA102M1AB-1017P
1,000	25	13	22	MCTEA102M1EB-1322P
1,000	50	16	33	MCTEA102M1HB-1633P
1,000	63	16	36	MCTEA102M1JB-1633P
1,000	35	13	27	MCTEA102M1VB-1327P
22	16	5	12	MCTEA220M1CB-0512P

Capacitance	Working Voltage	Diameter	Length	Part Number
µF	V dc	mm	mm	
22	25	5	12	MCTEA220M1EB-0512P
22	50	6.3	13	MCTEA220M1HB-0613P
22	35	6.3	13	MCTEA220M1VB-0613P
22	250	13	27	MCTEA220M2EB-1327P
22	450	16	36	MCTEA220M2WB-1633P
220	16	8	13	MCTEA221M1CB-0813P
220	50	10	21	MCTEA221M1HB-1021P
220	63	13	22	MCTEA221M1JB-1322P
220	35	10	17	MCTEA221M1VB-1017P
2,200	16	13	24	MCTEA222M1CB-1324P
2,200	25	16	28	MCTEA222M1EB-1628P
2,200	50	18	36	MCTEA222M1HB-1836P
2,200	63	22	43	MCTEA222M1JB-2043P
2,200	35	16	33	MCTEA222M1VB-1636P
2.2	50	5	12	MCTEA2R2M1HB-0512P
2.2	250	8	16	MCTEA2R2M2EB-0816P
2.2	450	10	21	MCTEA2R2M2WB-102P
330	50	13	22	MCTEA331M11HB-1322P
47	16	6.3	13	MCTEA470MCB-0613P
47	25	6.3	13	MCTEA470M1EB-0613P

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AMU	31/03/12
APPROVED BY:	DATE:
	16/04/12

DRAWING TITLE:			
Axial Aluminum Electrolytic Capacitors			
SIZE	DWG NO.	ELECTRONIC FILE	REV
A	M10002777	R47M1HB-0512P	A
SCALE: NTS		U.O.M.: mm	SHEET: 3 OF 4



PART NO.

MCTEA - Series

REVISIONS

ECN #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
-	A	RELEASED	SID	31/3/12	AMU	31/3/12		16/4/12

Specification Table

Capacitance	Working Voltage	Diameter	Length	Part Number
µF	V dc	mm	mm	
47	50	8	13	MCTEA470M1HB-0813P
47	63	8	16	MCTEA470M1JB-0816P
47	35	6.3	13	MCTEA470M1VB-0613P
47	100	10	21	MCTEA470M2AB-1021P
47	250	16	33	MCTEA470M2EB-1633P
47	450	22	42	MCTEA470M2WB-2243P
470	16	8	16	MCTEA471M1CB-0816P
470	50	13	22	MCTEA471M1HB-1322P
470	63	13	27	MCTEA471M1JB-1327P
470	35	13	22	MCTEA471M1VB-1322P
4,700	25	18	36	MCTEA472M1EB-1836P
4,700	63	25	52	MCTEA472M1JB-2552P
4,700	35	22	43	MCTEA472M1VB-2243P
4.7	50	5	12	MCTEA4R7M1HB-0512P
4.7	100	6.3	13	MCTEA4R7M2AB-0613P
4.7	250	8	17	MCTEA4R7M2EB-0821P
4.7	450	10	26	MCTEA4R7M2WB-1026P
0.47	50	5	12	MCTEAR47M1HB-0512P

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	SID	31/03/12				
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	AMU	31/03/12				
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	16/04/12	SHEET: 4 OF 4				