



**THE DATASHEET OF
SA305E105MAR**



GENERAL INFORMATION

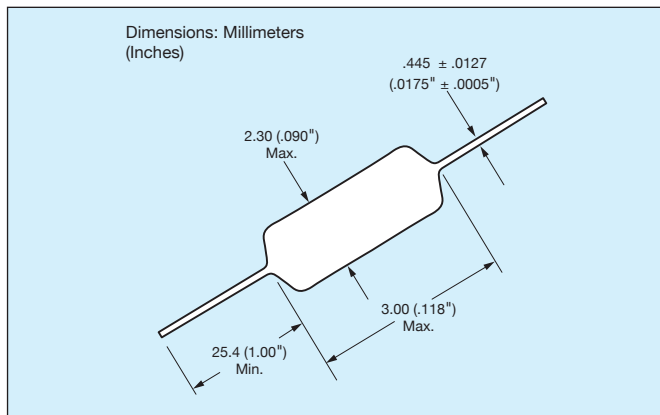
AVX SA Series

Conformally Coated Axial Leaded MLC

Temperature Coefficients: C0G (NP0), X7R, X5R, Z5U
10, 50, 100, 200 Volts

Case Material: Epoxy (Flame Retardant to UL Bulletin 492, Par. 280)

Lead Material: Solderable



HOW TO ORDER

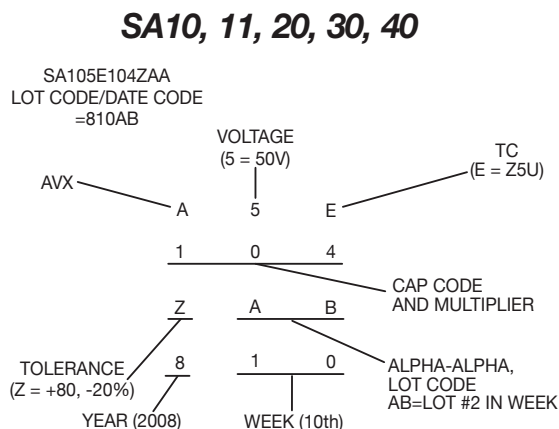
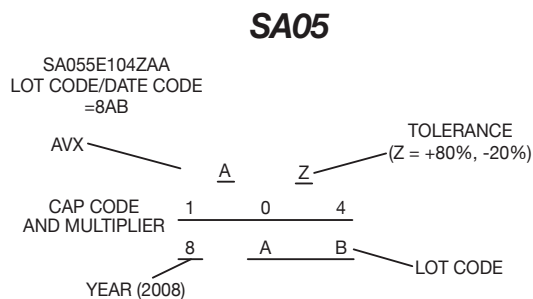
| | | | | | | |
|--|--|--|--|--|--|---|
| SA10 | 5 | E | 104 | Z | A | R |
| Conformal Axial Size | Voltage | Dielectric | Capacitance | Capacitance Tolerance | Failure Rate | Leads |
| SA05 SA10 SA11 SA20 SA30 SA40 | Z = 10V 5 = 50V 1 = 100V 2 = 200V | A = C0G (NP0) C = X7R D = X5R E = Z5U | First two digits are the significant figures of capacitance. Third digit indicates the additional number of zeros. For example, order 100,000 pF as 104. (For values below 10pF use "R" in place of decimal point, e.g., 1R4 = 1.4pF.) | C0G (NP0): C = $\pm .25\text{pF}$ D = $\pm .5\text{pF}$ F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$ K = $\pm 10\%$ | X7R: J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$ X5R: K = $\pm 10\%$ M = $\pm 20\%$ Z5U: M = $\pm 20\%$ Z = $+80\%$ -20% | A = Not Applicable Standard (Solderable) R = RoHS Compliant |



Please select correct termination style.

MARKING (EXAMPLE)

SpinGuard marking includes full date code/lot code identification. A first in the industry, this format provides complete traceability to all manufacturing processes involving the basic chip and final assembly. Total Shipment traceability is also provided.



PACKAGING REQUIREMENTS

- A = Standard Reels (see Page 49)
- B = 1000 piece reels (distributors only, tight tolerance only)
- C = Ammo Pack (see Page 49)
- D thru J = See Special Lead Configurations (Page 41)
- M = 26mm tape and reel
- N = 26mm ammo pack
- R = RoHS, Standard reels (See page 49)

Axial Leads/SpinGuard®



C0G (NP0) Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS



Dimensions: Millimeters (Inches)

| AVX Style | SA05 | SA10 | | SA11 | | SA20 | | SA30 | | SA40 | | | | | |
|----------------------|--|------------|--------------|---------------|-------------|-------------|-----------------------|----------|---------|----------|---------|----------|---------|----------|---------|
| | | Length (L) | Diameter (D) | Lead Diameter | Lead Length | Cap. in. pF | Typical AVX Part Nos. | WVDC 100 | WVDC 50 | WVDC 100 | WVDC 50 | WVDC 100 | WVDC 50 | WVDC 100 | WVDC 50 |
| 1.0* 10 | SA102A1R0DAR | | | | | | | | | | | | | | |
| 9.1* 10 | SA102A9R1DAR | | | | | | | | | | | | | | |
| 10 12 15 | SA102A100JAR SA102A120JAR SA102A150JAR | | | | | | | | | | | | | | |
| 18 22 27 | SA102A180JAR SA102A220JAR SA102A270JAR | | | | | | | | | | | | | | |
| 33 39 47 | SA102A330JAR SA102A390JAR SA102A470JAR | | | | | | | | | | | | | | |
| 56 68 82 | SA102A560JAR SA102A680JAR SA102A820JAR | | | | | | | | | | | | | | |
| 100 120 150 | SA102A101JAR SA102A121JAR SA101A151JAR | | | | | | | | | | | | | | |
| 180 220 270 | SA101A181JAR SA101A221JAR SA101A271JAR | | | | | | | | | | | | | | |
| 330 390 470 | SA101A331JAR SA101A391JAR SA101A471JAR | | | | | | | | | | | | | | |
| 560 680 820 | SA101A561JAR SA101A681JAR SA101A821JAR | | | | | | | | | | | | | | |
| 1000 1200 1500 | SA105A102JAR SA201A122JAR SA201A152JAR | | | | | | | | | | | | | | |
| 1800 2200 2700 | SA205A182JAR SA301A222JAR SA301A272JAR | | | | | | | | | | | | | | |
| 3300 3900 4700 | SA301A332JAR SA301A392JAR SA305A472JAR | | | | | | | | | | | | | | |
| 5600 6800 8200 | SA401A562JAR SA401A682JAR SA405A822JAR | | | | | | | | | | | | | | |
| 10,000 12,000 | SA405A103JAR SA405A123JAR | | | | | | | | | | | | | | |

For other tolerances see Part No. Codes
 For other voltages see Part No. Codes
 AVX Style

= Industry preferred values

**C&D" Tolerance Only



X7R Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS

Dimensions: Millimeters (Inches)



| AVX Style | SA05 | SA10 | SA11 | SA20 | SA30 | SA40 | | | | | | | | | |
|----------------------|-----------------------|---------------|---------------|---------------|---------------|---------------|------|-----|------|-----|------|-----|------|-----|----|
| Length (L) | 3.00 (.118") | 4.32 (.170") | 4.32 (.170") | 6.60 (.260") | 7.37 (.290") | 10.16 (.400") | | | | | | | | | |
| Diameter (D) | 2.30 (.090") | 2.54 (.100") | 3.05 (.120") | 2.54 (.100") | 3.81 (.150") | 3.81 (.150") | | | | | | | | | |
| Lead Diameter | .445 (.0175") | .445 (.0175") | .445 (.0175") | .445 (.0175") | .445 (.0175") | .445 (.0175") | | | | | | | | | |
| Lead Length | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | | | | | | | | | |
| Cap. in. pF | Typical AVX Part Nos. | WVDC | | | WVDC | | WVDC | | WVDC | | WVDC | | WVDC | | |
| | | 200 | 100 | 50 | 200 | 100 | 50 | 100 | 50 | 100 | 50 | 100 | 50 | 100 | 50 |
| 220 | SA102C221KAR | | | | | | | | | | | | | | |
| 270 | SA102C271KAR | | | | | | | | | | | | | | |
| 330 | SA102C331KAR | | | | | | | | | | | | | | |
| 390 | SA102C391KAR | | | | | | | | | | | | | | |
| 470 | SA102C471KAR | | | | | | | | | | | | | | |
| 560 | SA101C561KAR | | | | | | | | | | | | | | |
| 680 | SA101C681KAR | | | | | | | | | | | | | | |
| 820 | SA101C821KAR | | | | | | | | | | | | | | |
| 1000 | SA101C102KAR | | | | | | | | | | | | | | |
| 1200 | SA101C122KAR | | | | | | | | | | | | | | |
| 1500 | SA101C152KAR | | | | | | | | | | | | | | |
| 1800 | SA101C182KAR | | | | | | | | | | | | | | |
| 2200 | SA101C222KAR | | | | | | | | | | | | | | |
| 2700 | SA101C272KAR | | | | | | | | | | | | | | |
| 3300 | SA101C332KAR | | | | | | | | | | | | | | |
| 3900 | SA101C392KAR | | | | | | | | | | | | | | |
| 4700 | SA101C472KAR | | | | | | | | | | | | | | |
| 5600 | SA101C562KAR | | | | | | | | | | | | | | |
| 6800 | SA101C682KAR | | | | | | | | | | | | | | |
| 8200 | SA105C822KAR | | | | | | | | | | | | | | |
| 10,000 | SA105C103KAR | | | | | | | | | | | | | | |
| 12,000 | SA105C123KAR | | | | | | | | | | | | | | |
| 15,000 | SA105C153KAR | | | | | | | | | | | | | | |
| 18,000 | SA105C183KAR | | | | | | | | | | | | | | |
| 22,000 | SA105C223KAR | | | | | | | | | | | | | | |
| 27,000 | SA105C273KAR | | | | | | | | | | | | | | |
| 33,000 | SA105C333KAR | | | | | | | | | | | | | | |
| 39,000 | SA105C393KAR | | | | | | | | | | | | | | |
| 47,000 | SA105C473KAR | | | | | | | | | | | | | | |
| 56,000 | SA115C563KAR | | | | | | | | | | | | | | |
| 68,000 | SA115C683KAR | | | | | | | | | | | | | | |
| 82,000 | SA115C823KAR | | | | | | | | | | | | | | |
| 100,000 | SA115C104KAR | | | | | | | | | | | | | | |
| 120,000 | SA305C124KAR | | | | | | | | | | | | | | |
| 150,000 | SA305C154KAR | | | | | | | | | | | | | | |
| 180,000 | SA305C184KAR | | | | | | | | | | | | | | |
| 220,000 | SA305C224KAR | | | | | | | | | | | | | | |
| 270,000 | SA305C274KAR | | | | | | | | | | | | | | |
| 330,000 | SA305C334KAR | | | | | | | | | | | | | | |
| 470,000 | SA405C474KAR | | | | | | | | | | | | | | |
| 1,000,000 | SA305C105KAR | | | | | | | | | | | | | | |

For other tolerances see Part No. Codes
 For other voltages see Part No. Codes
 AVX Style

= Industry preferred values

Z5U Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS



Dimensions: Millimeters (Inches)

| AVX Style | SA05 | SA10 | SA11 | SA20 | SA30 | SA40 | |
|----------------------|------------------------------|------------------|------------------|------------------|------------------|------------------|--------|
| Length (L) | 3.00 (.118") | 4.32 (.170") | 4.32 (.170") | 6.60 (.260") | 7.37 (.290") | 10.16 (.400") | |
| Diameter (D) | 2.30 (.090") | 2.54 (.100") | 3.05 (.120") | 2.54 (.100") | 3.81 (.150") | 3.81 (.150") | |
| Lead Diameter | .445 (.0175") | .445 (.0175") | .445 (.0175") | .445 (.0175") | .445 (.0175") | .445 (.0175") | |
| Lead Length | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | |
| Cap. in. pF | Typical AVX Part Nos. | WVDC | | WVDC | | WVDC | |
| | | 50 | 100 50 | 100 50 | 100 50 | 100 50 | 100 50 |
| 10,000 | SA105E103ZAR | | | | | | |
| 15,000 | SA105E153ZAR | | | | | | |
| 22,000 | SA105E223ZAR | | | | | | |
| 33,000 | SA105E333ZAR | | | | | | |
| 47,000 | SA105E473ZAR | | | | | | |
| 68,000 | SA105E683ZAR | | | | | | |
| *100,000 | SA105E104ZAR | | | | | | |
| 150,000 | SA105E154ZAR | | | | | | |
| 220,000 | SA105E224ZAR | | | | | | |
| 330,000 | SA115E334ZAR | | | | | | |
| 470,000 | SA305E474ZAR | | | | | | |
| 680,000 | SA305E684ZAR | | | | | | |
| 820,000 | SA305E824ZAR | | | | | | |
| 1,000,000 | SA305E105ZAR | | | | | | |

For other tolerances see Part No. Codes
 For other voltages see Part No. Codes
 AVX Style

= Industry preferred values

*Preferred Industry Decoupling Capacitor — Insertable on .300" centers.

SA105E104ZAA

Axial Leads/SpinGuard®




X7R Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS

Dimensions: Millimeters (Inches)



| AVX Style | | SA10 |
|------------------|-----------------------|------------------|
| Length (L) | | 4.32 (.170") |
| Diameter (D) | | 2.54 (.100") |
| Lead Diameter | | .445 (.0175") |
| Lead Length | | 25.4 (1.00") |
| Cap. in. μ F | Typical AVX Part Nos. | WVDC 10 |
| 1.8 | SA10ZD185KAR | |
| 2.7 | SA10ZD275KAR | |
| 3.3 | SA10ZD335KAR | |
| 4.7 | SA10ZD475KAR | |


 For other tolerances see Part No. Codes
 For other voltages see Part No. Codes
 AVX Style

= Industry preferred values

Axial Leads/SpinGuard®/AA Series



Automotive

GENERAL INFORMATION

AVX AA Series

Electrical Characteristics: AA101C103K4R

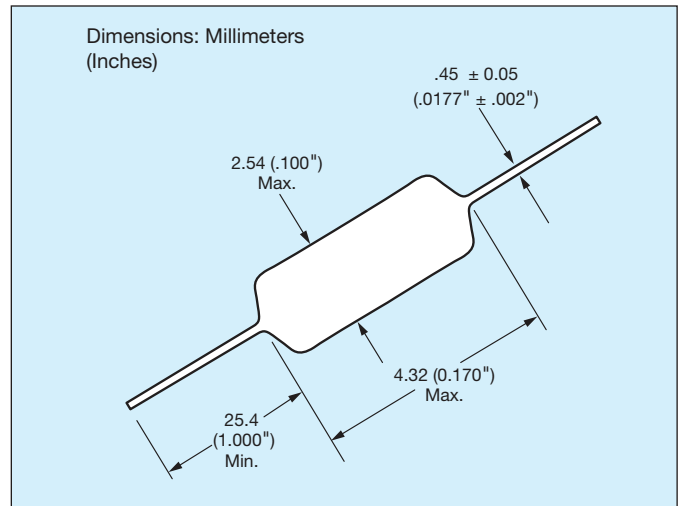
| | |
|--|--------------|
| Capacitance @ 25°C, 1kHz, 1Vrms | 0.0100μF |
| Capacitance Tolerance | ±10 % |
| Dissipation Factor @ 25°C | 2.5% Max |
| Rated Voltage | 100Vdc |
| Dielectric Withstand Voltage | 250Vdc |
| Insulation Resistance @ 25°C @ Rated Voltage | 100000 Mohms |

Temperature Characteristics:

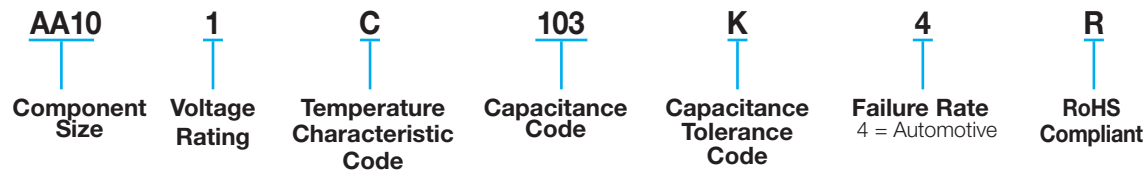
X7R (-55 to + 125°C ± 15% @ 0Vdc)

Lead Material:

RoHS Compliant 100% Tin

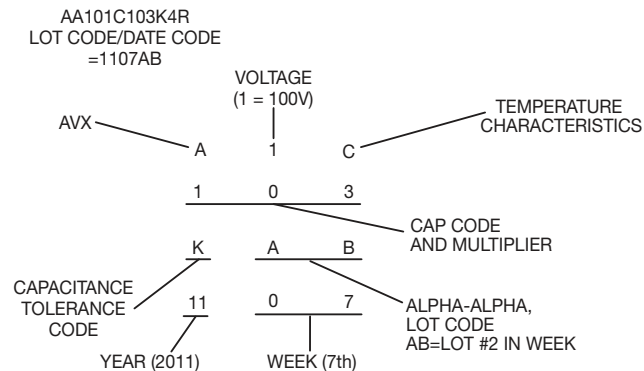


HOW TO ORDER



MARKING (EXAMPLE)

SpinGuard marking includes full date code/lot code identification. A first in the industry, this format provides complete traceability to all manufacturing processes involving the basic chip and final assembly. Total Shipment traceability is also provided.



PACKAGING REQUIREMENTS

Tape and Reel Ø 14": 7500 pieces

Axial Leads/SpinGuard®/AA Series



Automotive – C0G (NP0) Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS

Dimensions: Millimeters (Inches)



| AVX Style | | AA10 | | | AA30 | |
|---------------|-----------------------|------------------|-----|----|------------------|----|
| Length (L) | | 4.32 (.170") | | | 7.37 (.290") | |
| Diameter (D) | | 2.54 (.100") | | | 3.81 (.150") | |
| Lead Diameter | | .445 (.0175") | | | .445 (.0175") | |
| Lead Length | | 25.4 (1.00") | | | 25.4 (1.00") | |
| Cap. in. pF | Typical AVX Part Nos. | WVDC | | | WVDC | |
| | | 200 | 100 | 50 | 100 | 50 |
| 100 | AA.....A101K4R | | | | | |
| 120 | AA.....A121K4R | | | | | |
| 150 | AA.....A151K4R | | | | | |
| 180 | AA.....A181K4R | | | | | |
| 220 | AA.....A221K4R | | | | | |
| 270 | AA.....A271K4R | | | | | |
| 330 | AA.....A331K4R | | | | | |
| 390 | AA.....A391K4R | | | | | |
| 470 | AA.....A471K4R | | | | | |
| 560 | AA.....A561K4R | | | | | |
| 680 | AA.....A681K4R | | | | | |
| 820 | AA.....A821K4R | | | | | |
| 1,000 | AA.....A102K4R | | | | | |
| 1,200 | AA.....A122K4R | | | | | |
| 1,500 | AA.....A152K4R | | | | | |
| 1,800 | AA.....A182K4R | | | | | |
| 2,200 | AA.....A222K4R | | | | | |
| 2,700 | AA.....A272K4R | | | | | |
| 3,300 | AA.....A332K4R | | | | | |
| 3,900 | AA.....A392K4R | | | | | |
| 4,700 | AA.....A472K4R | | | | | |
| 5,600 | AA.....A562K4R | | | | | |
| 6,800 | AA.....A682K4R | | | | | |
| 8,200 | AA.....A822K4R | | | | | |
| 10,000 | AA.....A103K4R | | | | | |

For other voltage and tolerances contact factory.

*Other capacitance values available upon special request.

Axial Leads/SpinGuard®/AA Series



Automotive – X7R Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS



Dimensions: Millimeters (Inches)

| AVX Style | | AA10 | | AA30 | |
|----------------|--------------------------|------------------|----|------------------|----|
| Length (L) | | 4.32 (.170") | | 7.37 (.290") | |
| Diameter (D) | | 2.54 (.100") | | 3.81 (.150") | |
| Lead Diameter | | .445 (.0175") | | .445 (.0175") | |
| Lead Length | | 25.4 (1.00") | | 25.4 (1.00") | |
| Cap. in. pF | Typical AVX Part Nos. | WVDC | | WVDC | |
| | | 100 | 50 | 100 | 50 |
| 220 | AA__C221KAR | | | | |
| 270 | AA__C271KAR | | | | |
| 330 | AA__C331KAR | | | | |
| 390 | AA__C391KAR | | | | |
| 470 | AA__C471KAR | | | | |
| 560 | AA__C561KAR | | | | |
| 680 | AA__C681KAR | | | | |
| 820 | AA__C821KAR | | | | |
| 1,000 | AA__C102KAR | | | | |
| 1,200 | AA__C122KAR | | | | |
| 1,500 | AA__C152KAR | | | | |
| 1,800 | AA__C182KAR | | | | |
| 2,200 | AA__C222KAR | | | | |
| 2,700 | AA__C272KAR | | | | |
| 3,300 | AA__C332KAR | | | | |
| 3,900 | AA__C392KAR | | | | |
| ,700 | AA__C472KAR | | | | |
| 5,600 | AA__C562KAR | | | | |
| 6,800 | AA__C682KAR | | | | |
| 8,200 | AA__C822KAR | | | | |
| 10,000 | AA__C103KAR | | | | |
| 12,000 | AA__C123KAR | | | | |
| 15,000 | AA__C153KAR | | | | |
| 18,000 | AA__C183KAR | | | | |
| 22,000 | AA__C223KAR | | | | |
| 27,000 | AA__C273KAR | | | | |
| 33,000 | AA__C333KAR | | | | |
| 39,000 | AA__C393KAR | | | | |
| 47,000 | AA__C473KAR | | | | |
| 56,000 | AA__C563KAR | | | | |
| 68,000 | AA__C683KAR | | | | |
| 82,000 | AA__C823KAR | | | | |
| 100,000 | AA__C104KAR | | | | |

For other voltage and tolerances contact factory.

*Other capacitance values available upon special request.

GENERAL INFORMATION

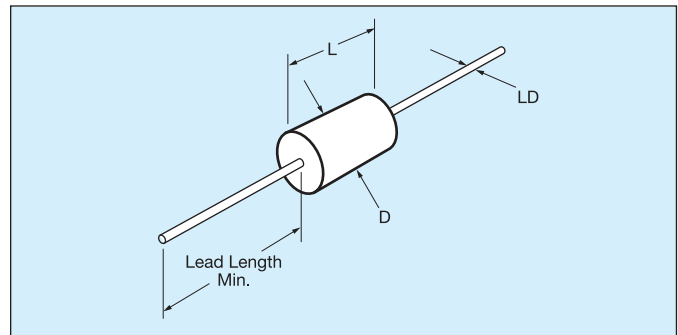
AVX SA Series

Molded Axial Leaded MLC

Temperature Coefficients: C0G (NP0), X7R, Z5U
50V, 100V and 200V

Case Material: Molded Epoxy

Lead Material: Solderable



HOW TO ORDER

| | | | | | | |
|--|---------------------------------|-------------------------------------|--|--|---|------------------------------------|
| MA10 | 5 | E | 104 | Z | A | R |
| Molded Axial Size | Voltage | Dielectric | Capacitance | Capacitance Tolerance | Failure Rate | Leads |
| MA10 MA20 MA30 MA40 MA50 MA60 | 5 = 50V 1 = 100V 2 = 200V | A = C0G (NP0) C = X7R E = Z5U | First two digits are the significant figures of capacitance. Third digit indicates the additional number of zeros. For example, order 100,000 pF as 104. (For values below 10pF use "R" in place of decimal point, e.g., 1R4 = 1.4pF.) | COG (NP0): F = ±1% J = ±5% K = ±10% M = ±20% D = ±0.5pF <10pF only | X7R: J = ±5% K = ±10% M = ±20% Z5U: M = ±20% Z = +80% -20% | A = Not Applicable A = Standard |

Not RoHS Compliant

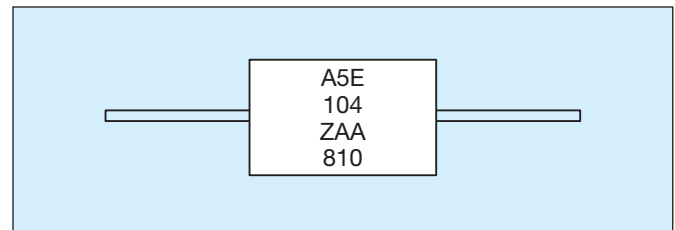
‡ C tolerance available C0G (NP0) from 1.0 to 9.1 pF only. Minimum tolerance for values 10 pF - 100 pF is D or F whichever is greater.

MARKING (EXAMPLE)

Line 1, A (for AVX), 5 = 50 Volts (V is optional),
E = TC Line 2, 104Z = Capacitance Code

Line 3, Tolerance, 2 digit Lot Code
Date Code: 8 = 2008
10 = Week

Four Digit Date Code Optional



MILITARY CROSS REFERENCE AND DIMENSIONS GUIDE

| AVX Style | Per MIL-Spec | | | Case Size | | |
|-----------|--------------|---------------|------------|--------------------------------|-------------------------------|------------------------------|
| | MIL-C-11015 | MIL-PRF-39014 | MIL-PRF-20 | Length (L) | Diameter (D) | Lead Diameter (LD) |
| MA10 | CK12 | CKR11 | CCR75/CC75 | 4.07 ± .25 (.160" ± .010") | 2.29 ± .25 (.090" ± .010") | .48 ± .05 (.019" ± .002") |
| MA20 | CK13 | CKR12 | CCR76/CC76 | 6.35 ± .25 (.250" ± .010") | 2.29 ± .25 (.090" ± .010") | .48 ± .05 (.019" ± .002") |
| MA40 | CK14 | CKR14 | CCR77/CC77 | 9.91 ± .25 (.390" ± .010") | 3.56 ± .25 (.140" ± .010") | .63 ± .05 (.025" ± .002") |
| MA50 | CK15 | CKR15 | CCR78/CC78 | 12.7 ± .51 (.500" ± .020") | 6.35 ± .38 (.250" ± .015") | .63 ± .05 (.025" ± .002") |
| MA60 | CK16 | CKR16 | CCR79/CC79 | 17.53 ± .51 (.690" ± .020") | 8.89 ± .51 (.350" ± .015") | .63 ± .05 (.025" ± .002") |

For Military/Established Reliability Molded/Axial Lead see MIL-C-11015, MIL-PRF-39014, MIL-PRF-20 Section.

Dimensions: Millimeters (Inches)

Axial Leads/Ceralam®



C0G (NP0) Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS

Dimensions: Millimeters (Inches)



| AVX Style | | MA10 | | | MA20 | | | MA30 | | | MA40 | | | MA50 | | | MA60 | | |
|--------------------|---|-------------------------------|-----|----|-------------------------------|-----|----|-------------------------------|-----|----|-------------------------------|-----|----|-------------------------------|-----|----|--------------------------------|-----|----|
| Length | | 4.07 ± .25 (.160" ± .010") | | | 6.35 ± .25 (.250" ± .010") | | | 6.09 ± .25 (.240" ± .010") | | | 9.91 ± .25 (.390" ± .010") | | | 12.7 ± .51 (.500" ± .020") | | | 17.53 ± .51 (.690" ± .020") | | |
| Diameter | | 2.29 ± .25 (.090" ± .010") | | | 2.29 ± .25 (.090" ± .010") | | | 3.30 ± .25 (.130" ± .010") | | | 3.56 ± .25 (.140" ± .010") | | | 6.35 ± .38 (.250" ± .015") | | | 8.89 ± .51 (.350" ± .015") | | |
| Lead Diameter | | .48 ± .05 (.019" ± .002") | | | .48 ± .05 (.019" ± .002") | | | .48 ± .05 (.019" ± .002") | | | .63 ± .05 (.025" ± .002") | | | .63 ± .05 (.025" ± .002") | | | .63 ± .05 (.025" ± .002") | | |
| Lead Length | | 25.4 (1.00") | | | 25.4 (1.00") | | | 25.4 (1.00") | | | 25.4 (1.00") | | | 25.4 (1.00") | | | 25.4 (1.00") | | |
| Cap. in. pF | Typical AVX Part Nos. | WVDC | | | WVDC | | | WVDC | | | WVDC | | | WVDC | | | WVDC | | |
| | | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 |
| 1.0 to 9.1 | MA.....5A1R0DAA MA.....5A9R1DAA | | | | | | | | | | | | | | | | | | |
| 10 to 15 | MA.....5A100KAA MA.....5A120KAA MA.....5A150KAA | | | | | | | | | | | | | | | | | | |
| 18 to 27 | MA.....5A180KAA MA.....5A220KAA MA.....5A270KAA | | | | | | | | | | | | | | | | | | |
| 33 to 47 | MA.....5A330KAA MA.....5A390KAA MA.....5A470KAA | | | | | | | | | | | | | | | | | | |
| 56 to 82 | MA.....5A560KAA MA.....5A680KAA MA.....5A820KAA | | | | | | | | | | | | | | | | | | |
| 100 to 150 | MA.....5A101KAA MA.....5A121KAA MA.....5A151KAA | | | | | | | | | | | | | | | | | | |
| 180 to 270 | MA.....5A181KAA MA.....5A221KAA MA.....5A271KAA | | | | | | | | | | | | | | | | | | |
| 330 to 470 | MA.....5A331KAA MA.....5A391KAA MA.....5A471KAA | | | | | | | | | | | | | | | | | | |
| 560 to 820 | MA.....5A561KAA MA.....5A681KAA MA.....5A821KAA | | | | | | | | | | | | | | | | | | |
| 1000 to 1500 | MA.....5A102KAA MA.....5A122KAA MA.....5A152KAA | | | | | | | | | | | | | | | | | | |
| 1800 to 2700 | MA.....5A182KAA MA.....5A222KAA MA.....5A272KAA | | | | | | | | | | | | | | | | | | |
| 3300 to 4700 | MA.....5A332KAA MA.....5A392KAA MA.....5A472KAA | | | | | | | | | | | | | | | | | | |
| 5600 to 8200 | MA.....5A562KAA MA.....5A682KAA MA.....5A822KAA | | | | | | | | | | | | | | | | | | |
| 10,000 to 15,000 | MA.....5A103KAA MA.....5A123KAA MA.....5A153KAA | | | | | | | | | | | | | | | | | | |
| 18,000 to 27,000 | MA.....5A183KAA MA.....5A223KAA MA.....5A273KAA | | | | | | | | | | | | | | | | | | |
| 33,000 to 47,000 | MA.....5A333KAA MA.....5A393KAA MA.....5A473KAA | | | | | | | | | | | | | | | | | | |
| 56,000 to 82,000 | MA.....5A563KAA MA.....5A683KAA MA.....5A823KAA | | | | | | | | | | | | | | | | | | |
| 100,000 to 150,000 | MA.....5A104KAA MA.....5A124KAA MA.....5A154KAA | | | | | | | | | | | | | | | | | | |

For other tolerances see Part No. Codes
 For other voltages see Part No. Codes
 AVX Style



X7R Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS



Dimensions: Millimeters (Inches)

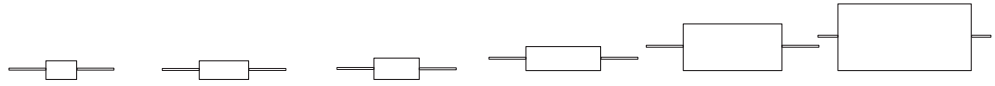
| AVX Style | | MA10 | MA20 | MA30 | MA40 | MA50 | MA60 | | | | | | | | | |
|----------------|--------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|------|-----|----|------|-----|----|------|-----|----|
| Length | | 4.07 ± .25 (.160" ± .010") | 6.35 ± .25 (.250" ± .010") | 6.09 ± .25 (.240" ± .010") | 9.91 ± .25 (.390" ± .010") | 12.7 ± .51 (.500" ± .020") | 17.53 ± .51 (.690" ± .020") | | | | | | | | | |
| Diameter | | 2.29 ± .25 (.090" ± .010") | 2.29 ± .25 (.090" ± .010") | 3.30 ± .25 (.130" ± .010") | 3.56 ± .25 (.140" ± .010") | 6.35 ± .38 (.250" ± .015") | 8.89 ± .51 (.350" ± .015") | | | | | | | | | |
| Lead Diameter | | .48 ± .05 (.019" ± .002") | .48 ± .05 (.019" ± .002") | .48 ± .05 (.019" ± .002") | .63 ± .05 (.025" ± .002") | .63 ± .05 (.025" ± .002") | .63 ± .05 (.025" ± .002") | | | | | | | | | |
| Lead Length | | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | | | | | | | | | |
| Cap. in. pF | Typical AVX Part Nos. | WVDC | | | WVDC | | | WVDC | | | WVDC | | | WVDC | | |
| | | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 |
| 220 | MA.....5C221KAA | | | | | | | | | | | | | | | |
| 270 | MA.....5C271KAA | | | | | | | | | | | | | | | |
| 330 | MA.....5C331KAA | | | | | | | | | | | | | | | |
| 390 | MA.....5C391KAA | | | | | | | | | | | | | | | |
| 470 | MA.....5C471KAA | | | | | | | | | | | | | | | |
| 560 | MA.....5C561KAA | | | | | | | | | | | | | | | |
| 680 | MA.....5C681KAA | | | | | | | | | | | | | | | |
| 820 | MA.....5C821KAA | | | | | | | | | | | | | | | |
| 1000 | MA.....5C102KAA | | | | | | | | | | | | | | | |
| 1200 | MA.....5C122KAA | | | | | | | | | | | | | | | |
| 1500 | MA.....5C152KAA | | | | | | | | | | | | | | | |
| 1800 | MA.....5C182KAA | | | | | | | | | | | | | | | |
| 2200 | MA.....5C222KAA | | | | | | | | | | | | | | | |
| 2700 | MA.....5C272KAA | | | | | | | | | | | | | | | |
| 3300 | MA.....5C332KAA | | | | | | | | | | | | | | | |
| 3900 | MA.....5C392KAA | | | | | | | | | | | | | | | |
| 4700 | MA.....5C472KAA | | | | | | | | | | | | | | | |
| 5600 | MA.....5C562KAA | | | | | | | | | | | | | | | |
| 6800 | MA.....5C682KAA | | | | | | | | | | | | | | | |
| 8200 | MA.....5C822KAA | | | | | | | | | | | | | | | |
| 10,000 | MA.....5C103KAA | | | | | | | | | | | | | | | |
| 12,000 | MA.....5C123KAA | | | | | | | | | | | | | | | |
| 15,000 | MA.....5C153KAA | | | | | | | | | | | | | | | |
| 18,000 | MA.....5C183KAA | | | | | | | | | | | | | | | |
| 22,000 | MA.....5C223KAA | | | | | | | | | | | | | | | |
| 27,000 | MA.....5C273KAA | | | | | | | | | | | | | | | |
| 33,000 | MA.....5C333KAA | | | | | | | | | | | | | | | |
| 39,000 | MA.....5C393KAA | | | | | | | | | | | | | | | |
| 47,000 | MA.....5C473KAA | | | | | | | | | | | | | | | |
| 56,000 | MA.....5C563KAA | | | | | | | | | | | | | | | |
| 68,000 | MA.....5C683KAA | | | | | | | | | | | | | | | |
| 82,000 | MA.....5C823KAA | | | | | | | | | | | | | | | |
| 100,000 | MA.....5C104KAA | | | | | | | | | | | | | | | |
| 120,000 | MA.....5C124KAA | | | | | | | | | | | | | | | |
| 150,000 | MA.....5C154KAA | | | | | | | | | | | | | | | |
| 180,000 | MA.....5C184KAA | | | | | | | | | | | | | | | |
| 220,000 | MA.....5C224KAA | | | | | | | | | | | | | | | |
| 270,000 | MA.....5C274KAA | | | | | | | | | | | | | | | |
| 330,000 | MA.....5C334KAA | | | | | | | | | | | | | | | |
| 390,000 | MA.....5C394KAA | | | | | | | | | | | | | | | |
| 470,000 | MA.....5C474KAA | | | | | | | | | | | | | | | |
| 560,000 | MA.....5C564KAA | | | | | | | | | | | | | | | |
| 680,000 | MA.....5C684KAA | | | | | | | | | | | | | | | |
| 820,000 | MA.....5C824KAA | | | | | | | | | | | | | | | |
| 1.0 µF | MA.....5C105KAA | | | | | | | | | | | | | | | |
| 1.2 µF | MA.....5C125KAA | | | | | | | | | | | | | | | |
| 1.5 µF | MA.....5C155KAA | | | | | | | | | | | | | | | |
| 1.8 µF | MA.....5C185KAA | | | | | | | | | | | | | | | |
| 2.2 µF | MA.....5C225KAA | | | | | | | | | | | | | | | |
| 2.7 µF | MA.....5C275KAA | | | | | | | | | | | | | | | |
| 3.3 µF | MA.....5C335KAA | | | | | | | | | | | | | | | |
| 3.9 µF | MA.....5C395KAA | | | | | | | | | | | | | | | |

For other tolerances see Part No. Codes
 For other voltages see Part No. Codes
 AVX Style

Z5U Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS

Dimensions: Millimeters (Inches)

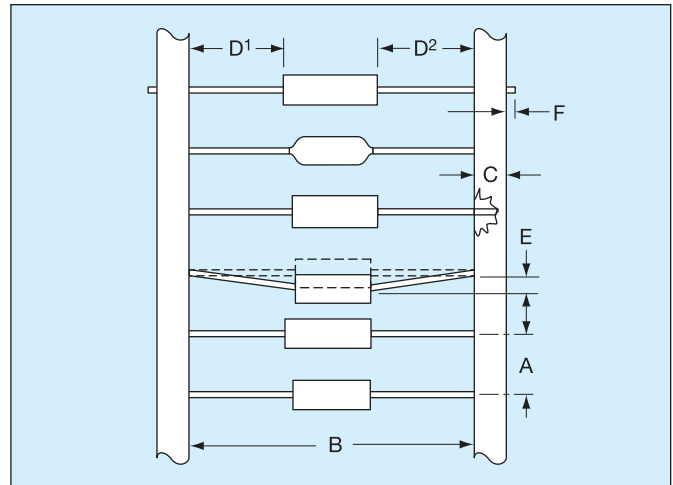


| AVX Style | | MA10 | MA20 | MA30 | MA40 | MA50 | MA60 | | | | | | | | | | | | |
|----------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|------|------|-----|----|------|-----|----|------|-----|----|------|-----|----|
| Length | 4.07 ± .25 (.160" ± .010") | 6.35 ± .25 (.250" ± .010") | 6.09 ± .25 (.240" ± .010") | 9.91 ± .25 (.390" ± .010") | 12.7 ± .51 (.500" ± .020") | 17.53 ± .51 (.690" ± .020") | | | | | | | | | | | | | |
| Diameter | 2.29 ± .25 (.090" ± .010") | 2.29 ± .25 (.090" ± .010") | 3.30 ± .25 (.130" ± .010") | 3.56 ± .25 (.140" ± .010") | 6.35 ± .38 (.250" ± .015") | 8.89 ± .51 (.350" ± .015") | | | | | | | | | | | | | |
| Lead Diameter | .48 ± .05 (.019" ± .002") | .48 ± .05 (.019" ± .002") | .48 ± .05 (.019" ± .002") | .63 ± .05 (.025" ± .002") | .63 ± .05 (.025" ± .002") | .63 ± .05 (.025" ± .002") | | | | | | | | | | | | | |
| Lead Length | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | 25.4 (1.00") | | | | | | | | | | | | | |
| Cap. in. pF | Typical AVX Part Nos. | VVDC | | | VVDC | | | VVDC | | | VVDC | | | VVDC | | | VVDC | | |
| | | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 | 200 | 100 | 50 |
| 1000 | MA.....5E102ZAA | | | | | | | | | | | | | | | | | | |
| 1200 | MA.....5E122ZAA | | | | | | | | | | | | | | | | | | |
| 1500 | MA.....5E152ZAA | | | | | | | | | | | | | | | | | | |
| 1800 | MA.....5E182ZAA | | | | | | | | | | | | | | | | | | |
| 2200 | MA.....5E222ZAA | | | | | | | | | | | | | | | | | | |
| 2700 | MA.....5E272ZAA | | | | | | | | | | | | | | | | | | |
| 3300 | MA.....5E332ZAA | | | | | | | | | | | | | | | | | | |
| 3900 | MA.....5E392ZAA | | | | | | | | | | | | | | | | | | |
| 4700 | MA.....5E472ZAA | | | | | | | | | | | | | | | | | | |
| 5600 | MA.....5E562ZAA | | | | | | | | | | | | | | | | | | |
| 6800 | MA.....5E682ZAA | | | | | | | | | | | | | | | | | | |
| 8200 | MA.....5E822ZAA | | | | | | | | | | | | | | | | | | |
| 10,000 | MA.....5E103ZAA | | | | | | | | | | | | | | | | | | |
| 12,000 | MA.....5E123ZAA | | | | | | | | | | | | | | | | | | |
| 15,000 | MA.....5E153ZAA | | | | | | | | | | | | | | | | | | |
| 18,000 | MA.....5E183ZAA | | | | | | | | | | | | | | | | | | |
| 22,000 | MA.....5E223ZAA | | | | | | | | | | | | | | | | | | |
| 27,000 | MA.....5E273ZAA | | | | | | | | | | | | | | | | | | |
| 33,000 | MA.....5E333ZAA | | | | | | | | | | | | | | | | | | |
| 39,000 | MA.....5E393ZAA | | | | | | | | | | | | | | | | | | |
| 47,000 | MA.....5E473ZAA | | | | | | | | | | | | | | | | | | |
| 56,000 | MA.....5E563ZAA | | | | | | | | | | | | | | | | | | |
| 68,000 | MA.....5E683ZAA | | | | | | | | | | | | | | | | | | |
| 82,000 | MA.....5E823ZAA | | | | | | | | | | | | | | | | | | |
| 100,000 | MA.....5E104ZAA | | | | | | | | | | | | | | | | | | |
| 120,000 | MA.....5E124ZAA | | | | | | | | | | | | | | | | | | |
| 150,000 | MA.....5E154ZAA | | | | | | | | | | | | | | | | | | |
| 180,000 | MA.....5E184ZAA | | | | | | | | | | | | | | | | | | |
| 220,000 | MA.....5E224ZAA | | | | | | | | | | | | | | | | | | |
| 270,000 | MA.....5E274ZAA | | | | | | | | | | | | | | | | | | |
| 330,000 | MA.....5E334ZAA | | | | | | | | | | | | | | | | | | |
| 390,000 | MA.....5E394ZAA | | | | | | | | | | | | | | | | | | |
| 470,000 | MA.....5E474ZAA | | | | | | | | | | | | | | | | | | |
| 560,000 | MA.....5E564ZAA | | | | | | | | | | | | | | | | | | |
| 680,000 | MA.....5E684ZAA | | | | | | | | | | | | | | | | | | |
| 820,000 | MA.....5E824ZAA | | | | | | | | | | | | | | | | | | |
| 1.0 µF | MA.....5E105ZAA | | | | | | | | | | | | | | | | | | |
| 1.2 µF | MA.....5E125ZAA | | | | | | | | | | | | | | | | | | |
| 1.5 µF | MA.....5E155ZAA | | | | | | | | | | | | | | | | | | |
| 1.8 µF | MA.....5E185ZAA | | | | | | | | | | | | | | | | | | |
| 2.2 µF | MA.....5E225ZAA | | | | | | | | | | | | | | | | | | |
| 2.7 µF | MA.....5E275ZAA | | | | | | | | | | | | | | | | | | |
| 3.3 µF | MA.....5E335ZAA | | | | | | | | | | | | | | | | | | |
| 3.9 µF | MA.....5E395ZAA | | | | | | | | | | | | | | | | | | |
| 4.7 µF | MA.....5E475ZAA | | | | | | | | | | | | | | | | | | |
| 5.6 µF | MA.....5E565ZAA | | | | | | | | | | | | | | | | | | |
| 6.8 µF | MA.....5E685ZAA | | | | | | | | | | | | | | | | | | |
| 8.2 µF | MA.....5E825ZAA | | | | | | | | | | | | | | | | | | |

For other tolerances see Part No. Codes
 For other voltages see Part No. Codes
 AVX Style

TAPE AND REEL

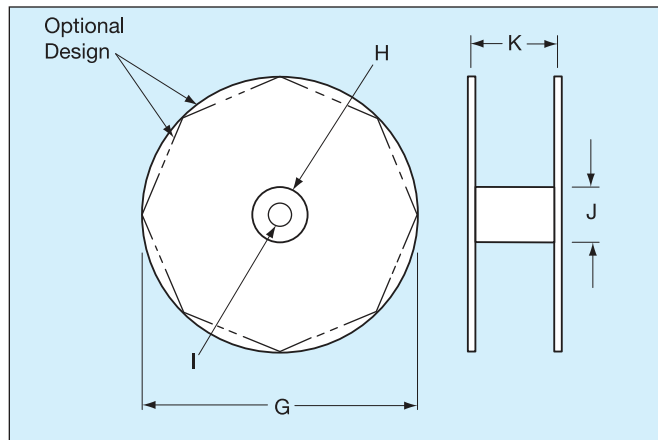
| CLASS I / RS-296 | |
|------------------|-------------------------------------|
| A. | 5mm ± 0.5mm (.200" ± 0.020") |
| B* | 52.4mm ± 1.5mm (2.063" ± 0.059") |
| C. | 6.35mm ± 0.4mm (0.250" ± 0.016") |
| D1-D2. | 1.4mm (0.055" MAX.) |
| E. | 1.2mm (0.047" MAX.) |
| F. | 1.6mm (0.063" MAX.) |
| G. | 356mm (14.00") |
| H. | 76mm (3.000") |
| I. | 25.4mm (1.000") |
| J. | 84mm (3.300") |
| K. | 70mm (2.750") |



Leader Tape: 300mm min. (12")

Splicing: Tape Only

Missing Parts: 0.25% of component count max.-
No consecutive missing parts



REEL QUANTITIES (MAX.) ‡

| | | | |
|------|------------|------|------------|
| SA05 | 7,500 pcs. | MA10 | 5,000 pcs. |
| SA10 | 7,500 pcs. | MA20 | 5,000 pcs. |
| SA11 | 5,000 pcs. | MA30 | 3,000 pcs. |
| SA20 | 5,000 pcs. | MA40 | 3,000 pcs. |
| SA30 | 5,000 pcs. | MA50 | 950 pcs. |
| SA40 | 5,000 pcs. | MA60 | 650 pcs. |

‡ 1000 pc. reels available for distribution pack only in ±1% and ±2% tolerance.

* Standard Tape Spacing Shown. Also available in 26.0mm + 1.5mm, - 0mm, (1.023 in. + .059 in. - 0 in.) for SpinGuards only. EIA Class I, II and III tape spacings are available for molded axials. Tape spacing for Class II is 63.5mm ± 1.5mm (2.50 in ± .059 in), and for Class III 73mm ± 1.5mm (2.87 in ± .059 in)

ADDITIONAL PACKAGING AVAILABLE

AMMO PACK

| Tape Spacing | SA05, SA10 SA20 | SA11 SA30 | SA40 | BOX SIZES (Nominal) | | |
|---|--------------------|--------------|-------------|---------------------|------------------|-------------------|
| | | | | L | W | H |
| 52.4mm ± 1.5mm (2.062" ± .059") | 4,000 pcs. | 2000 | 2,000 pcs. | 255mm (10.039") | 73mm (2.874") | 93mm (3.661") |
| 26.0mm + 1.5mm - 0mm (1.023" + .059" - 0") | 4,000 pcs.* | 2000 | 2,000 pcs.* | 255mm (10.039") | 48mm (1.889") | 113mm (4.448") |

*SpinGuard only

BULK PACK (MOLDED AXIALS ONLY)

| | |
|------------------------------|----------------|
| MA10 MA20 MA30 MA40 | 100 pcs. (bag) |
| MA50 MA60 | 50 pcs. (bag) |

Looking for pricing, stock, or lifecycle information?

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 [AVX Corporation](#) Information

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-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management