

AXIAL LEADS

Cerlam®



GENERAL INFORMATION

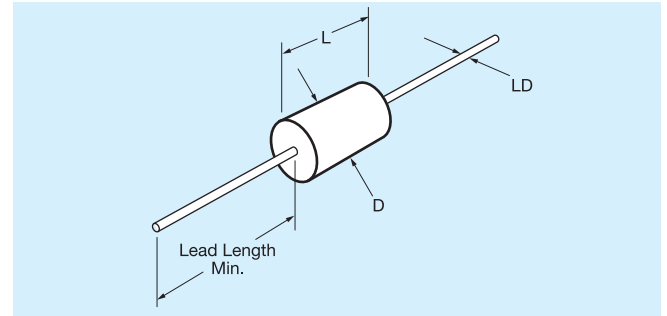
MA Series

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.)	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 = Not Applicable	A = Standard

Not RoHS Compliant

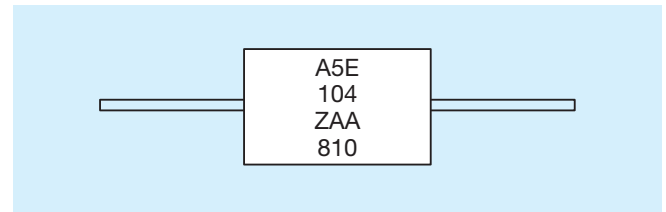
‡ C tolerance available C0G (NP0) from 1.0 to 9.1 pF only. Minimum tolerance for values 10 pF - 100 pF is D or F whichever is greater.

MARKING (EXAMPLE)

Line 1, A (for 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

Per MIL-Spec				Case Size		
Style	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)



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TDS-MLCCLD-0003 | Rev 1

— MULTILAYER CERAMIC LEADED CAPACITORS —

AXIAL LEADS

Ceralam® – C0G (NP0) 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			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
Style

AXIAL LEADS

Ceralam® - X7R 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			WVDC		
		200	100	50	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
Style



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TDS-MLCCLD-0003 | Rev 1

— MULTILAYER CERAMIC LEADED CAPACITORS —

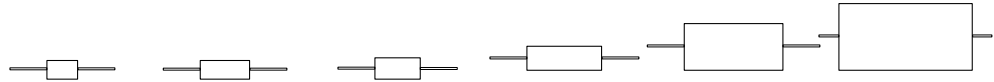
AXIAL LEADS

Ceram® - 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			WVDC		
		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																		

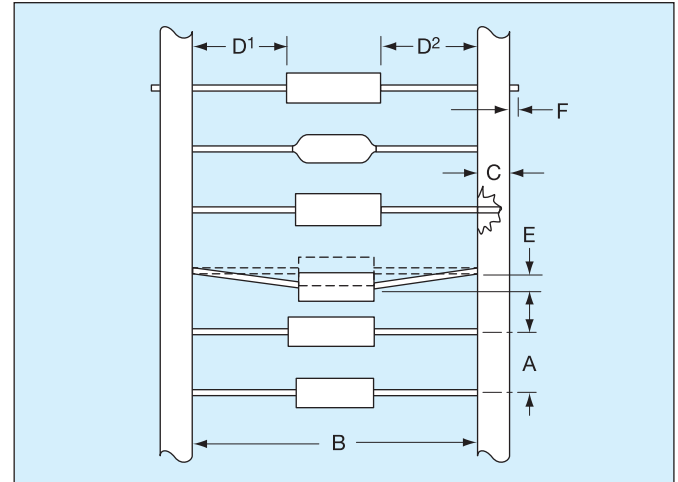
For other tolerances see Part No. Codes
For other voltages see Part No. Codes
Style

AXIAL LEADS

Packaging

TAPE AND REEL

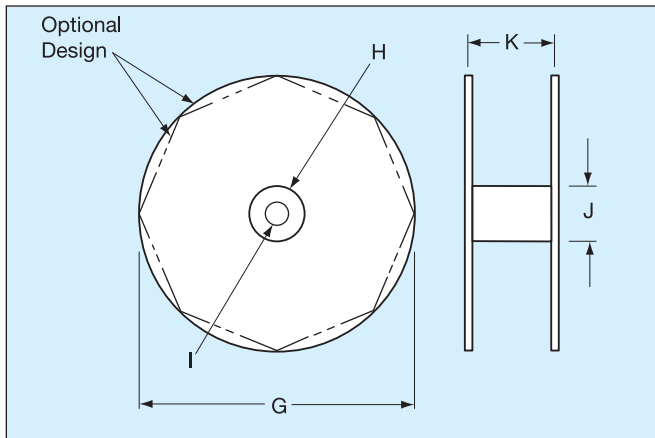
CLASS I / RS-296	
A.	5mm ± 0.5mm (.200" ± 0.020")
B*.	52.4mm ± 1.5mm (2.063" ± 0.059")
C.	6.35mm ± 0.4mm (0.250" ± 0.016")
D1-D2.	1.4mm (0.055" MAX.)
E.	1.2mm (0.047" MAX.)
F.	1.6mm (0.063" MAX.)
G.	356mm (14.00")
H.	76mm (3.000")
I.	25.4mm (1.000")
J.	84mm (3.300")
K.	70mm (2.750")



Leader Tape: 300mm min. (12")

Splicing: Tape Only

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



REEL QUANTITIES (MAX.) ‡

MA10	5,000 pcs.
MA20	5,000 pcs.
MA30	3,000 pcs.
MA40	3,000 pcs.
MA50	950 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)

BULK PACK (MOLDED AXIALS ONLY)

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