

# MULTILAYER CERAMIC CAPACITORS



WAVE

REFLOW

## PARTS NUMBER

J	M	K	3	1	6	△	B	J	1	0	6	M	L	—	T	△
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫					

△=Blank space

### ①Rated voltage

Code	Rated voltage[VDC]
P	2.5
A	4
J	6.3
L	10
E	16
T	25
G	35
U	50
H	100
Q	250
S	630

### ②Series name

Code	Series name
M	Multilayer ceramic capacitor
V	Multilayer ceramic capacitor for high frequency
W	LW reverse type multilayer capacitor

### ③End termination

Code	End termination
K	Plated
S	Cu Internal Electrodes

### ④Dimension (L × W)

Type	Dimensions (L × W) [mm]	EIA (inch)
021	0.25 × 0.125	008004
042	0.4 × 0.2	01005
063	0.6 × 0.3	0201
105	1.0 × 0.5	0402
	0.52 × 1.0 ※	0204
107	1.6 × 0.8	0603
	0.8 × 1.6 ※	0306
212	2.0 × 1.25	0805
	1.25 × 2.0 ※	0508
316	3.2 × 1.6	1206
325	3.2 × 2.5	1210
432	4.5 × 3.2	1812

Note : ※LW reverse type (□WK) only

### ⑤Dimension tolerance

Code	Type	L [mm]	W [mm]	T [mm]
△	ALL	Standard	Standard	Standard
A	063	0.6±0.05	0.3±0.05	0.3±0.05
	105	1.0±0.10	0.5±0.10	0.5±0.10
	107	1.6+0.15/-0.05	0.8+0.15/-0.05	0.8+0.15/-0.05
	212	2.0+0.15/-0.05	1.25+0.15/-0.05	0.45±0.05
				0.85±0.10
				1.25+0.15/-0.05
	316	3.2±0.20	1.6±0.20	0.85±0.10
	325	3.2±0.30	2.5±0.30	1.6±0.20
B	063	0.6±0.09	0.3±0.09	0.3±0.09
	105	1.0+0.15/-0.05	0.5+0.15/-0.05	0.5+0.15/-0.05
	107	1.6+0.20/-0	0.8+0.20/-0	0.45±0.05
	212	2.0+0.20/-0	1.25+0.20/-0	0.8+0.20/-0
				0.45±0.05
				0.85±0.10
	316	3.2±0.30	1.6±0.30	1.25+0.20/-0
	325	3.2±0.30	2.5±0.30	1.6±0.30
C	105	1.0+0.20/-0	0.5+0.20/-0	0.5+0.20/-0

Note: P.6 Standard external dimensions

△= Blank space

### ⑥Temperature characteristics code

■High dielectric type (Excluding Super low distortion multilayer ceramic capacitor)

Code	Applicable standard	Temperature range [°C]	Ref. Temp. [°C]	Capacitance change	Capacitance tolerance	Tolerance code
BJ	JIS	B	-25 ~ + 85	±10%	±10%	K
					±20%	M
	EIA	X5R	-55 ~ + 85	±15%	±10%	K
B7	EIA	X7R	-55 ~ + 125	±15%	±20%	M
					±10%	K
					±20%	M
C6	EIA	X6S	-55 ~ + 105	±22%	±10%	K
					±20%	M
C7	EIA	X7S	-55 ~ + 125	±22%	±10%	K
					±20%	M
LD(※)	EIA	X5R	-55 ~ + 85	±15%	±10%	K
					±20%	M

Note : ※LD Low distortion high value multilayer ceramic capacitor

△= Blank space

► This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our specification. For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our website (<http://www.ty-top.com/>).

## ■ Temperature compensating type

Code	Applicable standard		Temperature range[°C]	Ref. Temp.[°C]	Capacitance change	Capacitance tolerance	Tolerance code
CG	EIA	C0G	-55~+125	25	0±30ppm/°C	±0.05pF	A
						±0.1pF	B
						±0.25pF	C
						±0.5pF	D
						±5%	J
UJ	JIS	UJ	-55~+125	20	-750±120ppm/°C	±0.25pF	C
	EIA	U2J		25		±0.5pF	D
						±5%	J
UK	JIS	UK	-55~+125	20	-750±250ppm/°C	±0.25pF	C
	EIA	U2K	-55~+125	25			
SL	JIS	SL	-55~+125	20	+350~-1000ppm/°C	±5%	J

## ⑥ Series code

• Super low distortion multilayer ceramic capacitor

Code	Series code
SD	Standard

• Medium-High Voltage Multilayer Ceramic Capacitor

Code	Series code
SD	Standard

## ⑦ Nominal capacitance

Code (example)	Nominal capacitance
0R5	0.5pF
010	1pF
100	10pF
101	100pF
102	1,000pF
103	10,000pF
104	0.1 μF
105	1.0 μF
106	10 μF
107	100 μF

Note : R=Decimal point

## ⑧ Capacitance tolerance

Code	Capacitance tolerance
A	±0.05pF
B	±0.1pF
C	±0.25pF
D	±0.5pF
F	±1pF
G	±2%
J	±5%
K	±10%
M	±20%
Z	+80/-20%

## ⑨ Thickness

Code	Thickness[mm]
K	0.125
H	0.13
E	0.18
C	0.2
D	
P	0.3
T	
K	0.45 (107type or more)
V	0.5
W	
A	0.8
D	0.85 (212type or more)
F	1.15
G	1.25
L	1.6
N	1.9
Y	2.0 max
M	2.5

## ⑩ Special code

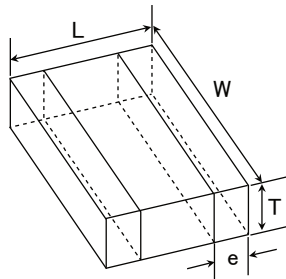
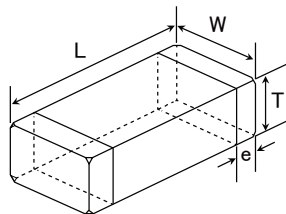
Code	Special code
—	Standard

## ⑪ Packaging

Code	Packaging
F	φ178mm Taping (2mm pitch)
T	φ178mm Taping (4mm pitch)
P	φ178mm Taping (4mm pitch, 1000 pcs/reel) 325 type (Thickness code M)
R	φ178mm Taping (2mm pitch) 105type only (Thickness code E,H)
W	φ178mm Taping (1mm pitch) 021/042type only

## ⑫ Internal code

Code	Internal code
Δ	Standard



※ LW reverse type

Type( EIA )	Dimension [mm]				
	L	W	T	*1	e
□MK021(008004)	0.25±0.013	0.125±0.013	0.125±0.013	K	0.0675±0.0275
□MK042(01005)	0.4±0.02	0.2±0.02	0.2±0.02	C	0.1±0.03
				D	
□VS042(01005)	0.4±0.02	0.2±0.02	0.2±0.02	C	0.1±0.03
□MK063(0201)	0.6±0.03	0.3±0.03	0.3±0.03	P	0.15±0.05
				T	
□MK105(0402)	1.0±0.05	0.5±0.05	0.13±0.02	H	0.25±0.10
			0.18±0.02	E	
			0.2±0.02	C	
			0.3±0.03	P	
			0.5±0.05	V	
□VK105(0402)	1.0±0.05	0.5±0.05	0.5±0.05	W	0.25±0.10
□WK105(0204)※	0.52±0.05	1.0±0.05	0.3±0.05	P	0.18±0.08
□MK107(0603)	1.6±0.10	0.8±0.10	0.45±0.05	K	0.35±0.25
			0.8±0.10	A	
□WK107(0306)※	0.8±0.10	1.6±0.10	0.5±0.05	V	0.25±0.15
□MK212(0805)	2.0±0.10	1.25±0.10	0.45±0.05	K	0.5±0.25
			0.85±0.10	D	
			1.25±0.10	G	
□WK212(0508)※	1.25±0.15	2.0±0.15	0.85±0.10	D	0.3±0.2
□MK316(1206)	3.2±0.15	1.6±0.15	0.85±0.10	D	0.5+0.35/-0.25
			1.15±0.10	F	
			1.6±0.20	L	
□MK325(1210)	3.2±0.30	2.5±0.20	0.85±0.10	D	0.6±0.3
			1.15±0.10	F	
			1.9±0.20	N	
			1.9+0.1/-0.2	Y	
□MK432(1812)	4.5±0.40	3.2±0.30	2.5±0.20	M	0.9±0.6
			2.5±0.20	M	

Note : ※. LW reverse type, \*1.Thickness code

■ STANDARD QUANTITY

Type	EIA (inch)	Dimension		Standard quantity [pcs]	
		[mm]	Code	Paper tape	Embossed tape
021	008004	0.125	K	—	50000
042	01005	0.2	C	—	40000
			D		
063	0201	0.3	P	15000	—
			T		
105	0402	0.13	H	—	20000
		0.18	E	—	15000
		0.2	C	20000	—
		0.3	P	15000	—
		0.5	V	10000	—
			W		
	0204 ※	0.30	P	—	—
107	0603	0.45	K	4000	—
		0.8	A		
	0306 ※	0.50	V	—	4000
212	0805	0.45	K	4000	—
		0.85	D		
		1.25	G		
	0508 ※	0.85	D	4000	—
316	1206	0.85	D	4000	—
		1.15	F	—	3000
		1.6	L	—	2000
325	1210	0.85	D	—	2000
		1.15	F		
		1.9	N		
		2.0 max	Y		
		2.5	M		
432	1812	2.5	M	—	500

Note : ※. LW Reverse type (□WK)