

AXIAL LEADS

Ceramam®

GENERAL INFORMATION

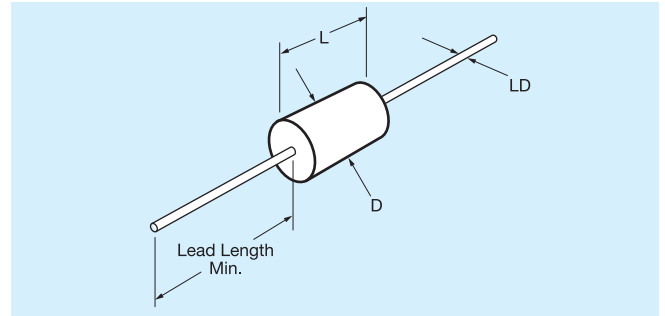
SA Series

Molded Axial Leaded MLC

Temperature Coefficients: COG (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 = COG (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

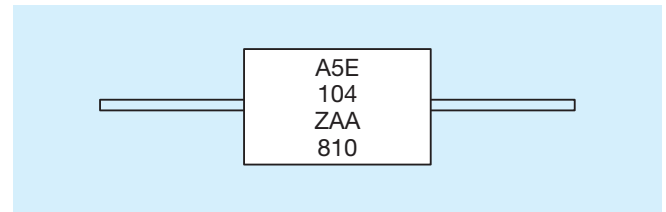
‡ C tolerance available COG (NP0) from 1.0 to 9.1 pF only. Minimum tolerance for values 10 pF - 100 pF is D or F whichever is greater.

MARKING (EXAMPLE)

Line 1, A (for KYOCERA 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

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

Cerlam® – COG (NP0) Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS

Dimensions: Millimeters (Inches)



Style		MA10			MA20			MA30			MA40			MA50			MA60		
		Length	Diameter	Lead Diameter	Length	Diameter	Lead Diameter	Length	Diameter	Lead Diameter	Length	Diameter	Lead Diameter	Length	Diameter	Lead Diameter	Length	Diameter	Lead Diameter
Cap. in. pF	Typical 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	MA....5A1R0DAA																		
to																			
9.1	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
 Style

AXIAL LEADS

Ceramam® - X7R Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS



Dimensions: Millimeters (Inches)

Style	MA10			MA20			MA30			MA40			MA50			MA60		
	Length	Diameter	Lead Diameter	Length	Diameter	Lead Diameter	Length	Diameter	Lead Diameter	Length	Diameter	Lead Diameter	Length	Diameter	Lead Diameter	Length	Diameter	Lead Diameter
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
 Style

AXIAL LEADS

Ceramam® - Z5U Dielectric

SIZE AND CAPACITANCE SPECIFICATIONS

Dimensions: Millimeters (Inches)



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 Part Nos.	WVDC			WVDC			WVDC			WVDC			WVDC		
		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															

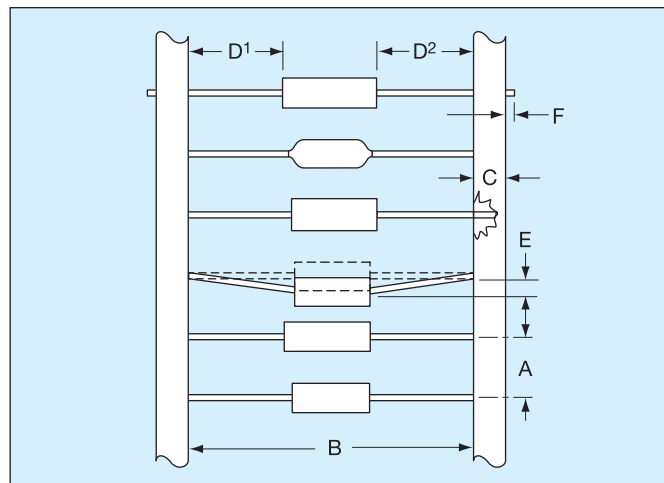
For other tolerances see Part No. Codes
 For other voltages see Part No. Codes
 Style

AXIAL LEADS

Packaging

TAPE AND REEL

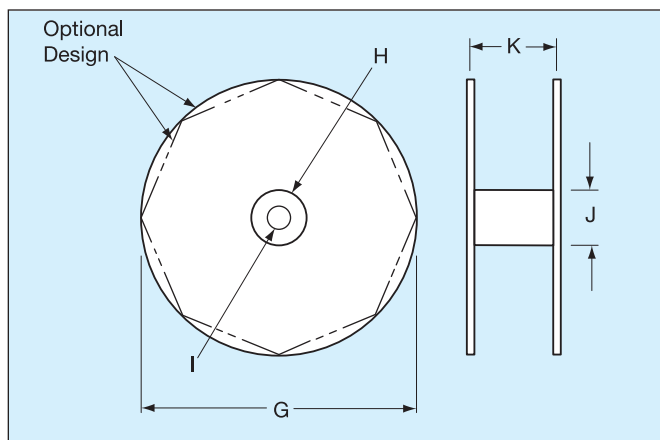
CLASS I / RS-296	
A.	5mm ± 0.5mm (.200" ± 0.020")
B*.	52.4mm ± 1.5mm (2.063" ± 0.059")
C.	6.35mm ± 0.4mm (0.250" ± 0.016")
D1-D2.	1.4mm (0.055" MAX.)
E.	1.2mm (0.047" MAX.)
F.	1.6mm (0.063" MAX.)
G.	356mm (14.00")
H.	76mm (3.000")
I.	25.4mm (1.000")
J.	84mm (3.300")
K.	70mm (2.750")



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)