

# Cylindrical Types, High-Voltage Mica Capacitors

## Types 291, 292, 293, 294 — Cylindrical Case, High-Current and High-Voltage Circuits



Designed for frequencies ranging from 100 kHz to 3 MHz, Mica Capacitor Types 291, 292, 293 and 294 are well suited for high-current and high-voltage circuits like radio transmitters. Cast in cylindrical cases, these capacitors are electrically equivalent to MIL-C-5 Styles CM75 through CM93 in capacitance and current ratings but are far superior in environmental capability, temperature range, physical size, mounting configuration, and reliability.

### Highlights

- Cast in Cylindrical Cases
- Highly shock resistant
- Convenient mounting
- Excellent for radio transmission

### Specifications

<b>Capacitance Range:</b>	47 pF to 0.1 $\mu$ F
<b>Voltage Range:</b>	1 to 30 kV <sub>pk</sub>
<b>Capacitance Tolerance:</b>	$\pm 2\%$ (G), $\pm 5\%$ (J)
<b>Temperature Range:</b>	-55 °C to +125 °C

### Type 291 Ratings

Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C			
		3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)
<b>1,000 Peak Volts</b>					
75000	29110B753J00	18	22	22	16
82000	29110B823J00	18	22	22	16
91000	29110B913J00	18	22	22	16
100000	29110B104J00	18	22	22	18
<b>1,500 Peak Volts</b>					
30000	29115B303J00	18	22	18	12
33000	29115B333J00	18	22	20	13
36000	29115B363J00	18	22	20	13
39000	29115B393J00	18	22	20	13
43000	29115B433J00	18	22	22	13
47000	29115B473J00	18	22	22	15
51000	29115B513J00	18	22	22	15
56000	29115B563J00	18	22	22	15
62000	29115B623J00	18	22	22	16
68000	29115B683J00	18	22	22	16
<b>2,000 Peak Volts</b>					
18000	29120B183J00	18	20	16	11
20000	29120B203J00	18	22	18	11
22000	29120B223J00	18	22	18	11
24000	29120B243J00	18	22	18	12
27000	29120B273J00	18	22	18	12

Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C			
		3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)
<b>3,000 Peak Volts</b>					
12000	29130B123J00	18	20	16	9.1
13000	29130B133J00	18	20	16	10
15000	29130B153J00	18	20	16	10
16000	29130B163J00	18	20	16	10
<b>4,000 Peak Volts</b>					
5100	29140B512J00	16	16	12	6.2
5600	29140B562J00	16	18	13	6.8
6000	29140B602J00	16	18	13	7.5
6200	29140B622J00	16	18	13	7.5
6800	29140B682J00	16	18	13	7.5
7500	29140B752J00	18	18	13	7.5
8200	29140B822J00	18	20	15	8.2
9100	29140B912J00	18	20	15	8.2
10000	29140B103J00	18	20	15	9.1
11000	29140B113J00	18	20	15	9.1
<b>6,000 Peak Volts</b>					
47	29160B470J00	2	1.2	0.5	0.2
50	29160B500J00	2	1.3	0.6	0.2
51	29160B510J00	2	1.3	0.6	0.2
56	29160B560J00	2.2	1.3	0.6	0.2
62	29160B620J00	2.2	1.5	0.6	0.2

# Cylindrical Types, High-Voltage Mica Capacitors

## Types 291 and 292 Ratings

Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C				Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C			
		3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)			3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)
68	29160B680J00	2.4	1.5	0.7	0.2	4000	29160B402J00	16	15	11	5.6
75	29160B750J00	2.4	1.6	0.7	0.2	4300	29160B432J00	16	15	11	5.6
82	29160B820J00	2.7	1.8	0.8	0.2	4700	29160B472J00	16	16	12	6.2
91	29160B910J00	2.7	1.8	0.9	0.3	5000	29160B502J00	16	16	12	6.2
100	29160B101J00	3	2	0.9	0.3	<b>1,500 Peak Volts</b>					
110	29160B111J00	3	2.2	1	0.3	75000	29215B753J00	20	39	33	20
120	29160B121J00	3.3	2.2	1	0.3	82000	29215B823J00	20	39	33	20
130	29160B131J00	3.3	2.4	1.1	0.4	91000	29215B913J00	20	39	33	20
150	29160B151J00	3.6	2.4	1.2	0.4	100000	29215B104J00	20	39	36	20
160	29160B161J00	3.9	2.7	1.3	0.4	<b>2,000 Peak Volts</b>					
180	29160B181J00	4.3	3	1.5	0.5	30000	29220B303J00	20	33	24	15
200	29160B201J00	4.3	3	1.5	0.5	33000	29220B333J00	20	33	24	15
220	29160B221J00	4.7	3.3	1.6	0.6	36000	29220B363J00	20	33	27	16
240	29160B241J00	4.7	3.6	1.8	0.6	39000	29220B393J00	20	36	27	16
270	29160B271J00	5.1	3.6	2	0.6	43000	29220B433J00	20	36	27	16
300	29160B301J00	5.1	3.9	2	0.7	47000	29220B473J00	20	36	27	18
330	29160B331J00	5.6	4.3	2.2	0.8	51000	29220B513J00	20	36	30	18
360	29160B361J00	6.2	4.3	2.4	0.8	56000	29220B563J00	20	36	30	18
390	29160B391J00	6.2	4.7	2.7	0.8	62000	29220B623J00	20	39	30	18
400	29160B401J00	6.2	4.7	2.7	0.8	68000	29220B683J00	20	39	33	20
430	29160B431J00	6.8	4.7	2.7	0.8	<b>3,000 Peak Volts</b>					
470	29160B471J00	6.8	5.1	3	0.9	18000	29230B183J00	20	30	20	12
500	29160B501J00	6.8	5.1	3	1	20000	29230B203J00	20	30	22	13
510	29160B511J00	6.8	5.1	3	1	22000	29230B223J00	20	30	22	13
560	29160B561J00	7.5	5.6	3.3	1.1	24000	29230B243J00	20	33	24	13
620	29160B621J00	8.2	6.2	3.6	1.2	27000	29230B273J00	20	33	24	13
680	29160B681J00	8.2	6.2	3.9	1.3	<b>4,000 Peak Volts</b>					
750	29160B751J00	8.2	6.8	3.9	1.5	12000	29240B123J00	20	27	18	10
820	29160B821J00	9.1	6.8	4.3	1.5	13000	29240B133J00	20	27	20	10
910	29160B911J00	9.1	7.5	4.7	1.6	15000	29240B153J00	20	27	20	11
1000	29160B102J00	10	7.5	5.1	1.8	16000	29240B163J00	20	27	20	11
1100	29160B112J00	10	8.2	5.1	2	<b>5,000 Peak Volts</b>					
1200	29160B122J00	11	8.2	5.6	2.2	5600	29250B562J00	20	20	13	6.8
1300	29160B132J00	11	9.1	6.2	2.2	6000	29250B602J00	20	22	15	6.8
1500	29160B152J00	12	9.1	6.2	2.4	6200	29250B622J00	20	22	15	6.8
1600	29160B162J00	12	10	6.8	2.7	6800	29250B682J00	20	22	15	7.5
1800	29160B182J00	13	11	7.5	3.0	7500	29250B752J00	20	22	15	7.5
2000	29160B202J00	13	11	7.5	3.3	8200	29250B822J00	20	24	16	8.2
2200	29160B222J00	13	12	8.2	3.6	9100	29250B912J00	20	24	16	8.2
2400	29160B242J00	15	13	9.1	3.9	10000	29250B103J00	20	24	18	9.1
2700	29160B272J00	15	13	9.1	3.9	11000	29250B113J00	20	27	18	9.1
3000	29160B302J00	15	13	9.1	4.3	<b>6,000 Peak Volts</b>					
3300	29160B332J00	15	15	10	4.7	4700	29260B472J00	20	20	13	6.2
3600	29160B362J00	16	15	11	5.1	5000	29260B502J00	20	20	13	6.2
3900	29160B392J00	16	15	11	5.6	5100	29260B512J00	20	20	13	6.2

# Cylindrical Types, High-Voltage Mica Capacitors

## Types 292 and 293 Ratings

Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C			
		3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)
<b>8,000 Peak Volts</b>					
2200	29280B222J00	18	13	9.1	3.9
2400	29280B242J00	18	15	10	4.3
2700	29280B272J00	18	15	10	4.3
3000	29280B302J00	18	16	10	4.7
3300	29280B332J00	20	16	11	4.7
3600	29280B362J00	20	18	11	5.1
3900	29280B392J00	20	18	12	5.6
4000	29280B402J00	20	18	12	5.6
4300	29280B432J00	20	18	12	5.6
<b>10,000 Peak Volts</b>					
47	292100B470J00	2.7	2	0.9	0.3
51	292100B510J00	2.7	2	1	0.3
56	292100B560J00	3	2.2	1	0.3
62	292100B620J00	3.3	2.2	1.1	0.3
68	292100B680J00	3.3	2.4	1.2	0.3
75	292100B750J00	3.6	2.4	1.2	0.4
82	292100B820J00	3.6	2.7	1.3	0.4
91	292100B910J00	3.9	2.7	1.5	0.4
100	292100B101J00	4.3	3	1.5	0.5
110	292100B111J00	4.3	3	1.6	0.5
120	292100B121J00	4.7	3.3	1.6	0.6
130	292100B131J00	4.7	3.6	1.8	0.6
150	292100B151J00	5.1	3.6	1.8	0.6
160	292100B161J00	5.1	3.9	2	0.8
180	292100B181J00	5.6	4.3	2.2	0.8
200	292100B201J00	6.2	4.3	2.4	0.8
220	292100B221J00	6.2	4.7	2.4	0.9
240	292100B241J00	6.8	5.1	2.7	1.0
250	292100B251J00	6.8	5.1	2.7	1.0
270	292100B271J00	6.8	5.1	2.7	1.0
300	292100B301J00	7.5	5.6	3	1.1
330	292100B331J00	7.5	5.6	3	1.2
360	292100B361J00	8.2	6.2	3.6	1.2
390	292100B391J00	8.2	6.2	3.6	1.3
430	292100B431J00	9.1	6.2	3.6	1.3
470	292100B471J00	9.1	6.8	3.9	1.5
500	292100B501J00	9.1	6.8	3.9	1.6
510	292100B511J00	9.1	6.8	3.9	1.6
560	292100B561J00	10	7.5	4.3	1.6
620	292100B621J00	11	8.2	4.7	1.8
680	292100B681J00	11	8.2	4.7	1.8
750	292100B751J00	11	8.2	5.1	2.0
820	292100B821J00	12	9.1	5.1	2.2
910	292100B911J00	12	9.1	5.6	2.2
1000	292100B102J00	12	10	6.2	2.4

Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C			
		3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)
1100	292100B112J00	13	10	6.2	2.7
1200	292100B122J00	15	11	6.8	2.7
1300	292100B132J00	15	11	6.8	2.7
1500	292100B152J00	15	12	7.5	3.0
1600	292100B162J00	16	12	7.5	3.3
1800	292100B182J00	16	13	8.2	3.6
2000	292100B202J00	16	13	8.2	3.6

Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C				Case Height (in)
		3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)	
75000	29320B753J00	24	51	39	24	2.50
82000	29320B823J00	24	51	39	24	2.50
91000	29320B913J00	24	51	39	24	2.75
100000	29320B104J00	24	51	39	24	2.75
<b>3,000 Peak Volts</b>						
27000	29330B273J00	24	51	33	18	2.50
30000	29330B303J00	24	51	33	20	2.50
33000	29330B333J00	24	51	33	20	2.50
36000	29330B363J00	24	51	36	22	2.50
39000	29330B393J00	24	51	36	22	2.50
43000	29330B433J00	24	51	36	22	2.50
47000	29330B473J00	24	51	36	22	2.50
51000	29330B513J00	24	51	36	24	2.75
56000	29330B563J00	24	51	36	24	2.75
62000	29330B623J00	24	51	39	24	3.00
68000	29330B683J00	24	51	39	24	3.00
<b>5,000 Peak Volts</b>						
12000	29350B123J00	24	43	27	13	2.50
13000	29350B133J00	24	43	27	13	2.50
15000	29350B153J00	24	43	27	15	2.50
16000	29350B163J00	24	47	30	15	2.50
18000	29350B183J00	24	47	30	16	2.75
20000	29350B203J00	24	47	30	18	2.75
22000	29350B223J00	24	47	30	18	3.00
24000	29350B243J00	24	51	33	18	3.25
<b>8,000 Peak Volts</b>						
9100	29380B912J00	24	39	24	12	3.25
10000	29380B103J00	24	39	24	12	3.25
11000	29380B113J00	24	39	27	13	3.25
<b>10,000 Peak Volts</b>						
4700	293100B472J00	22	27	18	8.2	2.75
5000	293100B502J00	24	30	18	9.1	2.75
5100	293100B512J00	24	30	18	9.1	2.75
5600	293100B562J00	24	33	20	9.1	3.00

# Cylindrical Types, High-Voltage Mica Capacitors

## Types 293 and 294 Ratings

Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C				Case Height (in)
		3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)	
6000	293100B602J00	24	33	20	10	3.00
6200	293100B622J00	24	33	20	10	3.00
6800	293100B682J00	24	33	20	10	3.00
7500	293100B752J00	24	36	22	11	3.25
8000	293100B802J00	24	36	22	11	3.25
8200	293100B822J00	24	36	22	11	3.25
<b>12,000 Peak Volts</b>						
2200	293120B222J00	20	20	12	5.6	2.50
2400	293120B242J00	20	22	13	6.2	2.75
2700	293120B272J00	20	22	13	6.2	2.75
3000	293120B302J00	20	24	15	6.8	3.00
3300	293120B332J00	22	24	15	6.8	3.00
3600	293120B362J00	22	24	15	7.5	3.00
3900	293120B392J00	22	27	16	7.5	3.00
4000	293120B402J00	22	27	16	7.5	3.25
4300	293120B432J00	22	27	16	8.2	3.25
<b>15,000 Peak Volts</b>						
1200	293150B122J00	16	15	8.2	4.3	2.50
1300	293150B132J00	16	15	9.1	4.3	2.50
1500	293150B152J00	16	16	9.1	4.7	2.75
1600	293150B162J00	18	18	10	4.7	2.75
1800	293150B182J00	18	18	11	5.1	3.00
2000	293150B202J00	18	20	11	5.6	3.00
<b>20,000 Peak Volts</b>						
47	293200B470J00	5.1	2.2	0.5	0.1	2.50
50	293200B500J00	5.1	2.4	0.5	0.2	2.50
51	293200B510J00	5.1	2.4	0.5	0.2	2.50
56	293200B560J00	5.6	2.4	0.6	0.2	2.50
62	293200B620J00	5.6	2.7	0.7	0.2	2.50
68	293200B680J00	5.6	2.7	0.8	0.2	2.50
75	293200B750J00	6.2	3	0.9	0.3	2.50
82	293200B820J00	6.2	3	1	0.3	2.50
91	293200B910J00	6.8	3.3	1.1	0.4	2.50
100	293200B101J00	6.8	3.6	1.3	0.5	2.50
110	293200B111J00	7.5	3.9	1.5	0.5	2.50
120	293200B121J00	7.5	4.3	1.6	0.6	2.50
130	293200B131J00	7.5	4.3	1.8	0.7	2.50
150	293200B151J00	8.2	4.7	2	0.8	2.50
160	293200B161J00	8.2	5.1	2.2	0.9	2.50
180	293200B181J00	9.1	5.1	2.4	1	2.50
200	293200B201J00	9.1	5.6	2.7	1.1	2.50
220	293200B221J00	9.1	6.2	3	1.2	2.50
240	293200B241J00	10	6.2	3.6	1.3	2.50
250	293200B251J00	10	6.2	6.8	1.3	2.50
270	293200B271J00	10	6.8	3.6	1.5	2.50
300	293200B301J00	10	6.8	3.9	1.6	2.50
330	293200B331J00	11	7.5	3.9	1.6	2.50

Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C				Case Height (in)
		3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)	
360	293200B361J00	11	7.5	3.9	1.8	2.50
390	293200B391J00	11	8.2	4.3	2	2.50
430	293200B431J00	12	8.2	4.7	2.2	2.50
470	293200B471J00	12	9.1	4.7	2.2	2.50
500	293200B501J00	12	9.1	5.1	2.4	2.50
510	293200B511J00	12	9.1	5.1	2.4	2.50
560	293200B561J00	13	10	5.6	2.7	2.50
620	293200B621J00	13	11	6.2	2.7	2.50
680	293200B681J00	13	11	6.2	2.7	2.75
750	293200B751J00	13	12	6.8	3	2.75
800	293200B801J00	15	12	6.8	3.3	2.75
820	293200B821J00	15	12	6.8	3.3	2.75
910	293200B911J00	15	13	7.5	3.6	2.75
1000	293200B102J00	15	13	7.5	3.6	2.75
1100	293200B112J00	16	15	8.2	3.9	2.75
<b>3,000 Peak Volts</b>						
82000	29430B823J00	30	62	43	39	5.00
91000	29430B913J00	30	62	43	39	5.00
100000	29430B104J00	30	62	43	39	5.00
<b>4,000 Peak Volts</b>						
68000	29440B683J00	30	56	39	36	5.00
75000	29440B753J00	30	62	43	36	5.00
<b>5,000 Peak Volts</b>						
33000	29450B333J00	30	56	39	27	4.50
36000	29450B363J00	30	56	39	30	4.50
39000	29450B393J00	30	56	39	30	5.00
40000	29450B403J00	30	56	39	30	5.00
43000	29450B433J00	30	56	39	30	5.00
47000	29450B473J00	30	56	39	30	5.00
51000	29450B513J00	30	56	39	33	5.00
56000	29450B563J00	30	56	39	33	5.00
62000	29450B623J00	30	56	39	33	5.00
<b>6,000 Peak Volts</b>						
18000	29460B183J00	30	51	36	22	4.00
20000	29460B203J00	30	51	36	24	4.00
22000	29460B223J00	30	51	36	24	4.00
24000	29460B243J00	30	56	39	27	4.50
27000	29460B273J00	30	56	39	27	4.50
30000	29460B303J00	30	56	39	27	5.00
<b>8,000 Peak Volts</b>						
12000	29480B123J00	30	43	30	20	4.50
13000	29480B133J00	30	47	30	20	4.50
15000	29480B153J00	30	47	33	20	5.00
16000	29480B163J00	30	47	33	22	5.00
<b>10,000 Peak Volts</b>						
10000	294100B103J00	30	43	30	18	5.00

# Cylindrical Types, High-Voltage Mica Capacitors

## Type 294 Ratings

Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C				Case Height (in)
		3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)	
11000	294100B113J00	30	43	30	18	5.00
<b>12,000 Peak Volts</b>						
8000	294120B802J00	30	39	27	16	5.00
8200	294120B822J00	30	39	27	16	5.00
9100	294120B912J00	30	39	27	16	5.00
<b>15,000 Peak Volts</b>						
4300	294150B432J00	27	30	20	11	4.50
4700	294150B472J00	27	30	22	12	4.50
5000	294150B502J00	27	33	22	12	4.50
5100	294150B512J00	27	33	22	12	4.50
5600	294150B562J00	27	36	22	13	5.00
6000	294150B602J00	27	36	24	15	5.00
6200	294150B622J00	27	36	24	15	5.00
6800	294150B682J00	27	36	24	15	5.00
7500	294150B752J00	30	36	27	16	5.00
<b>20,000 Peak Volts</b>						
2000	294200B202J00	22	22	15	7.5	4.50
2200	294200B222J00	22	24	15	8.2	4.50
2400	294200B242J00	22	24	16	8.2	4.50
2700	294200B272J00	22	24	16	9.1	5.00
3000	294200B302J00	24	27	18	9.1	5.00
3300	294200B332J00	24	27	18	10	5.00
3600	294200B362J00	24	27	18	10	5.00
3900	294200B392J00	24	30	20	11	5.00
4000	294200B402J00	24	30	20	11	5.00
<b>25,000 Peak Volts</b>						
1100	294250B112J00	18	18	11	5.6	4.50
1200	294250B122J00	18	18	11	5.6	4.50
1300	294250B132J00	18	18	12	6.2	4.50
1500	294250B152J00	20	20	12	6.2	5.00

Cap (pF)	Catalog Part Number	Maximum AC Current at 65 °C				Case Height (in)
		3 MHz (A)	1 MHz (A)	300 kHz (A)	100 kHz (A)	
1600	294250B162J00	20	20	13	6.8	5.00
1800	294250B182J00	20	22	13	7.5	5.00
<b>30,000 Peak Volts</b>						
100	294300B101J00	7.5	5.1	2	0.7	4.00
110	294300B111J00	8.2	5.1	2.2	0.8	4.00
120	294300B121J00	8.2	5.6	2.4	1	4.00
130	294300B131J00	9.1	6.2	2.7	1.1	4.00
150	294300B151J00	9.1	6.2	3	1.3	4.00
160	294300B161J00	9.1	6.8	3.3	1.5	4.00
180	294300B181J00	10	6.8	3.6	1.6	4.00
200	294300B201J00	10	7.5	3.9	1.8	4.00
220	294300B221J00	11	7.5	3.9	2	4.00
240	294300B241J00	11	8.2	4.3	2	4.00
250	294300B251J00	11	8.2	4.3	2	4.00
270	294300B271J00	11	9.1	4.7	2.2	4.00
300	294300B301J00	12	9.1	5.1	2.4	4.00
330	294300B331J00	12	9.1	5.1	2.4	4.00
360	294300B361J00	12	10	5.6	2.7	4.00
390	294300B391J00	13	11	6.2	3	4.00
430	294300B431J00	13	11	6.2	3	4.00
470	294300B471J00	13	11	6.8	3.3	4.00
500	294300B501J00	13	12	6.8	3.3	4.00
510	294300B511J00	13	12	6.8	3.3	4.00
560	294300B561J00	15	13	7.5	3.6	4.00
620	294300B621J00	15	13	8.2	3.9	4.00
680	294300B681J00	15	13	8.2	4.3	4.50
750	294300B751J00	16	15	8.2	4.3	4.50
800	294300B801J00	16	15	9.1	4.7	4.50
820	294300B821J00	16	15	9.1	4.7	4.50
910	294300B911J00	16	15	10	5.1	4.50
1000	294300B102J00	18	16	10	5.1	4.50

# Cylindrical Types, High-Voltage Mica Capacitors

## Ordering Information

Ordering Information: Order by complete part number, as below. For other options, write your requirements on your quote request or purchase order.

## Cast-Case Part Numbering System

291   CDE Type	30   Rated Peak Voltage 10 = 1000 30 = 3000 250 = 25000	B   Characteristic	470   Capacitance 470 = 47 pF 361 = 360 pF 122 = 1200 pF	J   Capacitance Tolerance G = ±2% J = ±5%	O   Temperature Range O = -55 °C to +125 °C	0   Mounting Style 0 = No mounting plate 1 = Mounting plate on bottom only 2 = Mounting plates on top and bottom
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	Temp. Coeff. ppm/°C	Capacitance Drift	Standard Cap. Range
B	Not specified	Not specified	
C	-200 to +200	±(0.5% +0.1pF)	1-18 pF
D	-100 to +100	±(0.3% +0.1pF)	
E	-20 to +100	±(0.1% +0.1pF)	20-82 pF

## Potted Case Styles

Transmitting mica capacitor type 272 is available in potted case package Type F2. To order this potted style use the part numbering below and contact us.

F2   CDE Type	30   Rated Peak Voltage (in hundreds of peak work- ing volts)	B   Characteristic	470   Capacitance 470 = 47 pF 361 = 360 pF 122 = 1200 pF	J   Capacitance Tolerance G = ±2% J = ±5% (standard)	M   Temperature Range M = -55 °C to +70 °C
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## Military Style Numbers

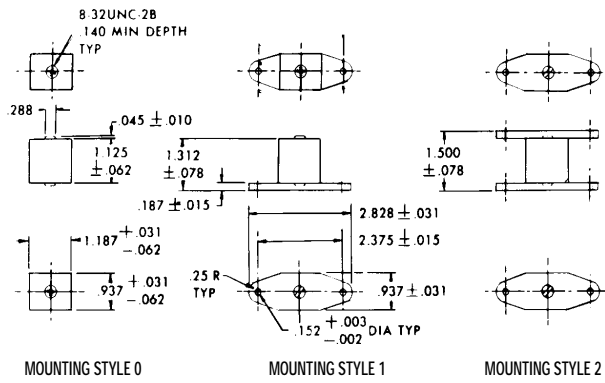
For the commercial equivalent to military style numbers CM66 through CM93 see the tables below.

Military Style No.	Equivalent CDE Type
CM66	271, Mounting Style 0
CM67	271, Mounting Style 1
CM68	271, Mounting Style 2
CM70	F2
CM71	272, Mounting Style 0
CM72	272, Mounting Style 1
CM73	272, Mounting Style 2
CM76	291, Mounting Style 0
CM77	291, Mounting Style 1
CM78	291, Mounting Style 2

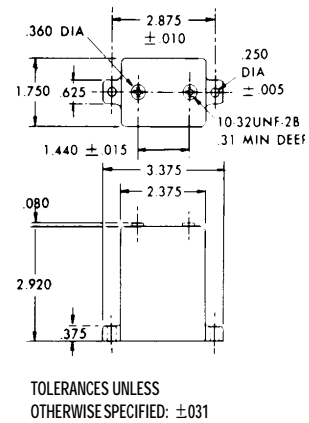
Military Style No.	Equivalent CDE Type
CM81	292, Mounting Style 0
CM82	292, Mounting Style 1
CM83	292, Mounting Style 2
CM86	293, Mounting Style 0
CM87	293, Mounting Style 1
CM88	293, Mounting Style 2
CM91	294, Mounting Style 0
CM92	294, Mounting Style 1
CM93	294, Mounting Style 2

# Cylindrical Types, High-Voltage Mica Capacitors

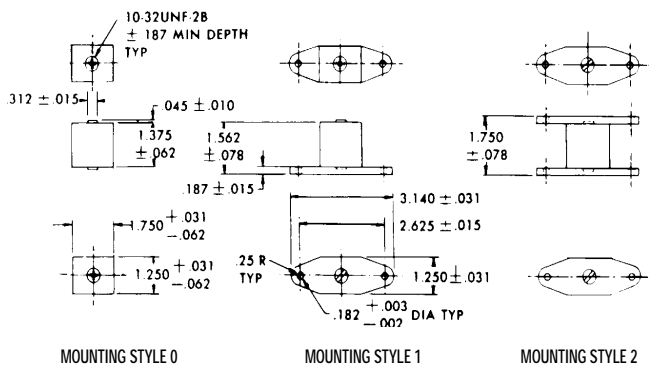
## Type 271



## Type 273

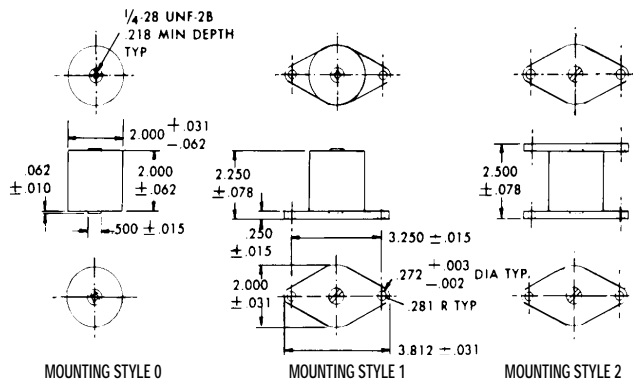


## Type 272

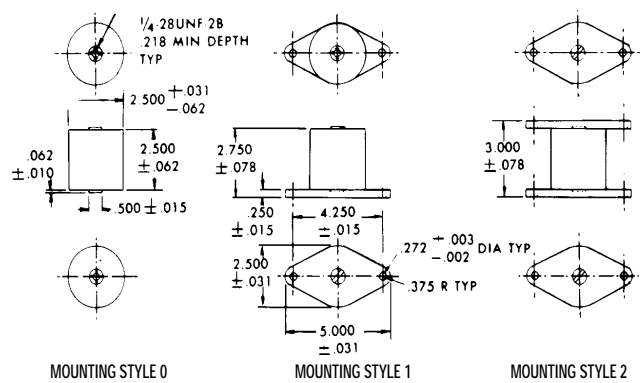


## Cast-Case Styles

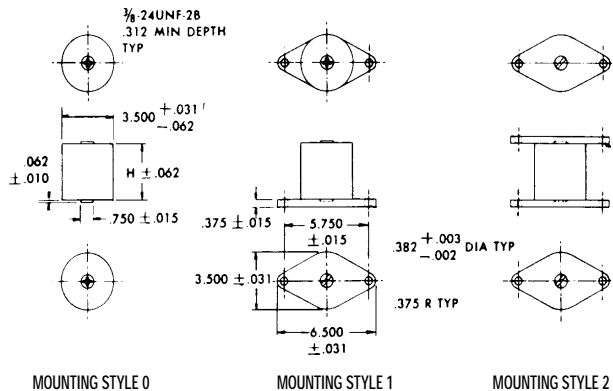
## Type 291



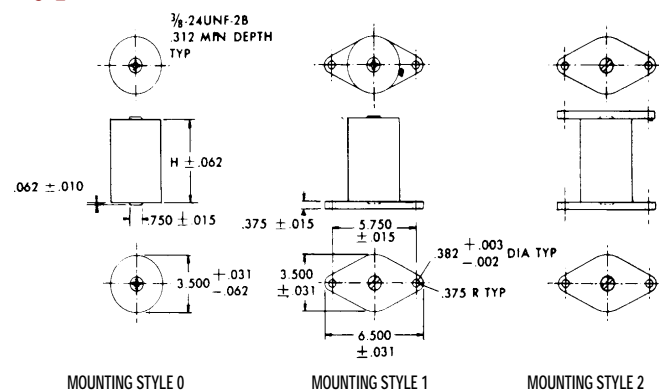
## Type 292



## Type 293

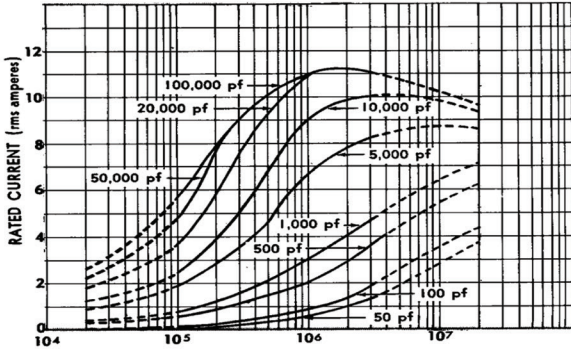


## Type 294

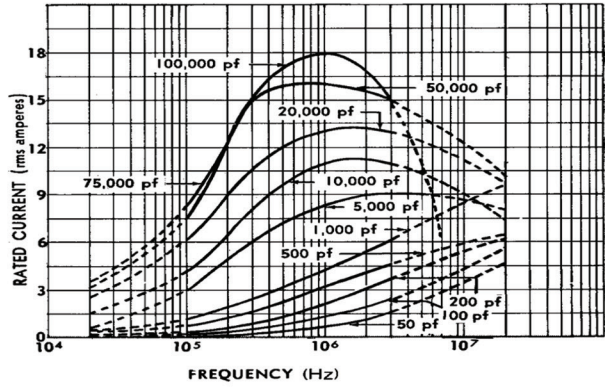


# Cylindrical Types, High-Voltage Mica Capacitors

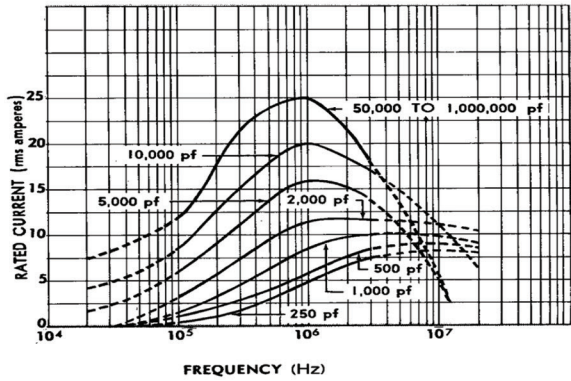
**Type 271 (CM 66)**  
Rated Current Versus Frequency



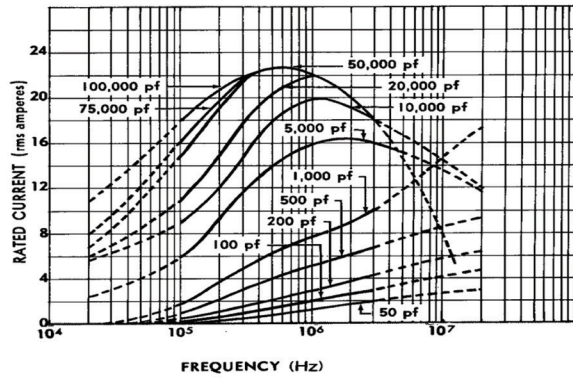
**Type 272 (CM 71)**  
Rated Current Versus Frequency



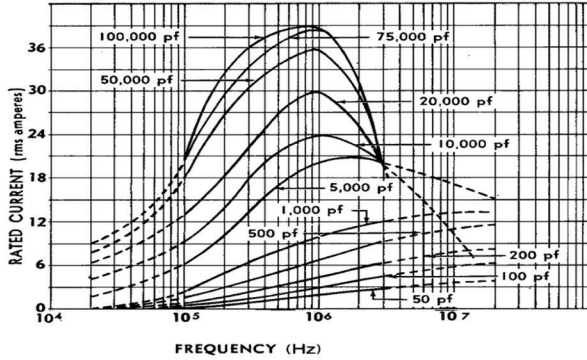
**Type 273**  
Rated Current Versus Frequency



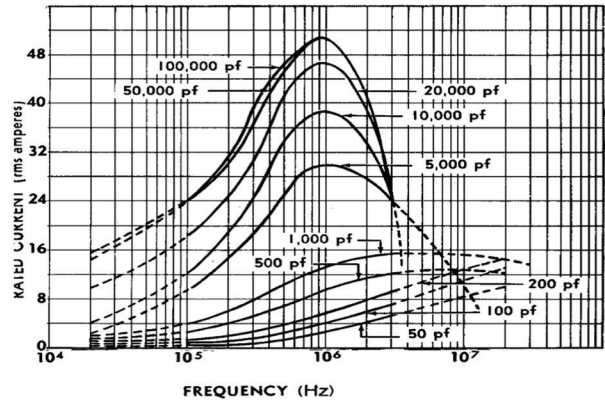
**Type 291 (CM 76)**  
Rated Current Versus Frequency



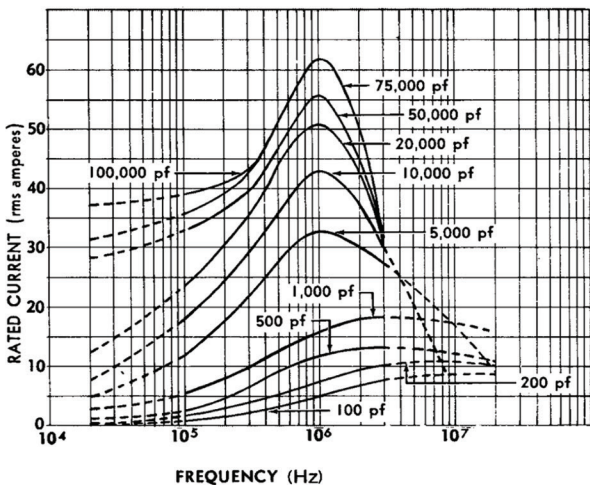
**Type 292 (CM 81)**  
Rated Current Versus Frequency



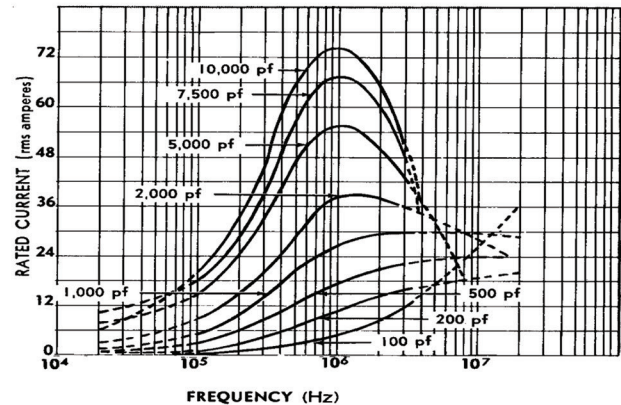
**Type 293 (CM 86)**  
Rated Current Versus Frequency



**Type 294 (CM 91)**  
Rated Current Versus Frequency



**Type G5 (CM 95)**  
Rated Current Versus Frequency





# Cylindrical Types, High-Voltage Mica Capacitors

## Specifications

**Capacitance** is within tolerance when measured at these frequencies:

- 1–1000 pF @ 1 MHz
- > 1000 pF @ 1 kHz

**Dissipation Factor** is typically less than 0.05% when measured as above. Dissipation factor (DF) equals  $2\pi fRC$ , where  $f$  is the test frequency,  $R$  is the equivalent series resistance ( $\Omega$ ), and  $C$  is nominal capacitance (F).  $Q$  is the reciprocal of the dissipation factor.

**Operating Temperature Range** is  $-55^\circ\text{C}$  to  $+125^\circ\text{C}$ . Insulation Resistance is no less than 7500 M $\Omega$  when measured at 100 Vdc.

**Temperature Coefficient and Capacitance Drift:** Measure the capacitors' capacitance at  $25^\circ\text{C}$ ,  $55^\circ\text{C}$ ,  $25^\circ\text{C}$ ,  $125^\circ\text{C}$ , and at  $25^\circ\text{C}$  after stabilizing at each temperature. The capacitance will meet the limits of the Characteristic table shown in Ordering Information.

**Rated Peak Voltage** is not to be exceeded in actual use. Voltage ratings are in the listings and apply under the following conditions:

- Temperature: Within the specified operating temperature range.
- Altitude: Up to 50,000 feet or 3.4 inches of mercury.
- Relative Humidity: Up to 80%.
- Frequency: As specified.
- Where pulse conditions are encountered, contact us.

**Withstanding Voltage:** Capacitors will withstand application of an ac potential between terminals having an rms value equal to the rated peak voltage at a frequency of 100 Hz or less without damage, arcing or breakdown. Apply the potential by raising the voltage from zero to the specified value. Apply the full potential for a minimum of 5 seconds.

**Case Insulation:** Capacitor cases will withstand, without damage, arcing or breakdown, a 60-Hz peak ac potential equal to twice the rated peak voltage applied between the terminals connected together and a metal electrode touching the case. Apply this potential for 1 to 5 seconds.

**Current Ratings** at various frequencies are in the listings and apply under the following conditions:

- Temperature:  $65^\circ\text{C}$  maximum
- Derating Factor: None

**Vibration:** Capacitors will withstand vibrational forces occurring at rates of from 10 to 55 Hz for  $4\frac{1}{2}$  hours. The total excursion during vibration is 0.06 inches. At the end of this period, make the following inspections and tests:

Visual and Mechanical Inspection: No perceptible deterioration. Withstanding Voltage: As specified under Withstanding Voltage.

Insulation Resistance: No less than 7500 M $\Omega$ .

Capacitance Change: Not to exceed 3% of the nominal value or one picofarad, whichever is greater.

**Temperature and Immersion Cycling:** Capacitors will withstand the temperature and immersion cycles indicated in the tables below. Follow three temperature cycles by two immersion cycles. Make the measurements listed below no more than 30 minutes following the final immersion cycle:

Withstanding Voltage: As specified under Withstanding Voltage.

Insulation Resistance: No less than 7500 M $\Omega$ .

Capacitance: Change not to exceed 4% of the nominal value or one picofarad, whichever is greater.

## Temperature Cycling Test Conditions

Steps	Temp (°C)	Interval (Minutes)
1	$-55 + 0$ $-3$	30
2	$25 + 10$ $-5$	10 to 15
3	$125 + 3$ $-0$	30
4	$25 + 10$ $-5$	10 to 15

## Immersion Test Conditions

- Number of cycles: 2
- Duration of each immersion: 15 minutes
- Immersion bath: Saturated solution of sodium chloride and water
- Temp. of hot bath:  $65 - 0 + 5^\circ\text{C}$
- Temp. of cold bath:  $25 - 0 + 10^\circ\text{C}$

**Life Test:** Subject all capacitors to a temperature of  $55^\circ\text{C}$  for 48 hours. Then subject units cast in rectangular cases (Types 271, 272, and 273) to a 60-Hz rms voltage equal to the rated peak voltage for 250 hours. Subject units cast in cylindrical cases (Types 291, 292, 293, and 294) to a 60-Hz rms voltage equal to 90% of the rated peak voltage for 250 hours. In both tests, maintain the temperature at  $125^\circ\text{C}$ . After test, the capacitors will meet these requirements:

Withstanding Voltage: As specified under Withstanding Voltage.

Insulation Resistance: No less than 7500 M $\Omega$ .

Capacitance Change: Within the limits given in the table below or one picofarad, whichever is greater.

## Characteristic Maximum Cap.

<b>B</b>	$\pm 8\%$
<b>C</b>	$\pm 3\%$
<b>D</b>	$\pm 3\%$
<b>E</b>	$\pm 3\%$

In addition, the capacitor must show no visual damage and the markings must be legible

## Cylindrical Types, High-Voltage Mica Capacitors

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