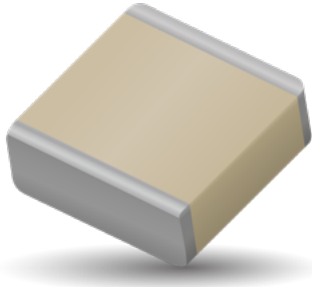


# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 100E Series Porcelain High RF Power Multilayer Capacitors



#### GENERAL DESCRIPTION

KYOCERA AVX, the industry leader, offers new improved ESR/ESL performance for the 100 E Series RF Capacitors. This high Q multilayer capacitor is ultra-stable under high RF current and voltage applications. High density porcelain construction provides a rugged, hermetic package. KYOCERA AVX offers an encapsulation option for applications requiring extended protection against arc-over and corona.

#### FUNCTIONAL APPLICATIONS

- Bypass
- Impedance Matching
- Coupling
- DC Blocking
- Tuning

#### CIRCUIT APPLICATIONS

- HF/RF Power Amplifiers
- Plasma Chambers
- Transmitters
- Medical (MRI coils)
- Antenna Tuning

#### ENVIRONMENTAL CHARACTERISTICS

<b>Thermal Shock</b>	Mil-STD-202, Method 107, Condition A
<b>Moisture Resistance</b>	Mil-STD-202, Method 106
<b>Low Voltage Humidity</b>	Mil-STD-202, Method 103, condition A, with 1.5 VDC applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours
<b>Life Test</b>	MIL-STD-202, Method 108, for 2000 hours, at 125°C. Voltage applied. 200% of WVDC for capacitors rated at 500 volts DC or less. 120% of WVDC for capacitors rated at 1250 volts DC or less. 100% of WVDC for capacitors rated above 1250 volts DC
<b>Termination Styles</b>	Available in various surface mount and leaded styles. See Mechanical Configurations
<b>Terminal Strength</b>	Terminations for chips and pellets withstand a pull of 10 lbs. min., 25 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor.

#### FEATURES

- Case E Size (.380" x .380")
- Capacitance Range 1pF to 5100pF
- Extended WVDC up to 7200 VDC
- Low ESR/ESL
- High Q
- High RF Power
- Ultra-Stable Performance
- High RF Current/Voltage
- Available with Encapsulation Option\*

\* For leaded styles only

#### PACKAGING OPTIONS



Tape & Reel



Tray  
(96 pcs)



#### ELECTRICAL SPECIFICATIONS

<b>Temperature Coefficient (TCC)</b>	90 ± 30 PPM/°C
<b>Capacitance Range</b>	1 pF to 5100 pF
<b>Operating Temperature</b>	-55°C to +125°C*
<b>Quality Factor</b>	Greater than 10,000 (1 pF to 1000 pF) @ 1 MHz. Greater than 10,000 (1100 pF to 5100 pF) @ 1 KHz.
<b>Insulation Resistance (IR)</b>	1 pF to 5100 pF 10 <sup>5</sup> Megohms min. @ 25°C at 500 VDC 10 <sup>4</sup> Megohms min. @ 125°C at 500 VDC
<b>Working Voltage (WVDC)</b>	See Capacitance Values table
<b>Dielectric Withstanding Voltage (DWV)</b>	250% of WVDC for capacitors rated at 500 volts DC or less for 5 seconds. 150% of WVDC for capacitors rated at 1250 volts DC or less for 5 seconds. 120% of WVDC for capacitors rated above 1250 Volts DC for 5 seconds
<b>Aging Effects</b>	None
<b>Piezoelectric Effects</b>	None
<b>Capacitance Drift</b>	± (0.02% or 0.02 pF), whichever is greater
<b>Retrace</b>	Less than ±(0.02% or 0.02 pF), whichever is greater.

# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 100E Series Porcelain High RF Power Multilayer Capacitors



#### CAPACITANCE VALUES

Cap. Code	Cap. (pF)	Tol.	Rated WVDC		Cap. Code	Cap. (pF)	Tol.	Rated WVDC		Cap. Code	Cap. (pF)	Tol.	Rated WVDC		CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	
			STD.	EXT.				STD.	EXT.				STD.	EXT.				STD.	EXT.
1R0	1.0	B, C, D	3600	EXTENDED VOLTAGE	5R6	5.6	B, C, D	3600	EXTENDED VOLTAGE	470	47	F, G, J, K, M	3600	7200	391	390	F, G, J, K, M	3600	N/A
1R1	1.1				6R2	6.2				510	51				431	430		2500	
1R2	1.2				6R8	6.8				560	56				471	470			
1R3	1.3				7R5	7.5				620	62				511	510			
1R4	1.4				8R2	8.2				680	68				561	560			
1R5	1.5				9R1	9.1				750	75				621	620			
1R6	1.6				100	10				820	82				681	680			
1R7	1.7				110	11				910	91				751	750			
1R8	1.8				120	12				101	100				821	820			
1R8	1.9				130	13				111	110				911	910			
2R0	2.0		150	15	121	120	102	1000											
2R1	2.1		160	16	131	130	112	1100											
2R2	2.2		180	18	151	150	122	1200											
2R3	2.3		200	20	161	160	152	1500											
2R4	2.4		220	22	181	180	182	1800											
3R0	3.0		240	24	201	200	222	2200											
3R3	3.3		270	27	221	220	272	2700											
3R6	3.6		300	30	241	240	302	3000											
3R9	3.9		330	33	271	270	332	3300											
4R3	4.3		360	36	301	300	392	3900											
4R7	4.7	390	39	331	330	472	4700												
5R1	5.1	430	43	361	360	512	5100												

VRMS = 0.707 X WVDC

• SPECIAL VALUES, TOLERANCES, MATCHING, AND CAPACITOR ASSEMBLIES ARE AVAILABLE. • KYOCERA AVX CUSTOM POWER CAPACITOR ASSEMBLY CATALOG, LISTS ASSEMBLY OPTIONS. • DIFFERENT WORKING VOLTAGES ARE AVAILABLE • ENCAPSULATION OPTION AVAILABLE. PLEASE CONSULT FACTORY.

#### HOW TO ORDER

**Series** 100

**Case Size** E

See mechanical dimensions below

**Capacitance** 391

EIA Capacitance Code in pF.  
First two digits = significant figures or "R" for decimal place.  
Third digit = number of zeros or after "R" significant figures

**Capacitance Tolerance Code** K

Code	B	C	D	F	G	J	K	M
Tol.	±1 pF	±25 pF	±5 pF	±1%	±2%	±5%	±10%	±20%

**Voltage Rating** W

**Termination Style Code** 3600

Please see 2nd Column Mechanical Configuration Table

**Packaging** X

T = Tape and Reel, 250 pc qty. Please see last Column Mechanical Configuration Table for Box and Tray Options

**Laser Marking (Optional)** T

The above part number refers to a 100 E Series (case size E) 390 pF capacitor, K tolerance (±10%), 3600 WVDC, with W termination (Tin / Lead, Solder Plated over Nickel Barrier), laser marking and Tape and Reel packaging.


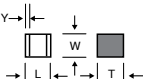

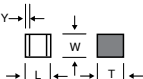

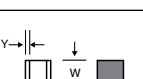

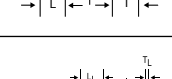

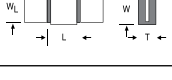

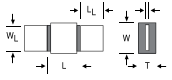

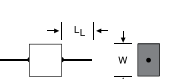
# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 100E Series Porcelain High RF Power Multilayer Capacitors



#### MECHANICAL CONFIGURATION

Series & Case Size	Term. Code	Case Size & Type	Outline W/T is a Termination Surface	Body Dimensions inches (mm)			Lead and Termination Dimensions and Material		Pkg Type & Qty	Pkg Code
				Length (L)	Width (W)	Thickness (T)	Overlap (Y)	Materials		
100E	W	 Solder Plate		.380+.015 -.010 (9.65+0.38-0.25)	.380 ±.010 (9.65 ±0.25)	.170 (4.32) max.	.040 (1.02) max.	Tin/Lead, Solder Plated over Nickel Barrier Termination	T&R, 250 pcs Tray, 24 or 96 pcs	T J24 J96
100E	P	 Pellet		.380+.040 -.010 (9.65+1.02-0.25)				Heavy Tin/Lead Coated, over Nickel Barrier Termination	T&R, 250 pcs Tray, 24 or 96 pcs	T J24 J96
100E	T	 Solderable Nickel		.380+.015 -.010 (9.65+0.38-0.25)				<b>RoHS Compliant</b> Tin Plated over Nickel Barrier Termination	T&R, 250 pcs Tray, 24 or 96 pcs	T J24 J96
100E	MS	 Microstrip		.380+.035 -.010 (9.65+0.89-0.25)			N/A	High Purity Silver Leads $L_L = .750$ (19.05) min $W_L = .350 \pm .010$ (8.89 ±0.25) $T_L = .010 \pm .005$ (0.25 ±0.13) Leads are Attached with High Temperature Solder.	Tray, 16 or 32 pcs	J16 J32
100E	AR	 Axial Ribbon							Tray, 16 or 32 pcs	J16 J32
100E	AW	 Axial Wire							Box, 20 pcs	B20
100E	RW	 Radial Wire							Tray, 16 or 64 pcs	J16 J64

Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.


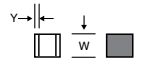



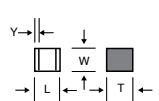

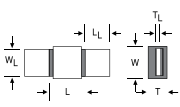

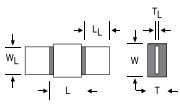

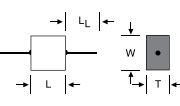

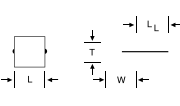
# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 100E Series Porcelain High RF Power Multilayer Capacitors



#### MECHANICAL CONFIGURATION


Series & Case Size	Term. Code	Case Size & Type	Outline W/T is a Termination Surface	Body Dimensions inches (mm)			Lead and Termination Dimensions and Material		Pkg Type & Qty	Pkg Code		
				Length (L)	Width (W)	Thickness (T)	Overlap (Y)	Materials				
100E	WN	 Non-Mag Solder Plate		.380+.015 -.010 (9.65+0.38-0.25)	.380 ±.010 (9.65 ±0.25)	.170 (4.32) max.	.040 (1.02) max.	Tin/Lead, Solder Plated over Non-Magnetic Barrier Termination	T&R, 250 pcs Tray, 24 or 96 pcs	T J24 J96		
100E	PN	 Non-Mag Pellet		.380+.040 -.010 (9.65+1.02-0.25)				Heavy Tin/Lead Coated, over Non-Magnetic Barrier Termination	T&R, 250 pcs Tray, 24 or 96 pcs	T J24 J96		
100E	TN	 Non-Mag Solderable Barrier		.380+.015 -.010 (9.65+0.38-0.25)				<b>RoHS Compliant</b> Tin Plated over Non-Magnetic Barrier Termination	T&R, 250 pcs Tray, 24 or 96 pcs	T J24 J96		
100E	MN	 Non-Mag Microstrip		.380+.035 -.010 (9.65+0.89-0.25)			N/A	High Purity Silver Leads $L_L = .750$ (19.05) min $W_L = .350 \pm .010$ (8.89 ±0.25) $T_L = .010 \pm .005$ (0.25 ±0.13) Leads are Attached with High Temperature Solder.	Tray, 16 or 32 pcs	J16 J32		
100E	AN	 Non-Mag Axial Ribbon						Tray, 16 or 32 pcs	J16 J32			
100E	BN	 Non-Mag Axial Wire						Silver-plated Copper Leads Dia. = .032 ±.002 (.813 ±.051) $L_L = 2.25$ (57.2) min.	Box, 20 pcs	B20		
100E	RN	 Non-Mag Radial Wire						Silver-plated Copper Leads Dia. = .032 ±.002 (.813 ±.051) $L_L = 1.0$ (25.4) min.	Tray, 16 or 64 pcs	J16 J64		

Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.

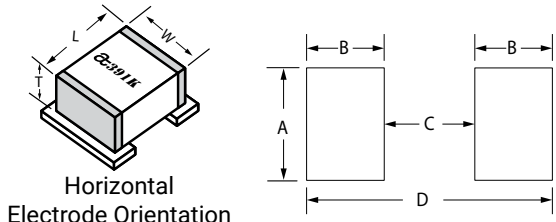
# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 100E Series Porcelain High RF Power Multilayer Capacitors



SUGGESTED MOUNTING PAD DIMENSIONS

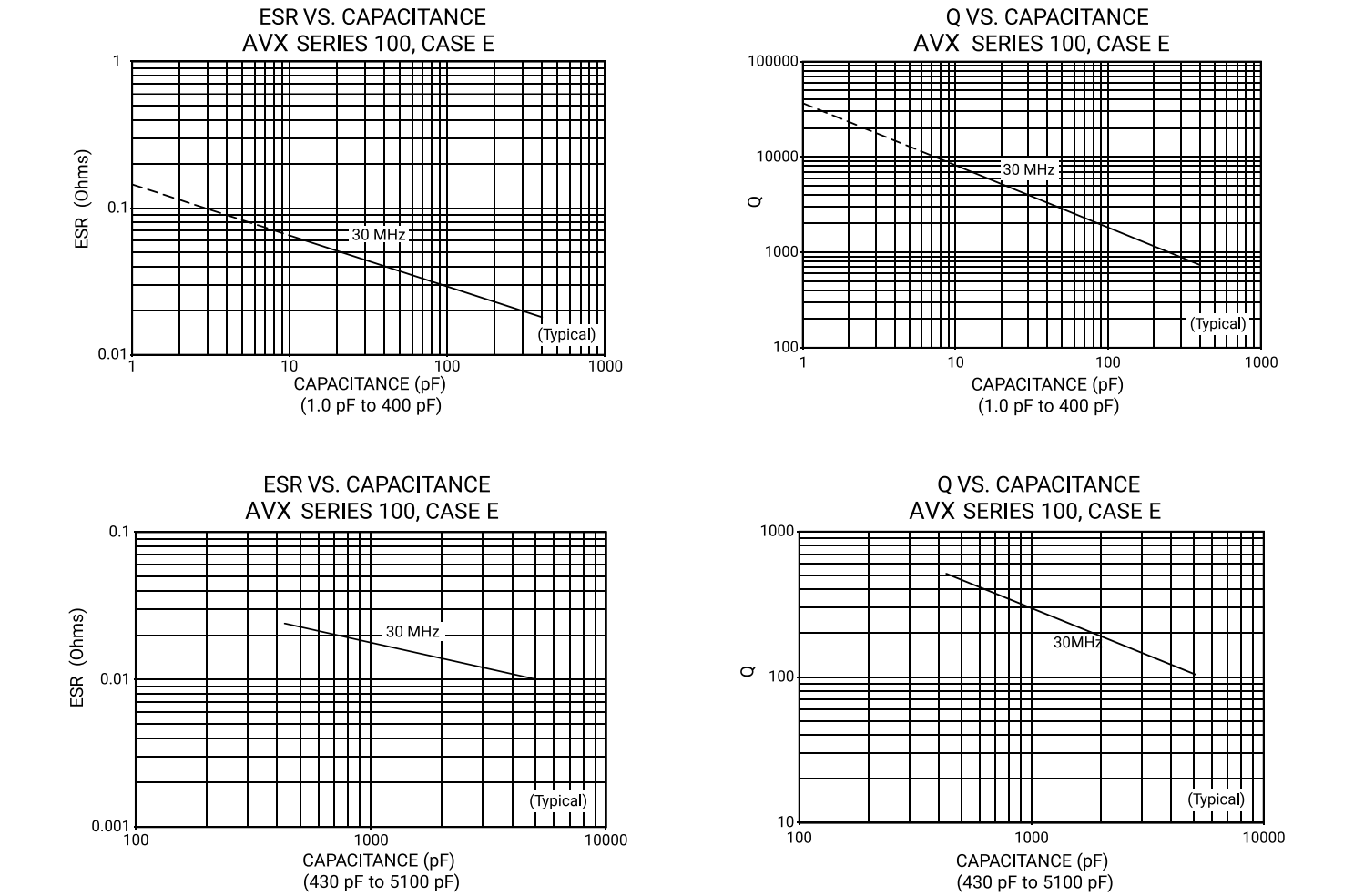


Horizontal Electrode Orientation

Mount Type	Case E				
	Pad Size	A Min.	B Min.	C Min.	D Min.
Horizontal Mount	Normal	.405	.050	.325	.425
	High Density	.385	.030	.325	.385

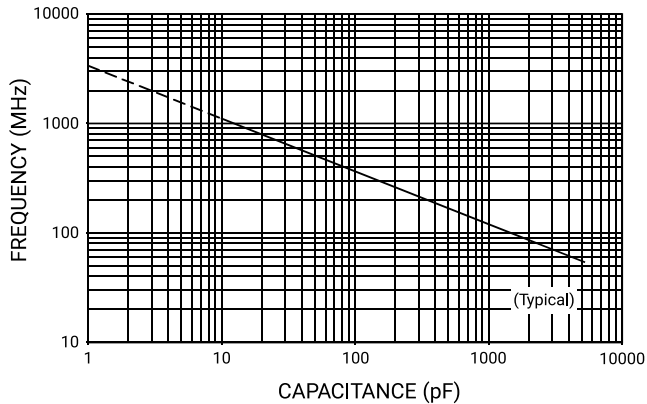
Dimensions are in inches.

PERFORMANCE DATA

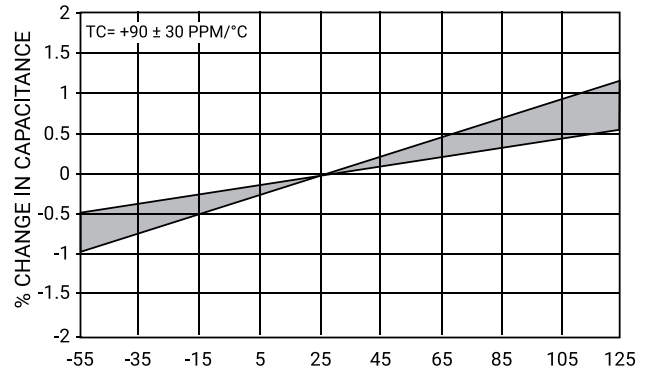


#### PERFORMANCE DATA

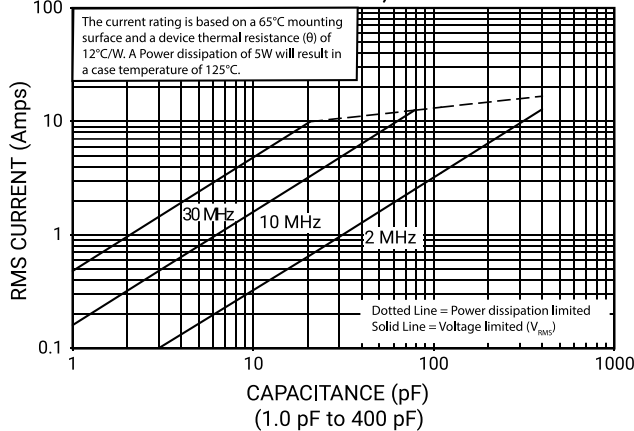
SERIES RESONANCE VS. CAPACITANCE  
AVX SERIES 100, CASE E



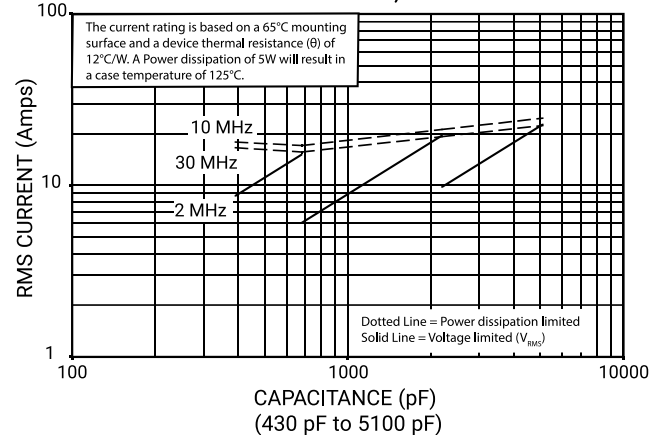
CAPACITANCE CHANGE VS. TEMPERATURE  
AVX SERIES 100, CASE E



CURRENT RATING VS. CAPACITANCE  
AVX SERIES 100, CASE E



CURRENT RATING VS. CAPACITANCE  
AVX Series 100, CASE E



CURRENT RATING VS. CAPACITANCE  
AVX SERIES 100, CASE E, EXTENDED VOLTAGE

