

# Type M15 to M50 Multilayer Ceramic Capacitors

## COG (NPO). X7R & Z5U Capacitors



Type M15 to M50 conformally coated radial leaded capacitors cover a wide range of temperature coefficients for a wide variety of applications.

### Highlights

- Conformally coated, radial leaded
- Coating meets UL94V-0
- IECQ approved to:
  - QC300601/US0002 - NPO
  - QC300701/US0002 - X7R
  - QC300701/US0004 - Z5U

## Specifications

**Capacitance Range:** 1 pF to 6.8  $\mu$ F

**Voltage Range:** 50, 100, 200 Vdc

**Capacitance Tolerance:** See ratings tables

**Temperature Coefficient:** COG (NPO), X7R & Z5U

**Available in Tape and Ammo Pack Configuration:** Add 'TA' to end of catalog part number

## Ratings

## RoHS Compliant

COG (NPO) Temperature Coefficient 200 Vdc																				
Catalog		Sizes (Inches)					Catalog		Sizes (Inches)					Catalog		Sizes (Inches)				
Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S			
M15G109D2-F	1.0 pF	.150	.210	.130	.100	M15G120*2-F	12 pF	.150	.210	.130	.100	M15G101*2-F	100 pF	.150	.210	.130	.100			
M20G109D2-F	1.0 pF	.200	.260	.150	.100	M20G120*2-F	12 pF	.200	.260	.150	.100	M20G101*2-F	100 pF	.200	.260	.150	.100			
M22G109D2-F	1.0 pF	.200	.260	.150	.200	M22G120*2-F	12 pF	.200	.260	.150	.200	M22G101*2-F	100 pF	.200	.260	.150	.200			
M15G159D2-F	1.5 pF	.150	.210	.130	.100	M15G150*2-F	15 pF	.150	.210	.130	.100	M15G121*2-F	120 pF	.150	.210	.130	.100			
M20G159D2-F	1.5 pF	.200	.260	.150	.100	M20G150*2-F	15 pF	.200	.260	.150	.100	M20G121*2-F	120 pF	.200	.260	.150	.100			
M22G159D2-F	1.5 pF	.200	.260	.150	.200	M22G150*2-F	15 pF	.200	.260	.150	.200	M22G121*2-F	120 pF	.200	.260	.150	.200			
M15G229D2-F	2.2 pF	.150	.210	.130	.100	M15G180*2-F	18 pF	.150	.210	.130	.100	M15G151*2-F	150 pF	.150	.210	.130	.100			
M20G229D2-F	2.2 pF	.200	.260	.150	.100	M20G180*2-F	18 pF	.200	.260	.150	.100	M20G151*2-F	150 pF	.200	.260	.150	.100			
M22G229D2-F	2.2 pF	.200	.260	.150	.200	M22G180*2-F	18 pF	.200	.260	.150	.200	M22G151*2-F	150 pF	.200	.260	.150	.200			
M15G279D2-F	2.7 pF	.150	.210	.130	.100	M15G220*2-F	22 pF	.150	.210	.130	.100	M15G181*2-F	180 pF	.150	.210	.130	.100			
M20G279D2-F	2.7 pF	.200	.260	.150	.100	M20G220*2-F	22 pF	.200	.260	.150	.100	M20G181*2-F	180 pF	.200	.260	.150	.100			
M22G279D2-F	2.7 pF	.200	.260	.150	.200	M22G220*2-F	22 pF	.200	.260	.150	.200	M22G181*2-F	180 pF	.200	.260	.150	.200			
M15G339D2-F	3.3 pF	.150	.210	.130	.100	M15G270*2-F	27 pF	.150	.210	.130	.100	M15G221*2-F	220 pF	.150	.210	.130	.100			
M20G339D2-F	3.3 pF	.200	.260	.150	.100	M20G270*2-F	27 pF	.200	.260	.150	.100	M20G221*2-F	220 pF	.200	.260	.150	.100			
M22G339D2-F	3.3 pF	.200	.260	.150	.200	M22G270*2-F	27 pF	.200	.260	.150	.200	M22G221*2-F	220 pF	.200	.260	.150	.200			
M15G399D2-F	3.9 pF	.150	.210	.130	.100	M15G330*2-F	33 pF	.150	.210	.130	.100	M15G271*2-F	270 pF	.150	.210	.130	.100			
M20G399D2-F	3.9 pF	.200	.260	.150	.100	M20G330*2-F	33 pF	.200	.260	.150	.100	M20G271*2-F	270 pF	.200	.260	.150	.100			
M22G399D2-F	3.9 pF	.200	.260	.150	.200	M22G330*2-F	33 pF	.200	.260	.150	.200	M22G271*2-F	270 pF	.200	.260	.150	.200			
M15G479D2-F	4.7 pF	.150	.210	.130	.100	M15G390*2-F	39 pF	.150	.210	.130	.100	M15G331*2-F	330 pF	.150	.210	.130	.100			
M20G479D2-F	4.7 pF	.200	.260	.150	.100	M20G390*2-F	39 pF	.200	.260	.150	.100	M20G331*2-F	330 pF	.200	.260	.150	.100			
M22G479D2-F	4.7 pF	.200	.260	.150	.200	M22G390*2-F	39 pF	.200	.260	.150	.200	M22G331*2-F	330 pF	.200	.260	.150	.200			
M15G569D2-F	5.6 pF	.150	.210	.130	.100	M15G470*2-F	47 pF	.150	.210	.130	.100	M15G391*2-F	390 pF	.150	.210	.130	.100			
M20G569D2-F	5.6 pF	.200	.260	.150	.100	M20G470*2-F	47 pF	.200	.260	.150	.100	M20G391*2-F	390 pF	.200	.260	.150	.100			
M22G569D2-F	5.6 pF	.200	.260	.150	.200	M22G470*2-F	47 pF	.200	.260	.150	.200	M22G391*2-F	390 pF	.200	.260	.150	.200			
M15G689D2-F	6.8 pF	.150	.210	.130	.100	M15G560*2-F	56 pF	.150	.210	.130	.100	M15G471*2-F	470 pF	.150	.210	.130	.100			
M20G689D2-F	6.8 pF	.200	.260	.150	.100	M20G560*2-F	56 pF	.200	.260	.150	.100	M20G471*2-F	470 pF	.200	.260	.150	.100			
M22G689D2-F	6.8 pF	.200	.260	.150	.200	M22G560*2-F	56 pF	.200	.260	.150	.200	M22G471*2-F	470 pF	.200	.260	.150	.200			
M15G829D2-F	8.2 pF	.150	.210	.130	.100	M15G680*2-F	68 pF	.150	.210	.130	.100	M20G561*2-F	560 pF	.200	.260	.150	.100			
M20G829D2-F	8.2 pF	.200	.260	.150	.100	M20G680*2-F	68 pF	.200	.260	.150	.100	M22G561*2-F	560 pF	.200	.260	.150	.200			
M22G829D2-F	8.2 pF	.200	.260	.150	.200	M22G680*2-F	68 pF	.200	.260	.150	.200	M20G681*2-F	680 pF	.200	.260	.150	.100			
M15G100*2-F	10 pF	.150	.210	.130	.100	M15G820*2-F	82 pF	.150	.210	.130	.100	M22G681*2-F	680 pF	.200	.260	.150	.200			
M20G100*2-F	10 pF	.200	.260	.150	.100	M20G820*2-F	82 pF	.200	.260	.150	.100	M20G821*2-F	820 pF	.200	.260	.150	.100			
M22G100*2-F	10 pF	.200	.260	.150	.200	M22G820*2-F	82 pF	.200	.260	.150	.200	M22G821*2-F	820 pF	.200	.260	.150	.200			

\*Insert proper letter symbol for tolerance

\*Insert proper letter symbol for tolerance

1 pF to 8.2 pF available in D =  $\pm$ 5 pF only

10 pF to 22 pF: J =  $\pm$ 5%; K =  $\pm$ 10%

27 pF to 47 pF: G =  $\pm$ 2%; J =  $\pm$ 5%; K =  $\pm$ 10%

56 pF & Up: F =  $\pm$ 1%; G =  $\pm$ 2%; J =  $\pm$ 5%; K =  $\pm$ 10%

Add 'TR' to end of part number for Tape & Reel

M15, M20, M22 - 2,500 per reel

M30 - 1,500; M40 - 1,000 per reel; M50 - N/A

(Available in full reels only)

# Type M15 to M50 Multilayer Ceramic Capacitors

## Ratings

## RoHS Compliant

COG (NPO) Temperature Coefficient																	
Catalog		Sizes (Inches)				Catalog		Sizes (Inches)				Catalog		Sizes (Inches)			
Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S
<b>200 Vdc</b>																	
M20G102*2-F	1000 pF	.200	.260	.150	.100	M30G272*2-F	2700 pF	.300	.360	.200	.200	M30G153*2-F	.015 uF	.300	.360	.200	.200
M22G102*2-F	1000 pF	.200	.260	.150	.200	M20G332*2-F	3300 pF	.200	.260	.150	.100	M40G153*2-F	.015 uF	.400	.460	.200	.200
M20G122*2-F	1200 pF	.200	.260	.150	.100	M22G332*2-F	3300 pF	.200	.260	.150	.200	M30G183*2-F	.018 uF	.300	.360	.200	.200
M22G122*2-F	1200 pF	.200	.260	.150	.200	M30G332*2-F	3300 pF	.300	.360	.200	.200	M40G183*2-F	.018 uF	.400	.460	.200	.200
M20G152*2-F	1500 pF	.200	.260	.150	.100	M30G392*2-F	3900 pF	.300	.360	.200	.200	M40G223*2-F	.022 uF	.400	.460	.200	.200
M22G152*2-F	1500 pF	.200	.260	.150	.200	M30G472*2-F	4700 pF	.300	.360	.200	.200	M40G273*2-F	.027 uF	.400	.460	.200	.200
M20G182*2-F	1800 pF	.200	.260	.150	.100	M30G562*2-F	5600 pF	.300	.360	.200	.200	M40G333*2-F	.033 uF	.400	.460	.200	.200
M22G182*2-F	1800 pF	.200	.260	.150	.200	M30G682*2-F	6800 pF	.300	.360	.200	.200	M40G393*2-F	.039 uF	.400	.460	.200	.200
M20G222*2-F	2200 pF	.200	.260	.150	.100	M30G822*2-F	8200 pF	.300	.360	.200	.200	M50G393*2-F	.039 uF	.500	.560	.250	.400
M22G222*2-F	2200 pF	.200	.260	.150	.200	M30G103*2-F	.010 uF	.300	.360	.200	.200	M40G473*2-F	.047 uF	.400	.460	.200	.200
M20G272*2-F	2700 pF	.200	.260	.150	.100	M30G123*2-F	.012 uF	.300	.360	.200	.200	M50G473*2-F	.047 uF	.500	.560	.250	.400
M22G272*2-F	2700 pF	.200	.260	.150	.200	M40G123*2-F	.012 uF	.400	.460	.200	.200	M50G563*2-F	.056 uF	.500	.560	.250	.400
*Insert proper letter symbol for tolerance																	
K = 10%; M = ±20%																	

<b>100 Vdc</b>																	
M15G121*1-F	120 pF	.150	.210	.130	.100	M20G152*1-F	1500 pF	.200	.260	.150	.100	M30G682*1-F	6800 pF	.300	.360	.200	.200
M15G151*1-F	150 pF	.150	.210	.130	.100	M22G152*1-F	1500 pF	.200	.260	.150	.200	M30G822*1-F	8200 pF	.300	.360	.200	.200
M15G181*1-F	180 pF	.150	.210	.130	.100	M20G182*1-F	1800 pF	.200	.260	.150	.100	M30G103*1-F	.01 uF	.300	.360	.200	.200
M15G221*1-F	220 pF	.150	.210	.130	.100	M22G182*1-F	1800 pF	.200	.260	.150	.200	M30G123*1-F	.012 uF	.300	.360	.200	.200
M15G271*1-F	270 pF	.150	.210	.130	.100	M20G222*1-F	2200 pF	.200	.260	.150	.100	M30G153*1-F	.015 uF	.300	.360	.200	.200
M15G331*1-F	330 pF	.150	.210	.130	.100	M22G222*1-F	2200 pF	.200	.260	.150	.200	M30G183*1-F	.018 uF	.300	.360	.200	.200
M15G391*1-F	390 pF	.150	.210	.130	.100	M20G272*1-F	2700 pF	.200	.260	.150	.100	M30G223*1-F	.022 uF	.300	.360	.200	.200
M15G471*1-F	470 pF	.150	.210	.130	.100	M22G272*1-F	2700 pF	.200	.260	.150	.200	M30G273*1-F	.027 uF	.300	.360	.200	.200
M15G561*1-F	560 pF	.150	.210	.130	.100	M20G332*1-F	3300 pF	.200	.260	.150	.100	M40G273*1-F	.027 uF	.400	.460	.200	.200
M15G681*1-F	680 pF	.150	.210	.130	.100	M22G332*1-F	3300 pF	.200	.260	.150	.200	M40G333*1-F	.033 uF	.400	.460	.200	.200
M20G681*1-F	680 pF	.200	.260	.150	.100	M30G332*1-F	3300 pF	.300	.360	.200	.200	M40G393*1-F	.039 uF	.400	.460	.200	.200
M22G681*1-F	680 pF	.200	.260	.150	.200	M20G392*1-F	3900 pF	.200	.260	.150	.100	M50G393*1-F	.039 uF	.500	.560	.250	.400
M15G821*1-F	820 pF	.150	.210	.130	.100	M22G392*1-F	3900 pF	.200	.260	.150	.200	M40G473*1-F	.047 uF	.400	.460	.200	.200
M20G821*1-F	820 pF	.200	.260	.150	.100	M30G392*1-F	3900 pF	.300	.360	.200	.200	M50G473*1-F	.047 uF	.500	.560	.250	.400
M22G821*1-F	820 pF	.200	.260	.150	.200	M20G472*1-F	4700 pF	.200	.260	.150	.100	M40G563*1-F	.056 uF	.400	.460	.200	.200
M15G102*1-F	1000 pF	.150	.210	.130	.100	M22G472*1-F	4700 pF	.200	.260	.150	.200	M50G563*1-F	.056 uF	.500	.560	.250	.400
M20G102*1-F	1000 pF	.200	.260	.150	.100	M30G472*1-F	4700 pF	.300	.360	.200	.200	M40G683*1-F	.068 uF	.400	.460	.200	.200
M22G102*1-F	1000 pF	.200	.260	.150	.200	M20G562*1-F	5600 pF	.200	.260	.150	.100	M50G683*1-F	.068 uF	.500	.560	.250	.400
M20G122*1-F	1200 pF	.200	.260	.150	.100	M22G562*1-F	5600 pF	.200	.260	.150	.200	M50G823*1-F	.082 uF	.500	.560	.250	.400
M22G122*1-F	1200 pF	.200	.260	.150	.200	M30G562*1-F	5600 pF	.300	.360	.200	.200	M50G104*1-F	.1 uF	.500	.560	.250	.400
*Insert proper letter symbol for tolerance																	
K = 10%; M = ±20%																	

<b>X7R Temperature Coefficient</b>																	
<b>200 Vdc</b>																	
Catalog		Sizes (Inches)				Catalog		Sizes (Inches)				Catalog		Sizes (Inches)			
Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S
M15R101*2-F	100 pF	.150	.210	.130	.100	M15R561*2-F	560 pF	.150	.210	.130	.100	M15R152*2-F	1500 pF	.150	.210	.130	.100
M15R121*2-F	120 pF	.150	.210	.130	.100	M15R681*2-F	680 pF	.150	.210	.130	.100	M20R152*2-F	1500 pF	.200	.260	.150	.100
M15R151*2-F	150 pF	.150	.210	.130	.100	M15R821*2-F	820 pF	.150	.210	.130	.100	M22R152*2-F	1500 pF	.200	.260	.150	.200
M15R181*2-F	180 pF	.150	.210	.130	.100	M15R102*2-F	1000 pF	.150	.210	.130	.100	M15R182*2-F	1800 pF	.150	.210	.130	.100
M15R221*2-F	220 pF	.150	.210	.130	.100	M20R102*2-F	1000 pF	.200	.260	.150	.100	M20R182*2-F	1800 pF	.200	.260	.150	.100
M15R271*2-F	270 pF	.150	.210	.130	.100	M22R102*2-F	1000 pF	.200	.260	.150	.200	M22R182*2-F	1800 pF	.200	.260	.150	.200
M15R331*2-F	330 pF	.150	.210	.130	.100	M15R122*2-F	1200 pF	.150	.210	.130	.100	M15R222*2-F	2200 pF	.150	.210	.130	.100
M15R391*2-F	390 pF	.150	.210	.130	.100	M20R122*2-F	1200 pF	.200	.260	.150	.100	M20R222*2-F	2200 pF	.200	.260	.150	.100
M15R471*2-F	470 pF	.150	.210	.130	.100	M22R122*2-F	1200 pF	.200	.260	.150	.200	M22R222*2-F	2200 pF	.200	.260	.150	.200

Add 'TR' to end of part number for Tape & Reel  
M15, M20, M22 - 2,500 per reel  
M30 - 1,500 per reel Full reels only on all  
M40 - 1,000 per reel; sizes.  
M50 - N/A

\*Insert proper letter symbol for tolerance  
K = 10%; M = ±20%

# Type M15 to M50 Multilayer Ceramic Capacitors

## Ratings

## RoHS Compliant

X7R Temperature Coefficient 200 Vdc																										
Catalog Part Number		Cap		Sizes (Inches)					Catalog Part Number		Cap		Sizes (Inches)					Catalog Part Number		Cap		Sizes (Inches)				
L	H	T	S	L	H	T	S	L	H	T	S	L	H	T	S	L	H	T	S							
M20R272*2-F	2700 pF	.200	.260	.150	.100	M22R103*2-F	.010 uF	.200	.260	.150	.200	M30R473*2-F	.047 uF	.300	.360	.200	.200									
M22R272*2-F	2700 pF	.200	.260	.150	.200	M20R123*2-F	.012 uF	.200	.260	.150	.100	M30R563*2-F	.056 uF	.300	.360	.200	.200									
M20R332*2-F	3300 pF	.200	.260	.150	.100	M22R123*2-F	.012 uF	.200	.260	.150	.200	M30R683*2-F	.068 uF	.300	.360	.200	.200									
M22R332*2-F	3300 pF	.200	.260	.150	.200	M20R153*2-F	.015 uF	.200	.260	.150	.100	M30R823*2-F	.082 uF	.300	.360	.200	.200									
M20R392*2-F	3900 pF	.200	.260	.150	.100	M22R153*2-F	.015 uF	.200	.260	.150	.200	M40R823*2-F	.082 uF	.400	.460	.200	.200									
M22R392*2-F	3900 pF	.200	.260	.150	.200	M30R153*2-F	.015 uF	.300	.360	.200	.200	M30R104*2-F	.10 uF	.300	.360	.200	.200									
M20R472*2-F	4700 pF	.200	.260	.150	.100	M20R183*2-F	.018 uF	.200	.260	.150	.100	M40R104*2-F	.10 uF	.400	.460	.200	.200									
M22R472*2-F	4700 pF	.200	.260	.150	.200	M22R183*2-F	.018 uF	.200	.260	.150	.200	M40R124*2-F	.12 uF	.400	.460	.200	.200									
M20R562*2-F	5600 pF	.200	.260	.150	.100	M30R183*2-F	.018 uF	.300	.360	.200	.200	M40R154*2-F	.15 uF	.400	.460	.200	.200									
M22R562*2-F	5600 pF	.200	.260	.150	.200	M20R223*2-F	.022 uF	.200	.260	.150	.100	M40R184*2-F	.18 uF	.400	.460	.200	.200									
M20R682*2-F	6800 pF	.200	.260	.150	.100	M22R223*2-F	.022 uF	.200	.260	.150	.200	M40R224*2-F	.22 uF	.400	.460	.200	.200									
M22R682*2-F	6800 pF	.200	.260	.150	.200	M30R223*2-F	.022 uF	.300	.360	.200	.200	M50R224*2-F	.22 uF	.500	.560	.250	.400									
M20R822*2-F	8200 pF	.200	.260	.150	.100	M30R273*2-F	.027 uF	.300	.360	.200	.200	M40R274*2-F	.27 uF	.400	.460	.200	.200									
M22R822*2-F	8200 pF	.200	.260	.150	.200	M30R333*2-F	.033 uF	.300	.360	.200	.200	M50R274*2-F	.27 uF	.500	.560	.250	.400									
M20R103*2-F	.010 uF	.200	.260	.150	.100	M30R393*2-F	.039 uF	.300	.360	.200	.200	M50R334*2-F	.33 uF	.500	.560	.250	.400									
												M50R394*2-F	.39 uF	.500	.560	.250	.400									
												M50R474*2-F	.47 uF	.500	.560	.250	.400									

\*Insert proper letter symbol for tolerance

K = 10%; M = ±20%

100 Vdc X7R																										
Catalog Part Number		Cap		Sizes (Inches)					Catalog Part Number		Cap		Sizes (Inches)					Catalog Part Number		Cap		Sizes (Inches)				
L	H	T	S	L	H	T	S	L	H	T	S	L	H	T	S	L	H	T	S							
M15R821*1-F	820 pF	.150	.210	.130	.100	M20R123*1-F	.012 uF	.200	.260	.150	.100	M20R104*1-F	.10 uF	.200	.260	.150	.100									
M15R102*1-F	1000 pF	.150	.210	.130	.100	M22R123*1-F	.012 uF	.200	.260	.150	.200	M22R104*1-F	.10 uF	.200	.260	.150	.200									
M15R122*1-F	1200 pF	.150	.210	.130	.100	M20R153*1-F	.015 uF	.200	.260	.150	.100	M30R104*1-F	.10 uF	.300	.360	.200	.200									
M15R152*1-F	1500 pF	.150	.210	.130	.100	M22R153*1-F	.015 uF	.200	.260	.150	.200	M30R124*1-F	.12 uF	.300	.360	.200	.200									
M15R182*1-F	1800 pF	.150	.210	.130	.100	M20R183*1-F	.018 uF	.200	.260	.150	.100	M30R154*1-F	.15 uF	.300	.360	.200	.200									
M15R222*1-F	2200 pF	.150	.210	.130	.100	M22R183*1-F	.018 uF	.200	.260	.150	.200	M30R184*1-F	.18 uF	.300	.360	.200	.200									
M15R272*1-F	2700 pF	.150	.210	.130	.100	M20R223*1-F	.022 uF	.200	.260	.150	.100	M30R224*1-F	.22 uF	.300	.360	.200	.200									
M15R332*1-F	3300 pF	.150	.210	.130	.100	M22R223*1-F	.022 uF	.200	.260	.150	.200	M30R274*1-F	.27 uF	.300	.360	.200	.200									
M15R392*1-F	3900 pF	.150	.210	.130	.100	M20R273*1-F	.027 uF	.200	.260	.150	.100	M30R334*1-F	.33 uF	.300	.360	.200	.200									
M15R472*1-F	4700 pF	.150	.210	.130	.100	M22R273*1-F	.027 uF	.200	.260	.150	.200	M40R334*1-F	.33 uF	.400	.460	.200	.200									
M20R472*1-F	4700 pF	.200	.260	.150	.100	M20R333*1-F	.033 uF	.200	.260	.150	.100	M30R394*1-F	.39 uF	.300	.360	.200	.200									
M22R472*1-F	4700 pF	.200	.260	.150	.200	M22R333*1-F	.033 uF	.200	.260	.150	.200	M40R394*1-F	.39 uF	.400	.460	.200	.200									
M15R562*1-F	5600 pF	.150	.210	.130	.100	M20R393*1-F	.039 uF	.200	.260	.150	.100	M30R474*1-F	.47 uF	.300	.360	.200	.200									
M20R562*1-F	5600 pF	.200	.260	.150	.100	M22R393*1-F	.039 uF	.200	.260	.150	.200	M40R474*1-F	.47 uF	.400	.460	.200	.200									
M22R562*1-F	5600 pF	.200	.260	.150	.200	M20R473*1-F	.047 uF	.200	.260	.150	.100	M40R564*1-F	.56 uF	.400	.460	.200	.200									
M15R682*1-F	6800 pF	.150	.210	.130	.100	M22R473*1-F	.047 uF	.200	.260	.150	.200	M40R684*1-F	.68 uF	.400	.460	.200	.200									
M20R682*1-F	6800 pF	.200	.260	.150	.100	M20R563*1-F	.056 uF	.200	.260	.150	.100	M50R684*1-F	.68 uF	.500	.560	.250	.400									
M22R682*1-F	6800 pF	.200	.260	.150	.200	M22R563*1-F	.056 uF	.200	.260	.150	.200	M40R824*1-F	.82 uF	.400	.460	.200	.200									
M15R822*1-F	8200 pF	.150	.210	.130	.100	M20R683*1-F	.068 uF	.200	.260	.150	.100	M50R824*1-F	.82 uF	.500	.560	.250	.400									
M20R822*1-F	8200 pF	.200	.260	.150	.100	M22R683*1-F	.068 uF	.200	.260	.150	.200	M40R105*1-F	1.0 uF	.400	.460	.200	.200									
M22R822*1-F	8200 pF	.200	.260	.150	.200	M30R683*1-F	.068 uF	.300	.360	.200	.200	M50R105*1-F	1.0 uF	.500	.560	.250	.400									
M15R103*1-F	.010 uF	.150	.210	.130	.100	M20R823*1-F	.082 uF	.200	.260	.150	.100	M50R125*1-F	1.2 uF	.500	.560	.250	.400									
M20R103*1-F	.010 uF	.200	.260	.150	.100	M22R823*1-F	.082 uF	.200	.260	.150	.200															
M22R103*1-F	.010 uF	.200	.260	.150	.200	M30R823*1-F	.082 uF	.300	.360	.200	.200															

\*Insert proper letter symbol for tolerance

K = 10%; M = ±20%

50 Vdc X7R																										
Catalog Part Number		Cap		Sizes (Inches)					Catalog Part Number		Cap		Sizes (Inches)					Catalog Part Number		Cap		Sizes (Inches)				
L	H	T	S	L	H	T	S	L	H	T	S	L	H	T	S	L	H	T	S							
M15R332*5-F	3300 pF	.150	.210	.130	.100	M15R682*5-F	6800 pF	.150	.210	.130	.100	M20R123*5-F	.012 uF	.200	.260	.150	.100									
M15R392*5-F	3900 pF	.150	.210	.130	.100	M15R822*5-F	8200 pF	.150	.210	.130	.100	M22R123*5-F	.012 uF	.200	.260	.150	.200									
M15R472*5-F	4700 pF	.150	.210	.130	.100	M15R103*5-F	.010 uF	.150	.210	.130	.100	M15R153*5-F	.015 uF	.150	.210	.130	.100									
M15R562*5-F	5600 pF	.150	.210	.130	.100	M15R123*5-F	.012 uF	.150	.210	.130	.100	M20R153*5-F	.015 uF	.200	.260	.150	.100									

Add 'TR' to end of part number for Tape & Reel

M15, M20, M22 - 2,500 per reel

M30 - 1,500 per reel Full reels only on all sizes

M40 - 1,000 per reel

M50 - N/A

\*Insert proper letter symbol for tolerance

K = 10%; M = ±20%

# Type M15 to M50 Multilayer Ceramic Capacitors

## Ratings

## RoHS Compliant

X7R Temperature Coefficient 50 Vdc X7R																	
Catalog		Sizes (Inches)				Catalog		Sizes (Inches)				Catalog		Sizes (Inches)			
Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S
M22R153*5-F	.015 uF	.200	.260	.150	.200	M20R683*5-F	.068 uF	.200	.260	.150	.100	M22R274*5-F	.27 uF	.200	.260	.150	.200
M15R183*5-F	.018 uF	.150	.210	.130	.100	M22R683*5-F	.068 uF	.200	.260	.150	.200	M30R274*5-F	.27 uF	.300	.360	.200	.200
M20R183*5-F	.018 uF	.200	.260	.150	.100	M20R823*5-F	.082 uF	.200	.260	.150	.100	M30R334*5-F	.33 uF	.300	.360	.200	.200
M22R183*5-F	.018 uF	.200	.260	.150	.200	M22R823*5-F	.082 uF	.200	.260	.150	.200	M30R394*5-F	.39 uF	.300	.360	.200	.200
M15R223*5-F	.022 uF	.150	.210	.130	.100	M20R104*5-F	.10 uF	.200	.260	.150	.100	M30R474*5-F	.47 uF	.300	.360	.200	.200
M20R223*5-F	.022 uF	.200	.260	.150	.100	M22R104*5-F	.10 uF	.200	.260	.150	.200	M30R564*5-F	.56 uF	.300	.360	.200	.200
M22R223*5-F	.022 uF	.200	.260	.150	.200	M20R124*5-F	.12 uF	.200	.260	.150	.100	M30R684*5-F	.68 uF	.300	.360	.200	.200
M15R273*5-F	.027 uF	.150	.210	.130	.100	M22R124*5-F	.12 uF	.200	.260	.150	.200	M30R824*5-F	.82 uF	.300	.360	.200	.200
M20R273*5-F	.027 uF	.200	.260	.150	.100	M20R154*5-F	.15 uF	.200	.260	.150	.100	M30R105*5-F	1.0 uF	.300	.360	.200	.200
M22R273*5-F	.027 uF	.200	.260	.150	.200	M22R154*5-F	.15 uF	.200	.260	.150	.200	M40R105*5-F	1.0 uF	.400	.460	.200	.200
M15R333*5-F	.033 uF	.150	.210	.130	.100	M30R154*5-F	.15 uF	.300	.360	.200	.200	M40R125*5-F	1.2 uF	.400	.460	.200	.200
M20R333*5-F	.033 uF	.200	.260	.150	.100	M20R184*5-F	.18 uF	.200	.260	.150	.100	M40R155*5-F	1.5 uF	.400	.460	.200	.200
M22R333*5-F	.033 uF	.200	.260	.150	.200	M22R184*5-F	.18 uF	.200	.260	.150	.200	M40R185*5-F	1.8 uF	.400	.460	.200	.200
M20R393*5-F	.039 uF	.200	.260	.150	.100	M30R184*5-F	.18 uF	.300	.360	.200	.200	M40R225*5-F	2.2 uF	.400	.460	.200	.200
M22R393*5-F	.039 uF	.200	.260	.150	.200	M20R224*5-F	.22 uF	.200	.260	.150	.100	M50R225*5-F	2.2 uF	.500	.560	.250	.400
M20R473*5-F	.047 uF	.200	.260	.150	.100	M22R224*5-F	.22 uF	.200	.260	.150	.200	M50R275*5-F	2.7 uF	.500	.560	.250	.400
M22R473*5-F	.047 uF	.200	.260	.150	.200	M30R224*5-F	.22 uF	.300	.360	.200	.200	M50R335*5-F	3.3 uF	.500	.560	.250	.400
M20R563*5-F	.056 uF	.200	.260	.150	.100	M20R274*5-F	.27 uF	.200	.260	.150	.100	M50R395*5-F	3.9 uF	.500	.560	.250	.400
M22R563*5-F	.056 uF	.200	.260	.150	.200												

\*Insert proper letter symbol for tolerance

K = 10%; M = ±20%

Z5U Temperature Coefficient 100 Vdc																	
Catalog		Sizes (Inches)				Catalog		Sizes (Inches)				Catalog		Sizes (Inches)			
Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S
M15U102*1-F	1000 pF	.150	.210	.130	.100	M20U223*1-F	.022 uF	.200	.260	.150	.100	M22U154*1-F	.15 uF	.200	.260	.150	.200
M15U122*1-F	1200 pF	.150	.210	.130	.100	M22U223*1-F	.022 uF	.200	.260	.150	.200	M30U154*1-F	.15 uF	.300	.360	.200	.200
M15U152*1-F	1500 pF	.150	.210	.130	.100	M20U273*1-F	.027 uF	.200	.260	.150	.100	M30U184*1-F	.18 uF	.300	.360	.200	.200
M15U182*1-F	1800 pF	.150	.210	.130	.100	M22U273*1-F	.027 uF	.200	.260	.150	.200	M30U224*1-F	.22 uF	.300	.360	.200	.200
M15U222*1-F	2200 pF	.150	.210	.130	.100	M20U333*1-F	.033 uF	.200	.260	.150	.100	M30U274*1-F	.27 uF	.300	.360	.200	.200
M15U272*1-F	2700 pF	.150	.210	.130	.100	M22U333*1-F	.033 uF	.200	.260	.150	.200	M30U334*1-F	.33 uF	.300	.360	.200	.200
M15U332*1-F	3300 pF	.150	.210	.130	.100	M20U393*1-F	.039 uF	.200	.260	.150	.100	M40U334*1-F	.33 uF	.400	.460	.200	.200
M15U392*1-F	3900 pF	.150	.210	.130	.100	M22U393*1-F	.039 uF	.200	.260	.150	.200	M30U394*1-F	.39 uF	.300	.360	.200	.200
M15U472*1-F	4700 pF	.150	.210	.130	.100	M20U473*1-F	.047 uF	.200	.260	.150	.100	M40U394*1-F	.39 uF	.400	.460	.200	.200
M15U562*1-F	5600 pF	.150	.210	.130	.100	M22U473*1-F	.047 uF	.200	.260	.150	.200	M30U474*1-F	.47 uF	.300	.360	.200	.200
M15U682*1-F	6800 uF	.150	.210	.130	.100	M20U563*1-F	.056 uF	.200	.260	.150	.100	M40U474*1-F	.47 uF	.400	.460	.200	.200
M15U822*1-F	8200 pF	.150	.210	.130	.100	M22U563*1-F	.056 uF	.200	.260	.150	.200	M40U564*1-F	.56 uF	.400	.460	.200	.200
M15U103*1-F	.010 uF	.150	.210	.130	.100	M20U683*1-F	.068 uF	.200	.260	.150	.100	M40U684*1-F	.68 uF	.400	.460	.200	.200
M20U103*1-F	.010 uF	.200	.260	.150	.100	M22U683*1-F	.068 uF	.200	.260	.150	.200	M40U824*1-F	.82 uF	.400	.460	.200	.200
M22U103*1-F	.010 uF	.200	.260	.150	.200	M20U823*1-F	.082 uF	.200	.260	.150	.100	M40U105*1-F	1.0 uF	.400	.460	.200	.200
M15U123*1-F	.012 uF	.150	.210	.130	.100	M22U823*1-F	.082 uF	.200	.260	.150	.200	M50U105*1-F	1.0 uF	.500	.560	.250	.400
M20U123*1-F	.012 uF	.200	.260	.150	.100	M20U104*1-F	.10 uF	.200	.260	.150	.100	M40U125*1-F	1.2 uF	.400	.460	.200	.200
M22U123*1-F	.012 uF	.200	.260	.150	.200	M22U104*1-F	.10 uF	.200	.260	.150	.200	M50U125*1-F	1.2 uF	.500	.560	.250	.400
M15U153*1-F	.015 uF	.150	.210	.130	.100	M30U104*1-F	.10 uF	.300	.360	.200	.200	M40U155*1-F	1.5 uF	.400	.460	.200	.200
M20U153*1-F	.015 uF	.200	.260	.150	.100	M20U124*1-F	.12 uF	.200	.260	.150	.100	M50U155*1-F	1.5 uF	.500	.560	.250	.400
M22U153*1-F	.015 uF	.200	.260	.150	.200	M22U124*1-F	.12 uF	.200	.260	.150	.200	M50U185*1-F	1.8 uF	.500	.560	.250	.400
M15U183*1-F	.018 uF	.150	.210	.130	.100	M30U124*1-F	.12 uF	.300	.360	.200	.200	M50U225*1-F	2.2 uF	.500	.560	.250	.400
M20U183*1-F	.018 uF	.200	.260	.150	.100	M20U154*1-F	.15 uF	.200	.260	.150	.100						
M22U183*1-F	.018 uF	.200	.260	.150	.200												

\*Insert proper letter symbol for tolerance

K = 10%; M = ±20%

Add 'TR' to end of part number for Tape & Reel

M15, M20, M22 - 2,500 per reel

M30 - 1,500 per reel Full reels only on all

M40 - 1,000 per reel; sizes.

M50 - N/A

# Type M15 to M50 Multilayer Ceramic Capacitors

## Ratings

## RoHS Compliant

Z5U Temperature Coefficient 50 Vdc																	
Catalog		Sizes (Inches)				Catalog		Sizes (Inches)				Catalog		Sizes (Inches)			
Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S	Part Number	Cap	L	H	T	S
M15U472*5-F	4700 pF	.150	.210	.130	.100	M15U683*5-F	.068 uF	.150	.210	.130	.100	M20U474*5-F	.47 uF	.200	.260	.150	.100
M15U562*5-F	5600 pF	.150	.210	.130	.100	M20U683*5-F	.068 uF	.200	.260	.150	.100	M22U474*5-F	.47 uF	.200	.260	.150	.200
M15U682*5-F	6800 pF	.150	.210	.130	.100	M22U683*5-F	.068 uF	.200	.260	.150	.200	M30U474*5-F	.47 uF	.300	.360	.200	.200
M15U822*5-F	8200 pF	.150	.210	.130	.100	M20U823*5-F	.082 uF	.200	.260	.150	.100	M20U564*5-F	.56 uF	.200	.260	.150	.100
M15U103*5-F	.010 uF	.150	.210	.130	.100	M22U823*5-F	.082 uF	.200	.260	.150	.200	M22U564*5-F	.56 uF	.200	.260	.150	.200
M15U123*5-F	.012 uF	.150	.210	.130	.100	M15U104*5-F	.10 uF	.150	.210	.130	.100	M30U564*5-F	.56 uF	.300	.360	.200	.200
M15U153*5-F	.015 uF	.150	.210	.130	.100	M20U104*5-F	.10 uF	.200	.260	.150	.100	M30U684*5-F	.68 uF	.300	.360	.200	.200
M15U183*5-F	.018 uF	.150	.210	.130	.100	M22U104*5-F	.10 uF	.200	.260	.150	.200	M30U824*5-F	.82 uF	.300	.360	.200	.200
M15U223*5-F	.022 uF	.150	.210	.130	.100	M20U124*5-F	.12 uF	.200	.260	.150	.100	M30U105*5-F	1.0 uF	.300	.360	.200	.200
M15U273*5-F	.027 uF	.150	.210	.130	.100	M22U124*5-F	.12 uF	.200	.260	.150	.200	M30U125*5-F	1.2 uF	.300	.360	.200	.200
M20U273*5-F	.027 uF	.200	.260	.150	.100	M20U154*5-F	.15 uF	.200	.260	.150	.100	M40U125*5-F	1.2 uF	.400	.460	.200	.200
M22U273*5-F	.027 uF	.200	.260	.150	.200	M22U154*5-F	.15 uF	.200	.260	.150	.200	M30U155*5-F	1.5 uF	.300	.360	.200	.200
M15U333*5-F	.033 uF	.150	.210	.130	.100	M20U184*5-F	.18 uF	.200	.260	.150	.100	M40U155*5-F	1.5 uF	.400	.460	.200	.200
M20U333*5-F	.033 uF	.200	.260	.150	.100	M22U184*5-F	.18 uF	.200	.260	.150	.200	M30U185*5-F	1.8 uF	.300	.360	.200	.200
M22U333*5-F	.033 uF	.200	.260	.150	.200	M20U224*5-F	.22 uF	.200	.260	.150	.100	M40U185*5-F	1.8 uF	.400	.460	.200	.200
M15U393*5-F	.039 uF	.150	.210	.130	.100	M22U224*5-F	.22 uF	.200	.260	.150	.200	M40U225*5-F	2.2 uF	.400	.460	.200	.200
M20U393*5-F	.039 uF	.200	.260	.150	.100	M20U274*5-F	.27 uF	.200	.260	.150	.100	M40U275*5-F	2.7 uF	.400	.460	.200	.200
M22U393*5-F	.039 uF	.200	.260	.150	.200	M22U274*5-F	.27 uF	.200	.260	.150	.200	M40U335*5-F	3.3 uF	.400	.460	.200	.200
M15U473*5-F	.047 uF	.150	.210	.130	.100	M30U274*5-F	.27 uF	.300	.360	.200	.200	M40U395*5-F	3.9 uF	.400	.460	.200	.200
M20U473*5-F	.047 uF	.200	.260	.150	.100	M20U334*5-F	.33 uF	.200	.260	.150	.100	M50U395*5-F	3.9 uF	.500	.560	.250	.400
M22U473*5-F	.047 uF	.200	.260	.150	.200	M22U334*5-F	.33 uF	.200	.260	.150	.200	M40U475*5-F	4.7 uF	.400	.460	.200	.200
M15U563*5-F	.056 uF	.150	.210	.130	.100	M30U334*5-F	.33 uF	.300	.360	.200	.200	M50U475*5-F	4.7 uF	.500	.560	.250	.400
M20U563*5-F	.056 uF	.200	.260	.150	.100	M20U394*5-F	.39 uF	.200	.260	.150	.100	M50U565*5-F	5.6 uF	.500	.560	.250	.400
M22U563*5-F	.056 uF	.200	.260	.150	.200	M22U394*5-F	.39 uF	.200	.260	.150	.200	M50U685*5-F	6.8 uF	.500	.560	.250	.400
						M30U394*5-F	.39 uF	.300	.360	.200	.200						

Add 'TR' to end of part number for Tape & Reel

M15, M20, M22 - 2,500 per reel

M30 - 1,500 per reel Full reels only on all

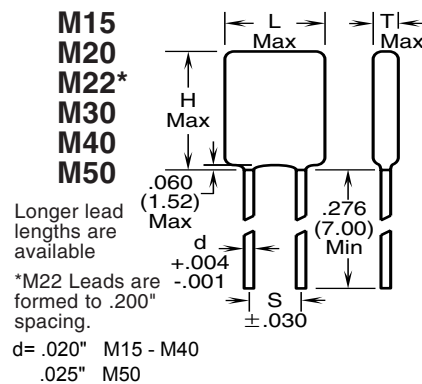
M40 - 1,000 per reel; sizes.

M50 - N/A

\*Insert proper letter symbol for tolerance

K = 10%; M = ±20%

## Outline Drawing



M30 Z5U 100 V 104 - 334 leads are formed to .200"

M30 X7R 50 V 154-105 leads are formed to .200"

## Type M15 to M50 Multilayer Ceramic Capacitors

---

**Notice and Disclaimer:** All product drawings, descriptions, specifications, statements, information and data (collectively, the "Information") in this datasheet or other publication are subject to change. The customer is responsible for checking, confirming and verifying the extent to which the Information contained in this datasheet or other publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without any guarantee, warranty, representation or responsibility of any kind, expressed or implied. Statements of suitability for certain applications are based on the knowledge that the Cornell Dubilier company providing such statements ("Cornell Dubilier") has of operating conditions that such Cornell Dubilier company regards as typical for such applications, but are not intended to constitute any guarantee, warranty or representation regarding any such matter – and Cornell Dubilier specifically and expressly disclaims any guarantee, warranty or representation concerning the suitability for a specific customer application, use, storage, transportation, or operating environment. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by Cornell Dubilier with reference to the use of any Cornell Dubilier products is given gratis (unless otherwise specified by Cornell Dubilier), and Cornell Dubilier assumes no obligation or liability for the advice given or results obtained. Although Cornell Dubilier strives to apply the most stringent quality and safety standards regarding the design and manufacturing of its products, in light of the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies or other appropriate protective measures) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage. Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated in such warnings, cautions and notes, or that other safety measures may not be required.



**Стандарт  
Электрон  
Связь**

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

**Наши контакты:**

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331