

# 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<br>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 |  |  |  |

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)

\*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 =  $\pm 10\%$

# 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%                          |         |                |      |      |      |             |         |                |      |      |      |             |         |                |      |      |      |

| 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    |
| 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%                          |         |                |      |      |      |             |         |                |      |      |      |             |         |                |      |      |      |

| X7R 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    |
| 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<br>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    |
| 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     |         | 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    |
| 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     |         | 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    |
| 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<br>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<br>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<br>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

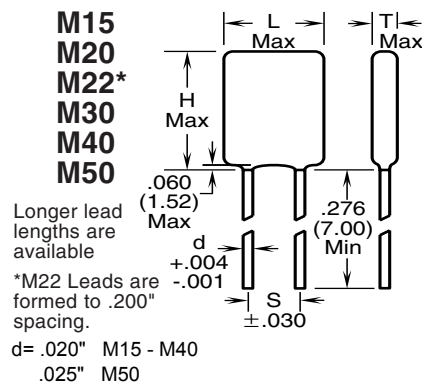
M40 - 1,000 per reel; sizes.

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"



Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».



## JONHON

«**JONHON**» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«**FORSTAR**» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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