

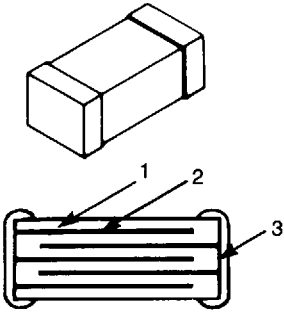
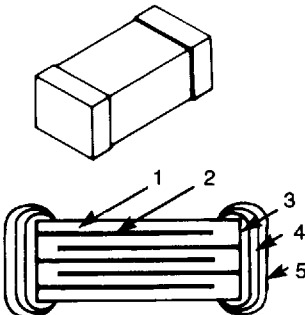
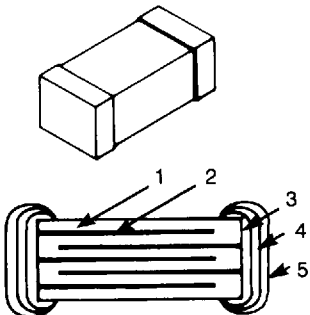
MULTILAYER CERAMIC CHIP CAPACITORS

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■ CHIP CONSTRUCTION/TERMINATIONS

Chip construction, terminations and chip sizes are available in the following combinations only.

TERMINATIONS () = CODE	Palladium/Silver Terminations (ML)	Nickel Barrier Terminations (MK)	
CHIP CONSTRUCTION	Standard: RM Series		New: CE Series
DIAGRAMS	 <p>1 Ceramic Dielectric 2 Inner Electrode (Palladium/Silver) 3 Outer Termination (Palladium/Silver)</p>	 <p>1 Ceramic Dielectric 2 Inner Electrode (Palladium/Silver) 3 Inner Termination (Palladium/Silver) 4 Nickel Barrier Layer 5 Solder Plating</p>	 <p>1 Ceramic Dielectric 2 Inner Electrode (Nickel) 3 Inner Termination (Nickel) 4 Nickel Barrier Layer 5 Solder Plating</p>
CHIP SIZES () = CODE	0805 (212) 1206 (316)	0603 (108) 0805 (212) 1206 (316)	0805 (212) 1206 (316) 1210 (325)

■ PART NUMBERING SYSTEM (HOW TO ORDER)

EXAMPLE: RM UMK316CG102J-T □

RM	U	MK	316	CG	102	J	-T	□
Chip Construction CE=New RM=Standard See page 1	Voltage E=16V T=25V U=50V	Terminations ML=Palladium/Silver MK=Nickel Barrier, Solder Plated See page 1	Chip Size (L"xW") 108=0603 212=0805 316=1206 325=1210	Dielectric ()=IEC codes CG=COG } CH=COH } NPO(1B) CJ=COJ } CK=COK } B=X7R(2C1) F=Y5V(2F4) See NOTE 1 and 2	Capacitance Expressed in pF, 2 significant digits + no. of zeros. Examples: .5 pF=0R5 5 pF=050 10 pF=100 470 pF=471 .022 μF=223 .1 μF=104	Capacitance Tolerance C=± 25 pF D=± 5 pF F=± 1 pF J=± 5% K=± 10% M=± 20% Z=+80, -20% See NOTE 1	Packaging -B=Bulk Packaging -T=Tape & Reel See page 9-10	Marking (Non-Standard) None=Non-Marking (Standard) E=Marking (Non-Standard) See page 9

NOTE

1. Chip construction, dielectric, capacitance values and tolerances are available in the following combinations only.

CHIP CONSTRUCTION	DIELECTRIC ()=CODE	CAPACITANCE TOLERANCE ()=CODE	CAPACITANCE
RM Series	NPO/1B (CG CH CJ CK)	± 25 pF (C)	.5 pF to 5 pF
		± 5 pF (D)	1 pF to 9 pF
		± 1 pF (F)	6 pF to 9 pF
		± 5% (J)	≥ 10 pF
		± 10% (K)	≥ 10 pF Only values in bold face print on page 4
	X7R/2C1 (B)	± 10% (K)	NO RESTRICTIONS
		± 20% (M)	Only values in bold face print on page 8
Y5V/2F4 (F)	+80, -20% (Z)	NO RESTRICTIONS	
CE Series	Y5V/2F4 (F)	+80, -20% (Z)	NO RESTRICTIONS

2. The other dielectric materials with the following temperature coefficients are available in RM Series chip construction upon request: Contact TAIYO YUDEN.

DIELECTRIC CODE	P□*	R□	S□	T□	U□	SL
TEMPERATURE COEFFICIENT (ppm/°C)	-150	-220	-330	-470	-750	+350 to -1000

*□ = TC tolerance codes

Y5V DIELECTRIC CE & RM SERIES

General Specifications

Capacitance Range

1,500 pF to 1.5 μ F
(@ 1 Vrms \pm 0.2 Vrms, 1 kHz \pm 0.1 kHz)

Capacitance Tolerance

+80, -20%

Operating Temperature Range

-30°C to +85°C

Temperature Characteristic

+22% to -82% max. within -30°C to +85°C (@ 0 VDC)

Working Voltage (WVDC)

16 VDC, 25 VDC, 50 VDC

Dissipation Factor (DF)

5% max. for **RM Series**, and
7.5% max. for **CE Series**.
(@ +25°C, 1 Vrms \pm 0.2 Vrms, 1 kHz \pm 0.1 kHz)

Insulation Resistance (IR)

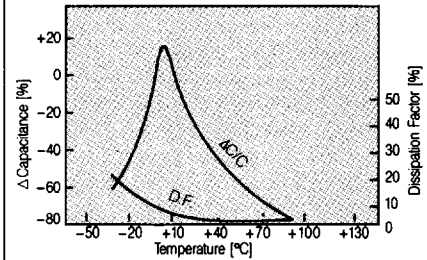
10,000 megohms min. or 500 megohm-microfarads min., whichever is less.
(@ + 25°C, WVDC for 1 minute \pm 5 seconds)

Dielectric Withstanding Voltage

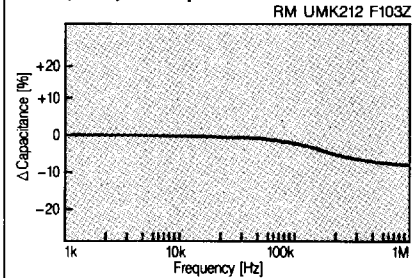
2.5 x WVDC
(@ 50 mA max. charging-discharging current between terminations
for 1 to 5 seconds.)

Typical Characteristics

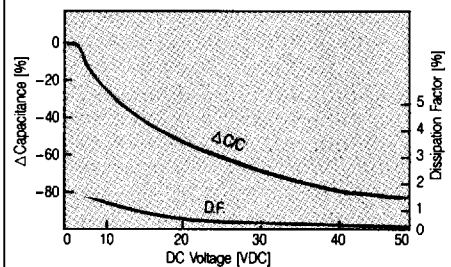
Temperature vs. Capacitance and Dissipation Factor



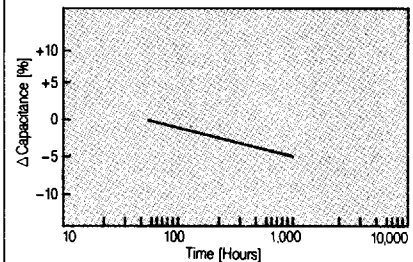
Frequency vs. Capacitance



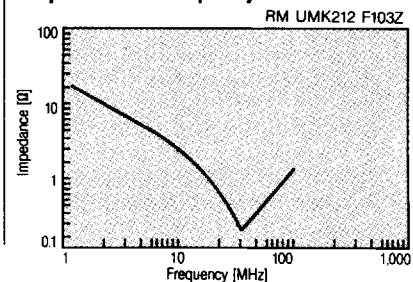
DC Voltage vs. Capacitance and Dissipation Factor



Capacitance vs. Time (Aging)



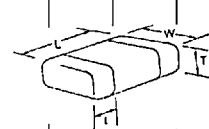
Impedance vs. Frequency



Y5V DIELECTRIC

CE & RM SERIES

SIZE		0603 □					0805 □					1206 □					1210 □											
(L) Length	in. (mm)	.063±.008 (1.6±0.2)					.079±.012 .004 (2.0±0.1)					.126±.008 (3.2±0.2) (See NOTE)					.126±.016 (3.2±0.4)											
(W) Width	in. (mm)	.032±.008 (0.8±0.2)					.049±.012 .004 (1.25±0.1)					.063±.008 (1.6 ± 0.2)					.098±.012 (2.5±0.3)											
(T) Thickness	in. (mm)	See Below					See Below					See Below					See Below											
(t) Terminal	in. (mm)	.004 to .024 (0.1 to 0.6)					.020±.010 (0.5±0.25)					.020±.014 .010 (0.5±0.35 0.25)					.024±.012 (0.6±0.3)											
CHIP CONSTRUCTION		RM Series					CE Series					RM Series					CE Series											
WVDC		25	50	25	50	25	50	25	50	25	50	25	50	25	50	16	25	50	25	50								
CAPACITANCE		(T) Thickness in. (mm)										① .028 (0.7) max					③ .039 (1.0) max.					⑤ .032±.008 (0.8±0.2)						
pF/μF	Code											② .034 (0.85) max.					④ .049 (1.25 max.)											
(pF)	Code	1,500	1,500	NOT AVAILABLE																				COMING SOON				
(μF)	Code																											
1,500	152			.010	.010	.010	.010	.010	.010	.010	.010	.010	.010	.047														
2,200	222	⑤	⑤																									
3,300	332																											
4,700	472																											
6,800	682																											
.010	103																											
.015	153																											
.022	223																											
.033	333		.022																									
.047	473																											
.068	683																											
.10	104																											
.15	154		.10																									
.22	224																											
.33	334																											
.47	474																											
.68	684																											
1.0	105																											
1.5	155																											
2.2	225																											
3.3	335																											



NOTE:

• Dimensions are in inches, dimensions in parenthesis are in millimeters. Metric dimensions shall govern.

□ = Nickel Barrier Terminations

■ = Palladium/Silver Terminations

• Length is $.126 \pm \frac{.012}{.008} (3.2 \pm \frac{0.3}{0.2})$ for values $\geq 1.0\mu\text{F}$.