



**THE DATASHEET OF
SA101E103MAR**



GENERAL INFORMATION

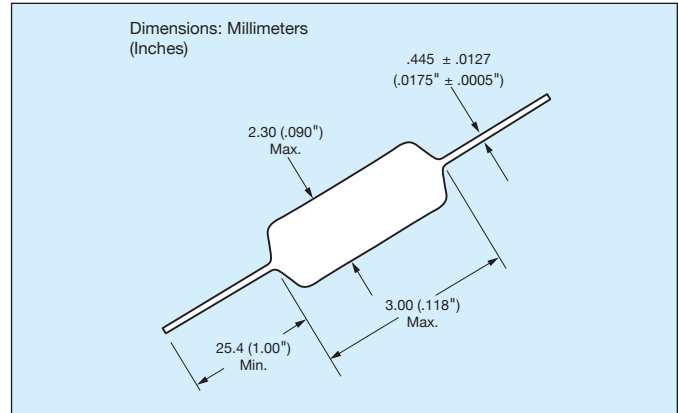
AVX SA Series

Conformally Coated Axial Leaded MLC

Temperature Coefficients: COG (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

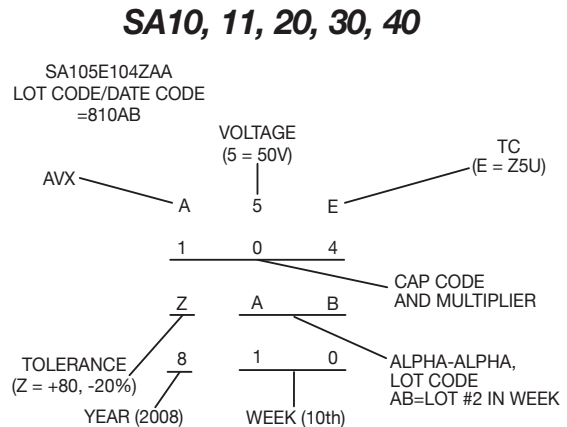
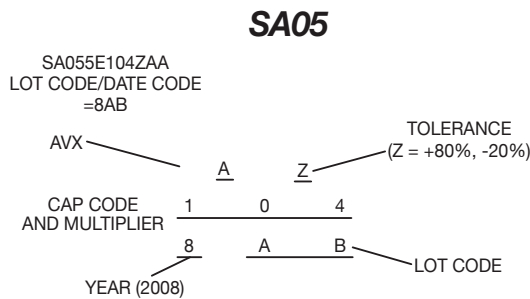
| | | | | | | |
|--|--|--|--|---|---------------------|---|
| SA10 | 5 | E | 104 | Z | A | R |
| Conformal Axial Size | Voltage | Dielectric | Capacitance | Capacitance Tolerance | Failure Rate | Leads |
| SA05 SA10 SA11 SA20 SA30 SA40 | Z = 10V 5 = 50V 1 = 100V 2 = 200V | A = COG (NP0) C = X7R D = X5R 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.) | COG (NP0): C = ±.25pF D = ±.5pF F = ±1% G = ±2% J = ±5% K = ±10% X7R: J = ±5% K = ±10% M = ±20% X5R: K = ±10% M = ±20% Z5U: M = ±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* Ⓜ | SA102A1R0DAR | | | | | | | | | | | | | | |
| 9.1* Ⓜ | SA102A9R1DAR | | | | | | | | | | | | | | |
| 10 | SA102A100JAR | | | | | | | | | | | | | | |
| 12 | SA102A120JAR | | | | | | | | | | | | | | |
| 15 | SA102A150JAR | | | | | | | | | | | | | | |
| 18 | SA102A180JAR | | | | | | | | | | | | | | |
| 22 | SA102A220JAR | | | | | | | | | | | | | | |
| 27 | SA102A270JAR | | | | | | | | | | | | | | |
| 33 | SA102A330JAR | | | | | | | | | | | | | | |
| 39 | SA102A390JAR | | | | | | | | | | | | | | |
| 47 | SA102A470JAR | | | | | | | | | | | | | | |
| 56 | SA102A560JAR | | | | | | | | | | | | | | |
| 68 | SA102A680JAR | | | | | | | | | | | | | | |
| 82 | SA102A820JAR | | | | | | | | | | | | | | |
| 100 | SA102A101JAR | | | | | | | | | | | | | | |
| 120 | SA102A121JAR | | | | | | | | | | | | | | |
| 150 | SA101A151JAR | | | | | | | | | | | | | | |
| 180 | SA101A181JAR | | | | | | | | | | | | | | |
| 220 | SA101A221JAR | | | | | | | | | | | | | | |
| 270 | SA101A271JAR | | | | | | | | | | | | | | |
| 330 | SA101A331JAR | | | | | | | | | | | | | | |
| 390 | SA101A391JAR | | | | | | | | | | | | | | |
| 470 | SA101A471JAR | | | | | | | | | | | | | | |
| 560 | SA101A561JAR | | | | | | | | | | | | | | |
| 680 | SA101A681JAR | | | | | | | | | | | | | | |
| 820 | SA101A821JAR | | | | | | | | | | | | | | |
| 1000 | SA105A102JAR | | | | | | | | | | | | | | |
| 1200 | SA201A122JAR | | | | | | | | | | | | | | |
| 1500 | SA201A152JAR | | | | | | | | | | | | | | |
| 1800 | SA205A182JAR | | | | | | | | | | | | | | |
| 2200 | SA301A222JAR | | | | | | | | | | | | | | |
| 2700 | SA301A272JAR | | | | | | | | | | | | | | |
| 3300 | SA301A332JAR | | | | | | | | | | | | | | |
| 3900 | SA301A392JAR | | | | | | | | | | | | | | |
| 4700 | SA305A472JAR | | | | | | | | | | | | | | |
| 5600 | SA401A562JAR | | | | | | | | | | | | | | |
| 6800 | SA401A682JAR | | | | | | | | | | | | | | |
| 8200 | SA405A822JAR | | | | | | | | | | | | | | |
| 10,000 | SA405A103JAR | | | | | | | | | | | | | | |
| 12,000 | 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

Axial Leads/SpinGuard®




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 |
| 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

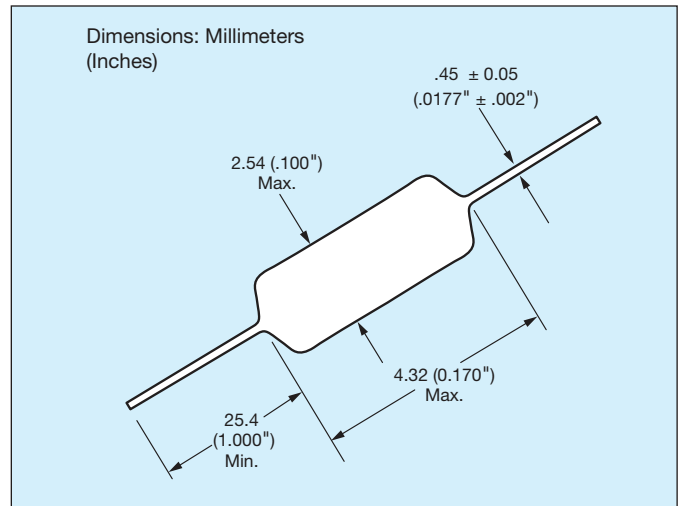
| | |
|--|--------------|
| Capacitance @ 25°C, 1kHz, 1Vrms | 0.0100μF |
| Capacitance Tolerance | ±10 % |
| Dissipation Factor @ 25°C | 2.5% Max |
| Rated Voltage | 100Vdc |
| Dielectric Withstand Voltage | 250Vdc |
| Insulation Resistance @ 25°C @ Rated Voltage | 100000 Mohms |

Temperature Characteristics:

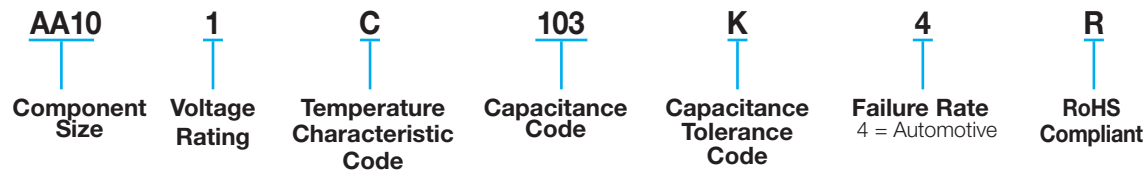
X7R (-55 to + 125°C ± 15% @ 0Vdc)

Lead Material:

RoHS Compliant 100% Tin

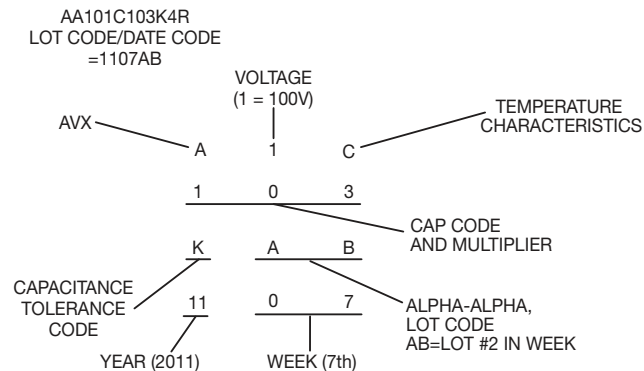


HOW TO ORDER



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

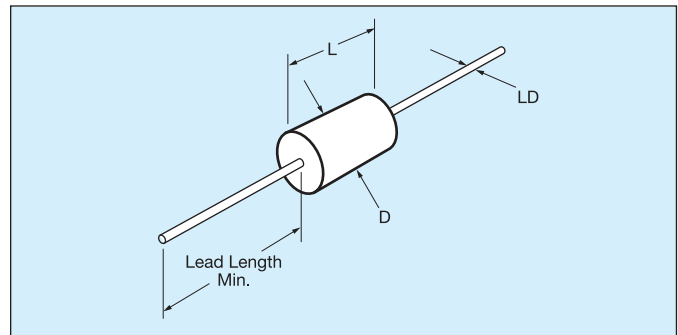
AVX SA Series

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

Molded Axial Size

MA10
MA20
MA30
MA40
MA50
MA60

5

Voltage

5 = 50V
1 = 100V
2 = 200V

E

Dielectric

A = C0G (NP0)
C = X7R
E = Z5U

104

Capacitance

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.)

Z

Capacitance Tolerance

C0G (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

Failure Rate

A = Not Applicable

R

Leads

A = Standard

Not RoHS Compliant

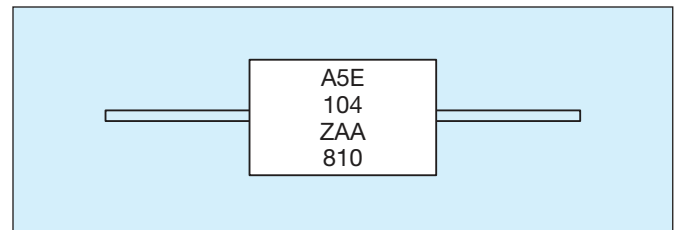
‡ C tolerance available C0G (NP0) from 1.0 to 9.1 pF only. Minimum tolerance for values 10 pF - 100 pF is D or F whichever is greater.

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 | MA.....5A100KAA | | | | | | | | | | | | | | | | | | |
| 12 | MA.....5A120KAA | | | | | | | | | | | | | | | | | | |
| 15 | MA.....5A150KAA | | | | | | | | | | | | | | | | | | |
| 18 | MA.....5A180KAA | | | | | | | | | | | | | | | | | | |
| 22 | MA.....5A220KAA | | | | | | | | | | | | | | | | | | |
| 27 | MA.....5A270KAA | | | | | | | | | | | | | | | | | | |
| 33 | MA.....5A330KAA | | | | | | | | | | | | | | | | | | |
| 39 | MA.....5A390KAA | | | | | | | | | | | | | | | | | | |
| 47 | MA.....5A470KAA | | | | | | | | | | | | | | | | | | |
| 56 | MA.....5A560KAA | | | | | | | | | | | | | | | | | | |
| 68 | MA.....5A680KAA | | | | | | | | | | | | | | | | | | |
| 82 | MA.....5A820KAA | | | | | | | | | | | | | | | | | | |
| 100 | MA.....5A101KAA | | | | | | | | | | | | | | | | | | |
| 120 | MA.....5A121KAA | | | | | | | | | | | | | | | | | | |
| 150 | MA.....5A151KAA | | | | | | | | | | | | | | | | | | |
| 180 | MA.....5A181KAA | | | | | | | | | | | | | | | | | | |
| 220 | MA.....5A221KAA | | | | | | | | | | | | | | | | | | |
| 270 | MA.....5A271KAA | | | | | | | | | | | | | | | | | | |
| 330 | MA.....5A331KAA | | | | | | | | | | | | | | | | | | |
| 390 | MA.....5A391KAA | | | | | | | | | | | | | | | | | | |
| 470 | MA.....5A471KAA | | | | | | | | | | | | | | | | | | |
| 560 | MA.....5A561KAA | | | | | | | | | | | | | | | | | | |
| 680 | MA.....5A681KAA | | | | | | | | | | | | | | | | | | |
| 820 | MA.....5A821KAA | | | | | | | | | | | | | | | | | | |
| 1000 | MA.....5A102KAA | | | | | | | | | | | | | | | | | | |
| 1200 | MA.....5A122KAA | | | | | | | | | | | | | | | | | | |
| 1500 | MA.....5A152KAA | | | | | | | | | | | | | | | | | | |
| 1800 | MA.....5A182KAA | | | | | | | | | | | | | | | | | | |
| 2200 | MA.....5A222KAA | | | | | | | | | | | | | | | | | | |
| 2700 | MA.....5A272KAA | | | | | | | | | | | | | | | | | | |
| 3300 | MA.....5A332KAA | | | | | | | | | | | | | | | | | | |
| 3900 | MA.....5A392KAA | | | | | | | | | | | | | | | | | | |
| 4700 | MA.....5A472KAA | | | | | | | | | | | | | | | | | | |
| 5600 | MA.....5A562KAA | | | | | | | | | | | | | | | | | | |
| 6800 | MA.....5A682KAA | | | | | | | | | | | | | | | | | | |
| 8200 | MA.....5A822KAA | | | | | | | | | | | | | | | | | | |
| 10,000 | MA.....5A103KAA | | | | | | | | | | | | | | | | | | |
| 12,000 | MA.....5A123KAA | | | | | | | | | | | | | | | | | | |
| 15,000 | MA.....5A153KAA | | | | | | | | | | | | | | | | | | |
| 18,000 | MA.....5A183KAA | | | | | | | | | | | | | | | | | | |
| 22,000 | MA.....5A223KAA | | | | | | | | | | | | | | | | | | |
| 27,000 | MA.....5A273KAA | | | | | | | | | | | | | | | | | | |
| 33,000 | MA.....5A333KAA | | | | | | | | | | | | | | | | | | |
| 39,000 | MA.....5A393KAA | | | | | | | | | | | | | | | | | | |
| 47,000 | MA.....5A473KAA | | | | | | | | | | | | | | | | | | |
| 56,000 | MA.....5A563KAA | | | | | | | | | | | | | | | | | | |
| 68,000 | MA.....5A683KAA | | | | | | | | | | | | | | | | | | |
| 82,000 | MA.....5A823KAA | | | | | | | | | | | | | | | | | | |
| 100,000 | MA.....5A104KAA | | | | | | | | | | | | | | | | | | |
| 120,000 | MA.....5A124KAA | | | | | | | | | | | | | | | | | | |
| 150,000 | 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)

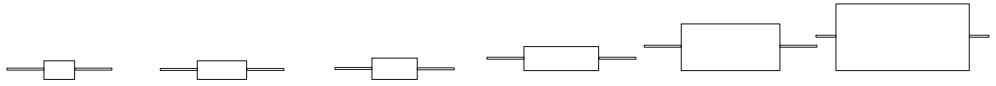
| AVX Style | | MA10 | MA20 | MA30 | MA40 | MA50 | MA60 | | | | | | | | | |
|----------------|--------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|------|-----|----|------|-----|----|------|-----|----|
| 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)

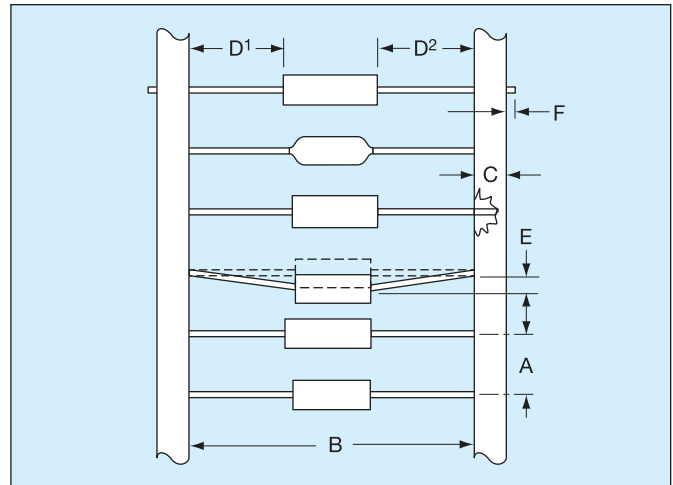


| AVX Style | | MA10 | | | MA20 | | | MA30 | | | MA40 | | | MA50 | | | MA60 | | |
|----------------|--------------------------|-------------------------------|-----|----|-------------------------------|-----|----|-------------------------------|-----|----|-------------------------------|-----|----|-------------------------------|-----|----|--------------------------------|-----|----|
| 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

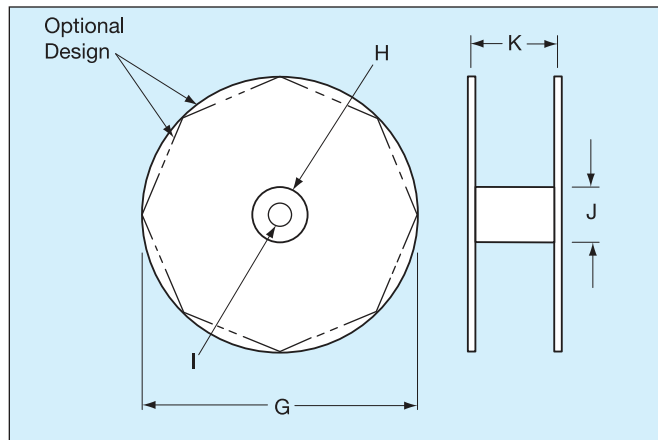
| CLASS I / RS-296 | |
|------------------|-------------------------------------|
| A. | 5mm ± 0.5mm (.200" ± 0.020") |
| B* | 52.4mm ± 1.5mm (2.063" ± 0.059") |
| C. | 6.35mm ± 0.4mm (0.250" ± 0.016") |
| D1-D2. | 1.4mm (0.055" MAX.) |
| E. | 1.2mm (0.047" MAX.) |
| F. | 1.6mm (0.063" MAX.) |
| G. | 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?

Click below to explore more details on WIN SOURCE:

 [View SA101E103MAR](#) on WIN SOURCE

 [AVX Corporation](#) Information

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