

Snap-In Aluminum Electrolytic Capacitors



MUL Series

MERITEK

FEATURES

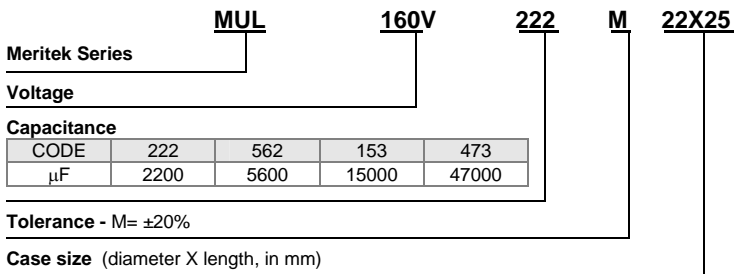
- PCB Mounting, Low profile
- Long life and excellent stability
- No derating at high temperature
- For industrial and commercial application
- Load life of 5,000 hours at 105°C



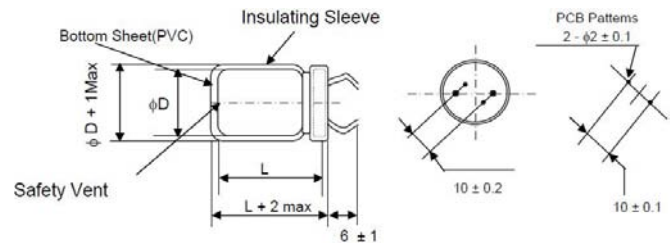
SPECIFICATIONS

Item	Characteristic									
Operating Temp Range	160V-250V: -40°C to +105°C 400V-450V: -25°C to +105°C									
Rated Working Voltage	160 to 450VDC									
Capacitance Tolerance	±20% (M)									
Leakage Current (20°C)	$I \leq 0.02CV$ or 2mA, whichever is less (at 20°C after 5 minutes) I = Leakage current (μ A) C = Nominal capacitance (μ F) V = Rated voltage (VDC)									
Dissipation Factor $\tan\delta$ (120Hz, 20°C)	Add 0.02 per 100 μ F for capacitance greater than 100 μ F <table border="1"> <tr> <td>$\tan\delta$ (120Hz, 20°C)</td> <td>160 to 250</td> <td>400 to 450</td> </tr> <tr> <td></td> <td>0.10</td> <td>0.20</td> </tr> </table>	$\tan\delta$ (120Hz, 20°C)	160 to 250	400 to 450		0.10	0.20			
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	0.10	0.20								
Low Temperature Characteristics	Impedance ratio at 120 Hz <table border="1"> <tr> <td>WV</td> <td>160 to 250</td> <td>400 to 450</td> </tr> <tr> <td>Z -25°C/Z 20°C</td> <td>3</td> <td>8</td> </tr> <tr> <td>Z -40°C/Z 20°C</td> <td>6</td> <td>-</td> </tr> </table>	WV	160 to 250	400 to 450	Z -25°C/Z 20°C	3	8	Z -40°C/Z 20°C	6	-
WV	160 to 250	400 to 450								
Z -25°C/Z 20°C	3	8								
Z -40°C/Z 20°C	6	-								
Load Life	After applying rated working voltage for 5000 hours at 105°C and then being stabilized +20°C, capacitors shall meet following limits. <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of the initial value</td> </tr> <tr> <td>$\tan\delta$</td> <td>≤ ±300% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤ The initial specified value</td> </tr> </table>	Capacitance change	Within ±20% of the initial value	$\tan\delta$	≤ ±300% of the initial specified value	Leakage current	≤ The initial specified value			
Capacitance change	Within ±20% of the initial value									
$\tan\delta$	≤ ±300% of the initial specified value									
Leakage current	≤ The initial specified value									
Shelf Life	After storage for 1000 hours at 105°C with no voltage applied and then being stabilized +20°C, capacitors shall meet following limits. <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±15% of the initial value</td> </tr> <tr> <td>$\tan\delta$</td> <td>≤ 150% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤ The initial specified value</td> </tr> </table>	Capacitance change	Within ±15% of the initial value	$\tan\delta$	≤ 150% of the initial specified value	Leakage current	≤ The initial specified value			
Capacitance change	Within ±15% of the initial value									
$\tan\delta$	≤ 150% of the initial specified value									
Leakage current	≤ The initial specified value									

PART NUMBERING SYSTEM



DIMENSIONS



RIPPLE CURRENT COEFFICIENT

Frequency

Freq (Hz)	50	120	1K	10K	100K
WV (V)					
160 to 250	0.80	1.0	1.25	1.40	1.50
400 to 450	0.82	1.0	1.15	1.20	1.32

Temperature

Temperature	≤ 45°C	60°C	85°C	105°C
Factor	2.40	2.20	1.65	1.00

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W.V(V) Cap (μF)	160(2C)				180(2D)				200(2E)			
	φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35
120									22x25			
									0.75			
150					25x25				22x30	25x25		
					0.80				0.80	0.80		
180	22x25				22x30	25x25			22x30	25x25		
	0.80				0.90	0.90			0.90	0.90		
220	22x30	25x25			22x35	25x25	30x25		22x35	25x30	30x25	
	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
270	22x35	25x30	30x25		22x40	25x30	30x25		22x40	25x35	30x25	
	1.10	1.05	1.10		1.15	1.10	1.10		1.15	1.15	1.10	
330	22x40	25x30	30x25		22x45	25x35	30x30		22x50	25x40	30x30	
	1.20	1.15	1.20		1.25	1.20	1.20		1.30	1.25	1.25	
390	22x45	25x35	30x30		22x50	25x40	30x30			25x45	30x35	35x25
	1.33	1.30	1.30		1.35	1.30	1.30			1.40	1.40	1.40
470	22x50	25x40	30x30			25x45	30x35	35x30		25x50	30x40	35x30
	1.47	1.45	1.47			1.52	1.50	1.50		1.62	1.60	1.60
560		25x45	30x35	35x30		25x50	30x40	35x30			30x45	35x35
		1.60	1.60	1.60		1.73	1.70	1.70			1.80	1.80
680		25x50	30x40	35x30			30x45	35x35			30x50	35x40
		1.80	1.80	1.78			1.95	1.95			2.10	2.10
820			30x45	35x35			30x50	35x40				35x45
			2.15	2.15			2.20	2.20				2.40
1000			30x50	35x40				35x45				35x50
			2.55	2.55				2.65				2.80
1200				35x45				35x50				35x60
				2.90				2.95				3.15
W.V(V) Cap (μF)	250(2V)				400(2G)				450(2W)			
	φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35
39					22x25							
					0.40							
47					22x30							
					0.47							
56					22x35	25x25			22x25			
					0.52	0.52			0.46			
68					22x40	25x30			22x30			
					0.59	0.59			0.53			
82					22x45	25x35	30x25		22x35	25x25		
					0.64	0.62	0.64		0.60	0.53		
100	22x25				22x50	25x40	30x30		22x40	25x30	30x25	
	0.65				0.72	0.70	0.70		0.76	0.60	0.76	
120	22x30	25x25				25x45	30x35	35x25	22x45	25x30	30x30	
	0.80	0.80				0.77	0.75	0.75	0.80	0.76	0.80	
150	22x35	25x30	30x25			25x50	30x40	35x30	22x50	25x35	30x30	
	0.90	0.90	0.90			0.85	0.85	0.85	0.90	0.80	0.90	
180	22x40	25x30	30x25				30x45	35x35		25x40	30x35	
	1.00	1.00	1.00				0.90	0.90		0.90	0.99	
220	22x45	25x35	30x30				30x50	35x40		25x45	30x40	35x30
	1.10	1.10	1.10				1.00	1.00		2.00	1.20	1.25
270	25x50	25x40	30x30					35x50		25x50	30x45	35x35
	1.22	1.20	1.20					1.20		1.20	1.30	1.35
330		25x45	30x35	35x30							30x50	35x40
		1.37	1.35	1.35							1.50	1.55
390		25x50	30x40	35x30								35x45
		1.53	1.50	1.50								1.75
470			30x45	35x35								35x50
			1.70	1.70								1.95
560			30x50	35x40								
			2.10	2.10								
680				35x45								
				2.40								
820				35x50								
				2.60								

I_R : Maximum permissible ripple current [A(rms) at 105°C, 120Hz]
 Case size [φ DxL (mm)]