

Passive components Sales Office

MULTILAYER CERAMIC CAPACITORS

• Head Office

206, Cheomdansaneop Road,
Youngtong-gu,
Suwon, Kyonggi Province 443-743,
Korea

Europe

Tel: +82-31-210-6328
E-mail: james.pyun@samsung.com

America

Tel: +82-31-210-6794
E-mail: randy.kim@samsung.com

Asia

Tel: +82-31-210-5348
E-mail: koogi@samsung.com

Domestic

Tel: +82-31-210-3757
E-mail: southjoy@samsung.com

• Manufacturing Site

Suwon Plant

206 Cheomdansaneop Road,
Youngtong-gu,
Suwon, Kyonggi Province 443-743,
Korea
Tel: +82-31-210-6794
E-mail: randy.kim@samsung.com

Busan Plant

1623-2, Songjeong-dong,
Kangseo-gu, Busan 618-270, Korea
Tel: +82-51-970-7671
E-mail: kyc.kweon@samsung.com

Tianjin Plant

27, Heiniucheng-Road, Hexi District,
Tianjin, China 300210
Tel: +86-22-2830-3333(3450)
E-mail: gk.ryu@samsung.com

Philippines Plant

Calamba Premiere International Park,
Batino, Calamba, Laguna, Manila
Tel: +63-2-809-2873
E-mail: ksj1445@samsung.com

• Asia sales office

Shanghai Office

Rm 1408 Shanghai international
trade center No 2200 Yan an(W) RD
Shanghai China 200335
Tel: 86-21-6270-4168(274)
E-mail: dennis.cha@samsung.com

Shenzhen Office

Rm 4501, 45/F, New World Center,
Yitian Road, Futian District,
Shenzhen, China 518026
Tel: 86-755-8608-5581
E-mail: jackson.xian@samsung.com

Qingdao Office

Rm 1201, Growne Plaza Qingdao;
76XiangGangZhong Rd, Qingdao;266071
P.R. China
Tel: 86-532-5779102
E-mail: zhengguo.cui@samsung.com

HongKong Office

Suite 4511, Two int'l Finance Centre,
8 Finance Street, Central, Hongkong
Tel: 852-2862-6350
E-mail: vinsent.chou@samsung.com

Singapore Office

3 Church Street Samsung Hub
#23-02 Singapore 049483
Tel: (65)6833-3228
E-mail: winson.yeong@samsung.com

Thai Office

Wellgrow Industrial Estate,
93 Moo 5 T. Bangsamak, A.Bangpakong
Chachoengsao 24180 Thailand
Tel: 66-38-562-026
E-mail: sbimm@samsung.com

Taiwan Office

399 9F-1, Ruey Kuang Rd., Neihu,
Taipei, Taiwan
Tel: 886-2-2656-8356
E-mail: kevin0130.wang@samsung.com

• America sales office

Irvine Office

92612 3345 Michelson Drive,
Suite 350, Irvine, CA
Tel: 1-949-797-8047
E-mail: sh386.kim@samsung.com

• Europe sales office

Frankfurt Office

Samsung haus
Am Kronberger Hang 6
D-65824 Schwalbach/Ts.
Tel: 49-6196-66-7255
FAX: 49-(0)6196-66-7755
E-mail: frank.goebel@samsung.com

Hungary Office

H2310, Szigetszentmiklos, Leshegy u.
2-4, Hungary
Tel: 36-24-551-148
E-mail: jun21c.lee@samsung.com

• Domestic Distributors

KORCHIP INC

#219-8 Gasan-dong, Gumchun-gu,
Seoul, Korea
Tel: +82-2-838-5588
E-mail: hjh0064@korchip.com

CHUNG HAN

#16-96 Hangang-lo 3, Youngsan-Gu,
Seoul, Korea
Tel: +82-2-718-3322
E-mail: bu1230choi@hanmail.net

SAMT

Daekyung Bldg., Daechi-Dong,
Gangnam-Gu, Seoul, Korea
Tel: +82-2-3458-9000
E-mail: info@isamt.com

CHUNGMAC

#53-5 Wonhyolo3 Youngsan-gu,
Seoul, Korea
Tel: +82-2-716-6428~9
E-mail: webmaster@anycam.co.kr

APEXINT

Room #905, C-dong Woorimlion's,
Valley 371-28, Gasan-dong,
Guemcheon-Gu, Seoul, Korea
Tel: +82-2-2026-2610(2)
E-mail: info@apexint.co.kr



CL 10 C 101 J B 8 N N N C
1 2 3 4 5 6 7 8 9 10 11

1. SERIES CODE

CL=Multi layer Ceramic Capacitors

2. SIZE CODE — inch(mm)

03=0201(0603) 21=0805(2012) 42=1808(4520)
05=0402(1005) 31=1206(3216) 43=1812(4532)
10=0603(1608) 32=1210(3225) 55=2220(5750)

3. DIELECTRIC CODE

Class I			Class II		
C=COG	S=S2H	L=S2L	A=X5R	F=Y5V	
P=P2H	T=T2H		B=X7R	X=X6S	
R=R2H	U=U2J		Y=X7S		

4. CAPACITANCE CODE

Capacitance expressed in pF. 2 significant digits plus number of zeros.
example) 106=10 × 10⁶=1000000pF
For Values < 10pF, Letter R denotes decimal point
example) 1R5=1.5pF

5. TOLERANCE CODE

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

*For Values ≤ 10pF, F=±1pF
Values > 10pF, F=±1%

6. RATED VOLTAGE CODE

R=4V O=16V B=50V E=250V I=1000V
Q=6.3V A=25V C=100V G=500V J=2000V
P=10V L=35V D=200V H=630V K=3000V

7. THICKNESS CODE

3=0.30mm A=0.65mm F=1.25mm L=3.20mm S=1.35mm
5=0.50mm C=0.85mm H=1.60mm M=1.15mm U=1.80mm
8=0.80mm D=1.00mm I=2.00mm P=1.15mm V=2.50mm
9=0.90mm E=1.10mm J=2.50mm Q=1.25mm Y=1.25mm

8. INNER ELECTRODE / TERMINATION / PLATING CODE

A=Normal Product Pd / Ag / Ni barrier / Sn 100%
N=Normal Product Ni / Cu / Ni barrier / Sn 100%
G=Normal Product Cu / Cu / Ni barrier / Sn 100%
L=Low profile Ni / Cu / Ni barrier / Sn 100%

9. PRODUCT CODE

A=Array(2-element) L=LICC
B=Array(4-element) N=Normal
C=Low ESL (Please refer to p. 53 for application.)

Size Code	*Size tolerance		
	0402(1005)	0603(1608)	0805(2012)
S	±0.07	±0.07	
Q	±0.1	±0.15	±0.15
R	±0.15	±0.2	±0.2

10. SPECIAL CODE

N=Reserved for future use

11. PACKAGING CODE

B=Bulk O=Cardboard Tape, 10"Reel E=Embossed Type, 7"Reel
P=Bulk Case D=Cardboard Tape, 13"Reel(10,000ea) F=Embossed Type, 13"Reel
C=Cardboard Tape, 7"Reel L=Cardboard Tape, 13"Reel(15,000ea) S=Embossed Type, 10"Reel

Class I (Temperature Compensation)

Symbol	EIA Code	Operation Temperature Range(°C)	Temperature Coefficient Range(ppm/°C)
C	COG	-55 ~ +125	0 ±30
P	P2H	-55 ~ +125	-150 ±60
R	R2H	-55 ~ +125	-220 ±60
S	S2H	-55 ~ +125	-330 ±60
T	T2H	-55 ~ +125	-470 ±60
U	U2J	-55 ~ +125	-750 ±120
L	S2L	-55 ~ +125	-1000 ~ +350

Class II (High Dielectric Constant)

Symbol	EIA Code	Operation Temperature Range(°C)	Capacitance Change(ΔC %)
A	X5R	-55 ~ +85	±15
B	X7R	-55 ~ +125	±15
X	X6S	-55 ~ +105	±22
F	Y5V	-30 ~ +85	-82 ~ +22
Y	X7S	-55 ~ +125	±22

**

Series	TC	Capacitance Step											
		1.0			2.2			4.7			6.8		
E-3	Y5V	1.0			2.2			4.7					
E-6	X5R X7R X6S	1.0		1.5		2.2		3.3		4.7		6.8	
E-12	COG TC series	1.0	1.2	1.5	1.8	2.2	2.7	3.3	3.9	4.7	5.6	6.8	8.2

Size	Code	Thickness(mm)	Spec(mm)	Size	Code	Thickness(mm)	Spec(mm)
01005(0402)	2	0.20	±0.02	1210(3225)	H	1.60	±0.20
0201(0603)	3	0.30	±0.03		U	1.80	±0.20
0402(1005)	5	0.50	±0.05		I	2.00	±0.20
0603(1608)	5	0.50	±0.05		J	2.50	±0.20
	8	0.80	±0.10	V	2.50	±0.30	
0805(2012)	A	0.65	±0.10	1808(4520)	F	1.25	±0.20
	C	0.85	±0.10		H	1.60	±0.20
	D	1.00	±0.15		I	2.00	±0.20
	F	1.25	±0.10				
	Q	1.25	±0.15	F	1.25	±0.20	
	Y	1.25	±0.2	H	1.60	±0.20	
1206(3216)	C	0.85	±0.15	1812(4532)	I	2.00	±0.20
	D	1.00	±0.15		J	2.50	±0.20
	E	1.10	±0.10		L	3.20	±0.30
	P	1.15	±0.10				
	F	1.25	±0.15	F	1.25	±0.20	
	H	1.60	±0.20	H	1.60	±0.20	
1210(3225)	C	0.85	±0.10	2220(5750)	I	2.00	±0.20
	9	0.90	±0.10		J	2.50	±0.20
	E	1.10	±0.10		L	3.20	±0.30
	M	1.15	±0.10				
	F	1.25	±0.20				
	S	1.35	±0.15				

Part Numbering System

General Capacitors

Ultra High Capacitors

Super Small Capacitors

High Voltage Capacitors

Array Type Capacitors

Low ESL Capacitors

Reliability Test Condition

Premium Capacitors for Automotive Applications

Packaging Specification

Application Manual for Surface Mounting