



### Type 725M Orange Drop<sup>®</sup> Metallized Polypropylene Film Capacitors

#### Features

- Radial-lead
- Pressed profile, compact size
- Non-inductively wound
- Very low ESR/ESL
- Self-healing properties

#### Specifications

**Capacitance Range:**

.01 to 4.7 $\mu$ F

**Capacitance Tolerance:**

$\pm 5\%$ ,  $\pm 10\%$

(other tolerances available upon request)

**Voltage Ratings:**

160 to 630 Volts D-C

100 to 250 Volts A-C

**Operating Temperature Range:**

-55°C to +85°C (at full voltage)

**Voltage Derating:**

At +105°C, 50% of +85°C rating.

**Dissipation Factor:**

0.1% Maximum @ 1 KHz, +25°C

(contact us for additional details on specific capacitance and voltage ratings.)

**Corona Start Voltage (typical):**

160 VDC units: 250 Volts RMS

250 VDC units: 275 Volts RMS

400 VDC units: 300 Volts RMS

630 VDC units: 325 Volts RMS

**Insulation Resistance:**

At +25°C: 200,000 M $\Omega$  for C  $\leq$  0.5  $\mu$ F

100,000 M $\Omega$ - $\mu$ F for C > 0.5  $\mu$ F

At +85°C: 10,000 M $\Omega$  for C  $\leq$  0.5  $\mu$ F

5,000 M $\Omega$ - $\mu$ F for C > 0.5  $\mu$ F

**Pulse Rise Time (dV/dt):**

See standard ratings table. dV/dt rating is in Volts/ $\mu$ sec.

**Encapsulation:**

Conformal coating of orange, flame retardant epoxy. Meets UL94V-2 specifications.

**Lead Wire:**

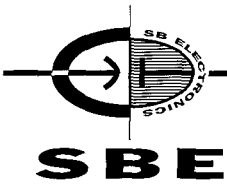
Tinned copper-clad steel,  
.032 (0.8) diameter, #20 AWG.

**Dielectric/Construction:**

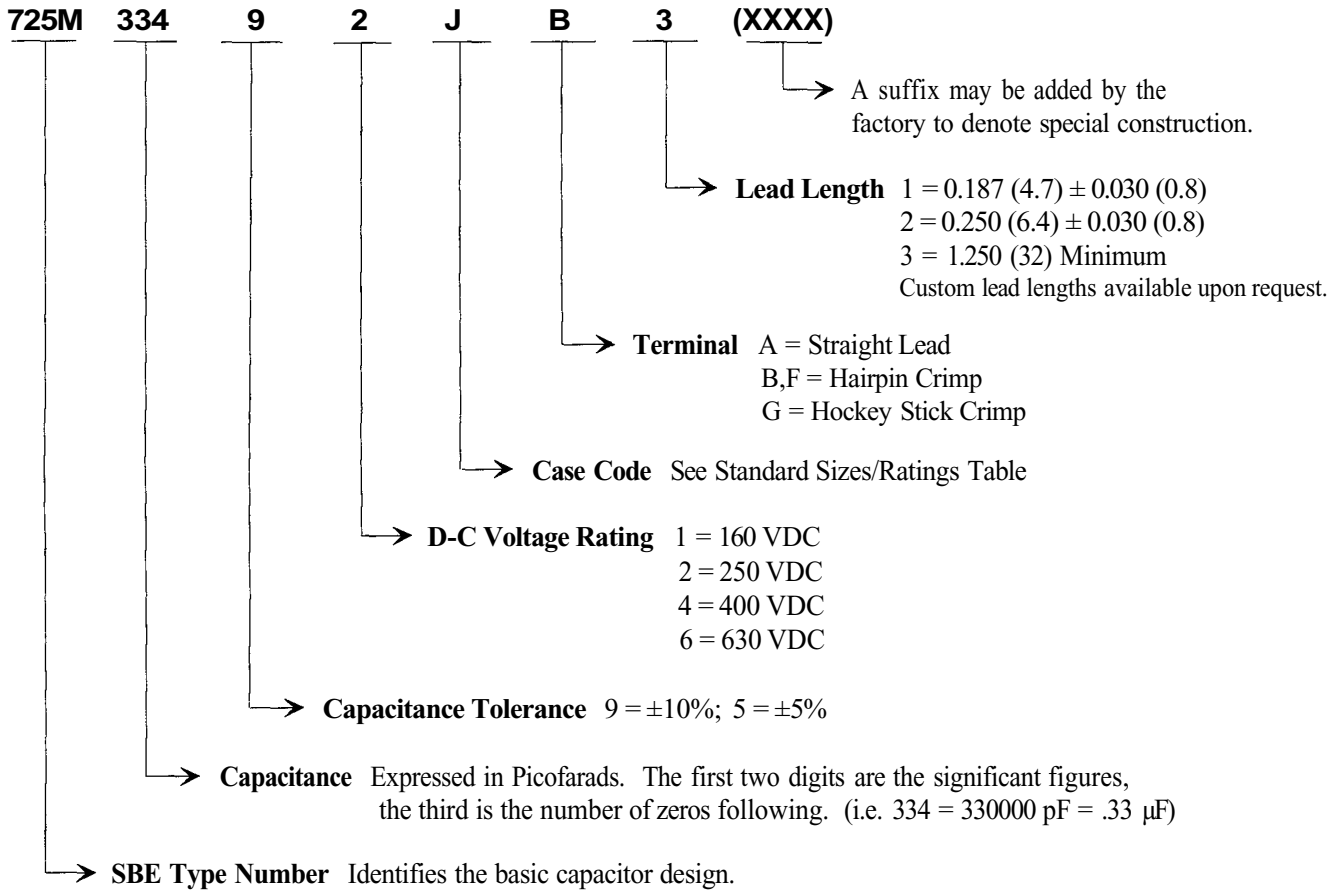
Metallized Polypropylene film, single section design. Non-inductively wound.

Dimensions in inches, metric (mm) in parenthesis.

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## Ordering/Part Number Information



## Standard Marking Format

### Sample Marking on unit

SBE725M250V  
334K 9910

### Description

SBE - SB Electronics identification  
 725M - Type number  
 250V - D-C Voltage rating, Volts  
 334K - Capacitance and tolerance code  
 9910 - Weekly date code  
 (i.e. 10th week of 1999)

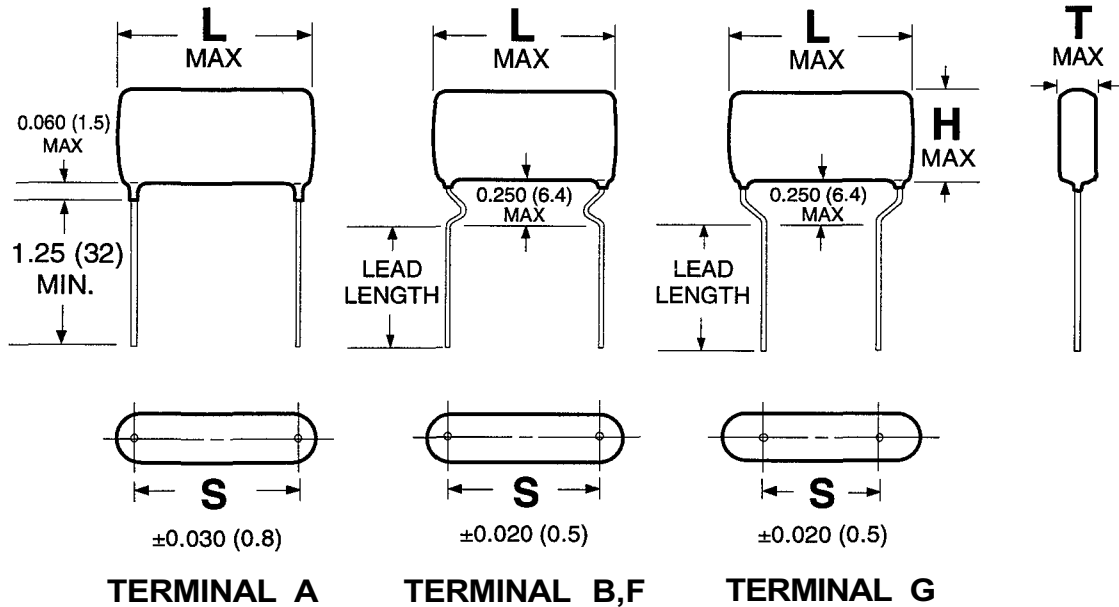
### Tolerance codes per EIA Standards

J ±5%  
 K ±10%

**Dimensions in inches, metric (mm) in parenthesis.**

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### Standard Lead Styles



### Standard Lead Spacings

CASE CODE	<b>S</b>			
	Term. A	Term. B	Term. F	Term. G
N	0.394 (10.0)	0.394 (10.0)	0.295 (7.5)	0.197 (5.0)
J	0.590 (15.0)	0.590 (15.0)	0.394 (10.0)	0.295 (7.5)
R	0.886 (22.5)	0.886 (22.5)	0.590 (15.0)	0.394 (10.0)
L	1.083 (27.5)	1.083 (27.5)	0.886 (22.5)	0.590 (15.0)

Dimensions in inches, metric (mm) in parenthesis.

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Type 725M Standard Sizes/Ratings

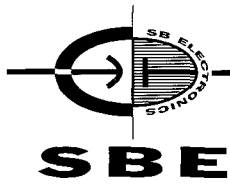
Value ( $\mu$ F)	Part Number <sup>1</sup>	L MAX	T MAX	H MAX	dV/dt Volts/ $\mu$ sec	Value ( $\mu$ F)	Part Number <sup>1</sup>	L MAX	T MAX	H MAX	dV/dt Volts/ $\mu$ sec
<b>160 VDC / 100 VAC*</b>						<b>250 VDC / 160 VAC*</b>					
0.1	725M10491N	.52 (13.2)	.21 (5.3)	.39 (9.9)	55	0.056	725M56392N	.52 (13.2)	.21 (5.3)	.35 (8.9)	54
0.12	725M12491N	.52 (13.2)	.26 (6.6)	.43 (10.9)	64	0.062	725M62392N	.52 (13.2)	.21 (5.3)	.38 (9.7)	61
0.15	725M15491N	.52 (13.2)	.22 (5.9)	.49 (12.4)	73	0.068	725M68392N	.52 (13.2)	.22 (5.6)	.39 (9.9)	68
0.18	725M18491N	.52 (13.2)	.24 (6.1)	.51 (13.0)	79	0.075	725M75392N	.52 (13.2)	.21 (5.3)	.42 (10.7)	73
						0.082	725M82392N	.52 (13.2)	.22 (5.6)	.43 (10.9)	77
0.22	725M22491J	.73 (18.5)	.20 (5.1)	.46 (11.7)	30	0.09	725M90392N	.52 (13.2)	.23 (5.8)	.44 (11.2)	83
0.25	725M25491J	.73 (18.5)	.21 (5.3)	.48 (12.2)	33	0.1	725M10492N	.52 (13.2)	.24 (6.1)	.45 (11.4)	88
0.27	725M27491J	.73 (18.5)	.21 (5.3)	.48 (12.2)	35	0.12	725M12492N	.52 (13.2)	.26 (6.6)	.47 (11.9)	95
0.3	725M30491J	.73 (18.5)	.22 (5.6)	.49 (12.4)	37	0.15	725M15492N	.52 (13.2)	.29 (7.4)	.50 (12.7)	103
0.33	725M33491J	.73 (18.5)	.23 (5.8)	.50 (12.7)	38						
0.39	725M39491J	.73 (18.5)	.25 (6.4)	.52 (13.2)	41	0.18	725M18492J	.73 (18.5)	.21 (5.3)	.48 (12.2)	42
0.43	725M43491J	.73 (18.5)	.26 (6.6)	.54 (13.7)	42	0.22	725M22492J	.73 (18.5)	.23 (5.8)	.50 (12.7)	46
0.47	725M47491J	.73 (18.5)	.28 (7.1)	.55 (14.0)	43	0.25	725M25492J	.73 (18.5)	.25 (6.4)	.52 (13.2)	48
0.5	725M50491J	.73 (18.5)	.28 (7.1)	.56 (14.2)	44	0.27	725M27492J	.73 (18.5)	.26 (6.6)	.53 (13.5)	50
0.56	725M56491J	.73 (18.5)	.30 (7.6)	.57 (14.5)	45	0.3	725M30492J	.73 (18.5)	.27 (6.9)	.54 (13.7)	51
0.62	725M62491J	.73 (18.5)	.32 (8.1)	.59 (15.0)	46	0.33	725M33492J	.73 (18.5)	.28 (7.1)	.55 (14.0)	53
0.68	725M68491J	.73 (18.5)	.33 (8.4)	.60 (15.2)	47	0.39	725M39492J	.73 (18.5)	.31 (7.9)	.58 (14.7)	55
						0.43	725M43492J	.73 (18.5)	.32 (8.1)	.60 (15.2)	56
0.75	725M75491R	1.03 (26.2)	.27 (6.9)	.54 (13.7)	25						
0.82	725M82491R	1.03 (26.2)	.28 (7.1)	.55 (14.0)	26	0.47	725M47492R	1.03 (26.2)	.26 (6.6)	.53 (13.5)	30
0.9	725M90491R	1.03 (26.2)	.29 (7.4)	.57 (14.5)	27	0.5	725M50492R	1.03 (26.2)	.27 (6.9)	.54 (13.7)	30
1.0	725M10591R	1.03 (26.2)	.31 (7.9)	.58 (14.7)	27	0.56	725M56492R	1.03 (26.2)	.28 (7.1)	.56 (14.2)	31
1.2	725M12591R	1.03 (26.2)	.34 (8.6)	.61 (15.5)	28	0.62	725M62492R	1.03 (26.2)	.30 (7.6)	.57 (14.5)	32
1.5	725M15591R	1.03 (26.2)	.38 (9.7)	.65 (16.5)	29	0.68	725M68492R	1.03 (26.2)	.29 (7.4)	.63 (16.0)	33
1.8	725M18591R	1.03 (26.2)	.42 (10.7)	.69 (17.5)	30	0.75	725M75492R	1.03 (26.2)	.31 (7.9)	.64 (16.3)	33
2.0	725M20591R	1.03 (26.2)	.44 (11.2)	.72 (18.3)	30	0.82	725M82492R	1.03 (26.2)	.32 (8.1)	.66 (16.8)	34
2.2	725M22591R	1.03 (26.2)	.44 (11.2)	.78 (19.8)	30	0.9	725M90492R	1.03 (26.2)	.34 (8.6)	.67 (17.0)	34
						1.0	725M10592R	1.03 (26.2)	.36 (9.1)	.69 (17.5)	35
2.5	725M25591L	1.23 (31.2)	.44 (11.2)	.71 (18.0)	24	1.2	725M12592R	1.03 (26.2)	.39 (9.9)	.73 (18.5)	36
2.7	725M27591L	1.23 (31.2)	.46 (11.7)	.73 (18.5)	24						
3.0	725M30591L	1.23 (31.2)	.48 (12.2)	.76 (19.3)	24	1.5	725M15592L	1.23 (31.2)	.39 (9.9)	.73 (18.5)	28
3.3	725M33591L	1.23 (31.2)	.51 (13.0)	.78 (19.8)	24	1.8	725M18592L	1.23 (31.2)	.43 (10.9)	.77 (19.6)	29
3.6	725M36591L	1.23 (31.2)	.53 (13.5)	.81 (21.6)	24	2.0	725M20592L	1.23 (31.2)	.45 (11.4)	.79 (20.1)	29
3.9	725M39591L	1.23 (31.2)	.52 (13.2)	.87 (22.1)	24	2.2	725M22592L	1.23 (31.2)	.48 (12.2)	.82 (20.8)	29
4.3	725M43591L	1.23 (31.2)	.55 (14.0)	.90 (22.9)	25	2.5	725M25592L	1.23 (31.2)	.51 (13.0)	.85 (21.6)	29
4.7	725M47591L	1.23 (31.2)	.58 (14.7)	.92 (23.4)	25	2.7	725M27592L	1.23 (31.2)	.53 (13.5)	.88 (22.4)	29
						3.0	725M30592L	1.23 (31.2)	.57 (14.5)	.91 (23.1)	30
						3.3	725M33592L	1.23 (31.2)	.60 (15.2)	.94 (23.9)	30

\* 60 Hz., RMS

<sup>1</sup> To complete part number for specific tolerance, terminal style and lead length please refer to Ordering/Part Number Information page.

Dimensions in inches, metric (mm) in parenthesis.

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## Type 725M Standard Sizes/Ratings

Value ( $\mu$ F)	Part Number <sup>1</sup>	L MAX	T MAX	H MAX	dV/dt Volts/ $\mu$ sec	Value ( $\mu$ F)	Part Number <sup>1</sup>	L MAX	T MAX	H MAX	dV/dt Volts/ $\mu$ sec
<b>400 VDC / 220 VAC*</b>						<b>630 VDC / 250 VAC*</b>					
0.027	725M27394N	.52 (13.2)	.21 (5.3)	.36 (9.1)	90	0.01	725M10396N	.52 (13.2)	.21 (5.3)	.35 (8.9)	161
0.033	725M33394N	.52 (13.2)	.21 (5.3)	.42 (10.7)	110	0.012	725M12396N	.52 (13.2)	.23 (5.8)	.37 (9.4)	196
0.039	725M39394N	.52 (13.2)	.23 (5.8)	.43 (10.9)	124	0.015	725M15396N	.52 (13.2)	.23 (5.8)	.43 (10.9)	232
0.043	725M43394N	.52 (13.2)	.24 (6.1)	.44 (11.2)	132	0.018	725M18396N	.52 (13.2)	.25 (6.4)	.45 (11.4)	256
0.047	725M47394N	.52 (13.2)	.24 (6.1)	.45 (11.4)	138	0.022	725M22396N	.52 (13.2)	.27 (6.9)	.48 (12.2)	279
0.05	725M50394N	.52 (13.2)	.25 (6.4)	.46 (11.7)	142	0.025	725M25396N	.52 (13.2)	.29 (7.4)	.49 (12.4)	291
0.056	725M56394N	.52 (13.2)	.27 (6.9)	.47 (11.9)	149	0.027	725M27396N	.52 (13.2)	.27 (6.9)	.55 (14.0)	297
0.062	725M62394N	.52 (13.2)	.28 (7.1)	.49 (12.4)	155	0.033	725M33396N	.52 (13.2)	.30 (7.6)	.58 (14.7)	312
0.068	725M68394N	.52 (13.2)	.27 (6.9)	.54 (13.7)	159	0.039	725M39396N	.52 (13.2)	.33 (8.4)	.60 (15.2)	322
0.075	725M75394N	.52 (13.2)	.28 (7.1)	.55 (14.0)	164	0.043	725M43396N	.52 (13.2)	.35 (8.9)	.62 (15.7)	328
0.082	725M82394N	.52 (13.2)	.29 (7.4)	.57 (14.5)	166	0.047	725M47396N	.52 (13.2)	.36 (9.1)	.64 (16.3)	332
0.09	725M90394N	.52 (13.2)	.31 (7.9)	.58 (14.7)	171	0.05	725M50396N	.52 (13.2)	.37 (9.4)	.65 (16.1)	335
						0.056	725M56396N	.52 (13.2)	.40 (10.2)	.67 (17.0)	340
						0.062	725M62396N	.52 (13.2)	.42 (10.7)	.69 (17.5)	344
0.1	725M10494J	.73 (18.5)	.22 (5.6)	.49 (12.4)	61	0.068	725M68396J	.73 (18.5)	.27 (6.9)	.54 (13.7)	115
0.12	725M12494J	.73 (18.5)	.24 (6.1)	.51 (13.0)	66	0.075	725M75396J	.73 (18.5)	.28 (7.1)	.56 (14.2)	118
0.15	725M15494J	.73 (18.5)	.27 (6.9)	.54 (13.7)	72	0.082	725M82396J	.73 (18.5)	.30 (7.6)	.57 (14.5)	120
0.18	725M18494J	.73 (18.5)	.29 (7.4)	.56 (14.2)	75	0.09	725M90396J	.73 (18.5)	.31 (7.9)	.58 (14.7)	123
0.22	725M22494J	.73 (18.5)	.32 (8.1)	.60 (15.2)	78	0.1	725M10496J	.73 (18.5)	.33 (8.4)	.60 (15.2)	125
0.25	725M25494J	.73 (18.5)	.34 (8.6)	.62 (15.7)	80	0.12	725M12496J	.73 (18.5)	.36 (9.1)	.63 (16.0)	129
0.27	725M27494J	.73 (18.5)	.36 (9.1)	.63 (16.0)	81	0.15	725M15496J	.73 (18.5)	.40 (10.2)	.68 (17.3)	133
0.3	725M30494J	.73 (18.5)	.38 (9.7)	.65 (16.5)	82						
0.33	725M33494R	1.03 (26.2)	.30 (7.6)	.57 (14.5)	43	0.18	725M18496R	1.03 (26.2)	.33 (8.4)	.60 (15.2)	68
0.39	725M39494R	1.03 (26.2)	.33 (8.4)	.60 (15.2)	45	0.22	725M22496R	1.03 (26.2)	.34 (8.6)	.67 (17.0)	70
0.43	725M43494R	1.03 (26.2)	.34 (8.6)	.62 (15.7)	46	0.25	725M25496R	1.03 (26.2)	.36 (9.1)	.70 (17.8)	72
0.47	725M47494R	1.03 (26.2)	.36 (9.1)	.63 (16.0)	46	0.27	725M27496R	1.03 (26.2)	.38 (9.7)	.71 (18.0)	72
0.5	725M50494R	1.03 (26.2)	.37 (9.4)	.64 (16.3)	47	0.3	725M30496R	1.03 (26.2)	.40 (10.2)	.74 (18.8)	73
0.56	725M56494R	1.03 (26.2)	.39 (9.9)	.67 (17.0)	48	0.33	725M33496R	1.03 (26.2)	.42 (10.7)	.76 (19.3)	74
0.62	725M62494R	1.03 (26.2)	.41 (10.4)	.69 (17.5)	48	0.39	725M39496R	1.03 (26.2)	.46 (11.7)	.80 (20.3)	75
0.68	725M68494R	1.03 (26.2)	.41 (10.4)	.75 (19.1)	48	0.43	725M43496R	1.03 (26.2)	.48 (12.2)	.82 (20.8)	75
0.75	725M75494R	1.03 (26.2)	.43 (10.9)	.77 (19.6)	49	0.47	725M47496R	1.03 (26.2)	.51 (13.0)	.85 (21.6)	76
0.82	725M82494R	1.03 (26.2)	.45 (11.4)	.79 (20.1)	49	0.5	725M50496R	1.03 (26.2)	.52 (13.2)	.87 (22.1)	76
0.9	725M90494R	1.03 (26.2)	.47 (11.9)	.81 (20.6)	50						
1.0	725M10594I	1.23 (31.2)	.44 (11.2)	.78 (19.8)	38	0.56	725M56496L	1.23 (31.2)	.48 (12.2)	.82 (20.8)	58
1.2	725M12594L	1.23 (31.2)	.48 (12.2)	.82 (20.8)	39	0.62	725M62496L	1.23 (31.2)	.51 (13.0)	.85 (21.6)	58
1.5	725M15594L	1.23 (31.2)	.54 (13.7)	.89 (22.6)	39	0.68	725M68496L	1.23 (31.2)	.54 (13.7)	.88 (22.4)	59
						0.75	725M75496L	1.23 (31.2)	.57 (14.5)	.91 (23.1)	59

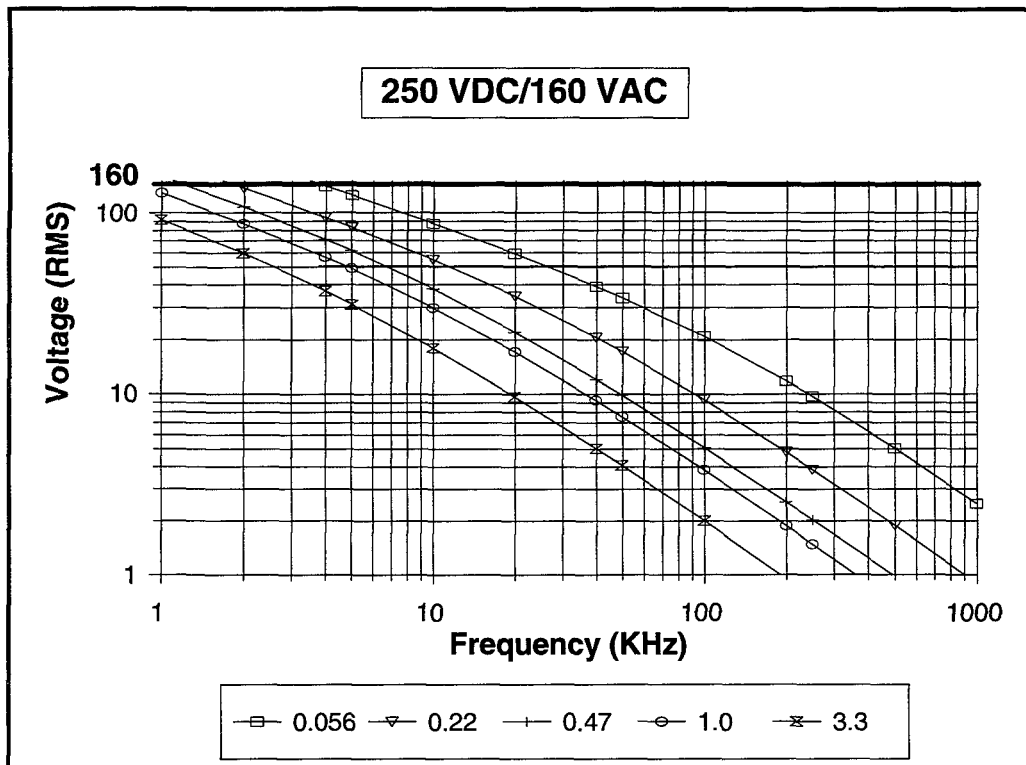
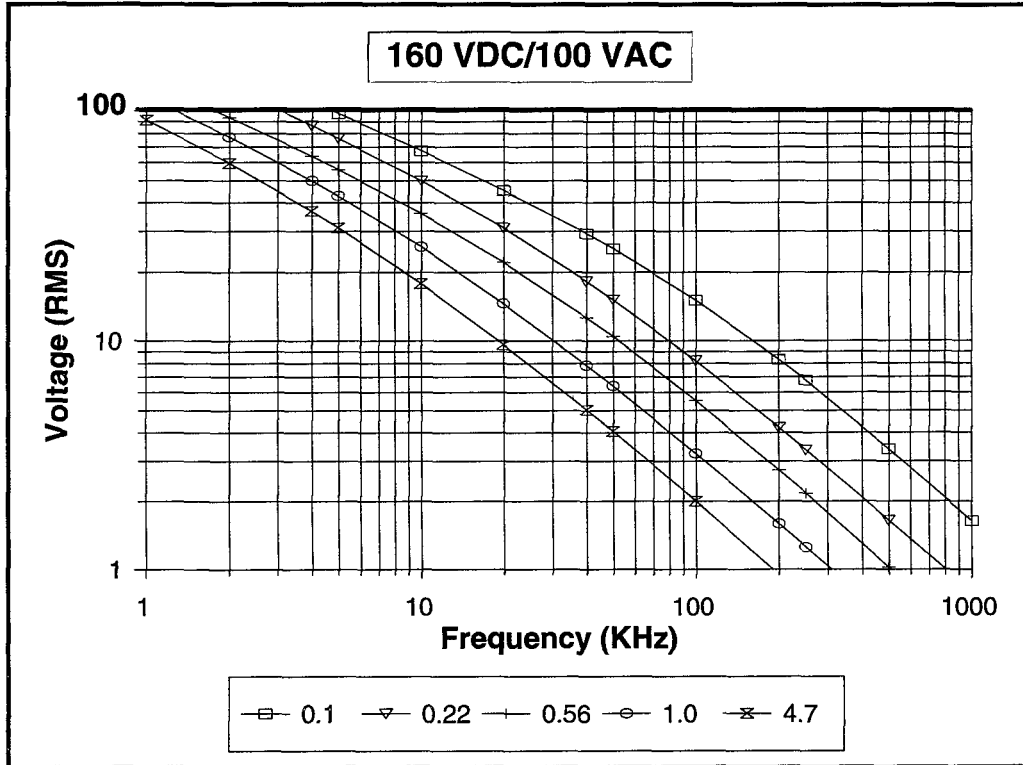
\* 60 Hz, RMS

<sup>1</sup> To complete part number for specific tolerance, terminal style and lead length please refer to Ordering/Part Number Information page

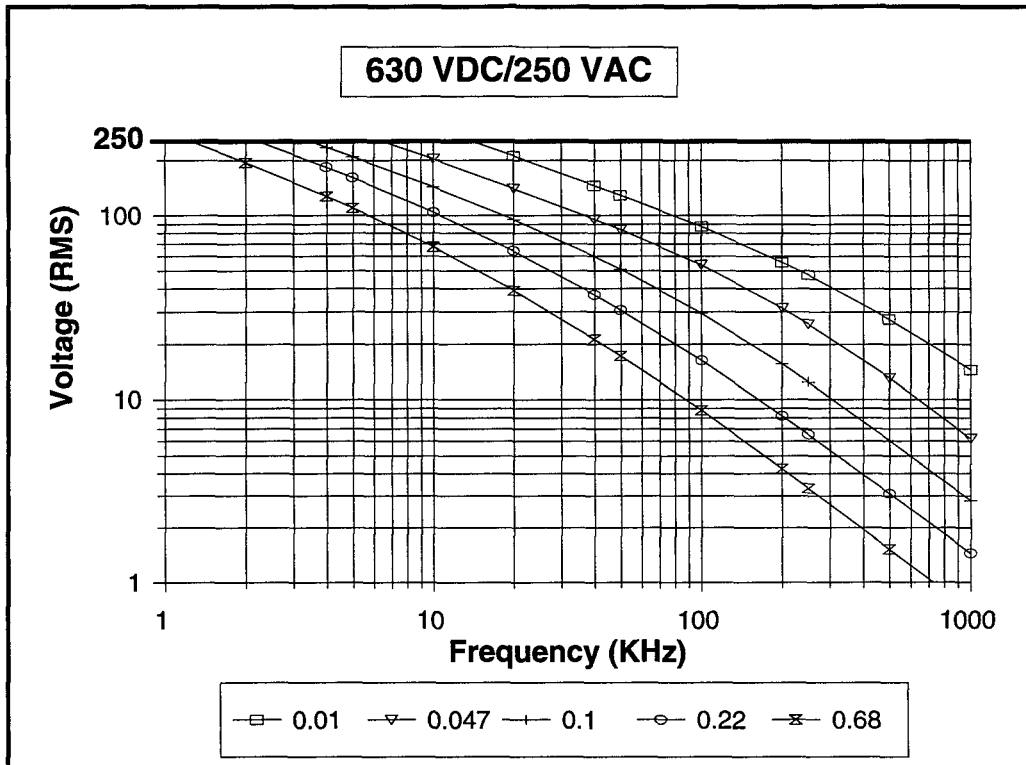
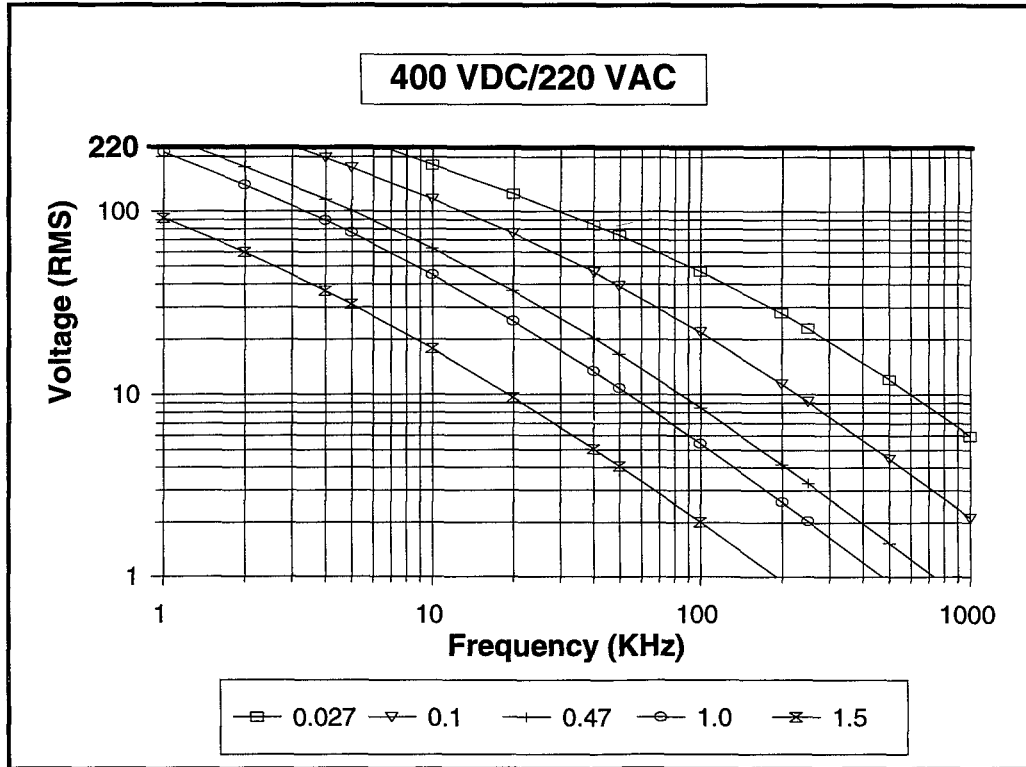
**Dimensions in inches, metric (mm) in parenthesis.**

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**RMS Voltage vs. Frequency @ +85°C, in still air**



**RMS Voltage vs. Frequency @ +85°C, in still air**





## General Specifications

The Type 725M Orange Drop® is designed and manufactured for operation in a wide range of demanding environments and applications. Type 725M capacitors are wound from the most reliable metallized polypropylene film available and are protected by a rugged conformal coating of orange epoxy. They may be operated up to +105°C with proper derating.

The 725M series is an ideal choice for a variety of commercial and industrial electronic applications, from power supplies and amplifiers, to inverters and lighting ballasts. The 725M series is constructed of the highest quality polypropylene film with a vacuum deposited metal electrode. Metallized film offers specific clearing/self-healing characteristics that remove a fault or short in the dielectric film by vaporizing the metal electrode surrounding the defect and isolating the area.

### **Operating Temperature Range:**

The standard operating temperature range for polypropylene film is -55°C to +85°C. The 725M may be operated at full voltage within this temperature range.

The 725M may be operated up to +105°C provided the DC working voltage is reduced to 50% of the +85°C rating (full rating).

For more specific details regarding operation above +85°C please contact our application engineering department.

The maximum operating temperature for the 725M series is +105°C.

### **Dielectric Withstanding Voltage:**

Units shall withstand a DC potential of 150% of rated voltage applied between terminals for not more than 2 minutes.

### **AC Voltage Applications:**

The A-C component of the 725M's voltage rating has been specified to assure that corona will not be encountered when the capacitor is operated within the noted specifications. We encourage you to contact us if you have any concerns about operating voltage, temperature limits, etc.

### **Lead Bend Test:**

After 3 consecutive 180° bends. No damage.

### **DC Voltage Life Test:**

500 hours at +85°C at 125% of rated voltage. After test; capacitance shall not have changed by more than ±5% of initial value, insulation resistance shall not have decreased by more than 50% of initial requirement and dissipation factor shall not have increased to more than 0.1%. In addition, there should be no open or short circuits, and no sign of visible damage.

### **AC Voltage Life Test:**

Minimum of 500 hours at +85°C at 60 Hz. AC test voltage applied at 110% of AC rating. After test, capacitance shall not have changed by more than 3%, insulation resistance shall not have decreased by more than 50% of initial requirement, and dissipation factor shall not have changed by more than 0.03%. Measurements made at 1 KHz.

### **Additional Notes:**

While it is not possible to list every detail of testing that we perform or every combination of capacitance value, tolerance, etc. that is available, we strongly encourage you to please contact us with your specific requirements. Thank you.