



**THE DATASHEET OF
C2012X7R1C684KT**



C.3216.X7R.1H.105.K.160.

Series Name	
Description	
C	General Purpose
CKC	Array
CKG	MEGACAP
CLL	Ultra Low Inductance

Case Size Code			
C	CKC	CKG	CLL
0.40 x 0.20	0402		
0.50 x 1.00	0510		
0.60 x 0.30	0603		
0.80 x 1.60	0816		
0.90 x 0.60	N27		
1.00 x 0.50	1005		
1.25 x 2.00	1220		
1.37 x 1.00	M25		
1.60 x 0.80	1608		C1A
1.60 x 3.20	1632		
2.00 x 1.25	2012	L22	E1A
		L44	
3.20 x 1.60	3216	A43	G1A
3.20 x 2.50	3225		
3.80 x 2.90		32K	
4.50 x 2.00	4520		
4.50 x 3.20	4532		
5.50 x 4.00		45K	
		45N	
5.70 x 5.00	5750		
6.50 x 5.50		57K	
		57N	
7.50 x 6.30	7563		

Temperature Characteristics	
Temperature	Temperature Coefficient or Capacitance Change
CH	-25°C to +85°C 0±60ppm/°C
C0G	-55°C to +125°C 0±30ppm/°C
NP0	-55°C to +150°C 0±30ppm/°C
JB	-25°C to +85°C ±10%
X5R	-55°C to +85°C ±15%
X6S	-55°C to +105°C ±22%
X7R	-55°C to +125°C ±15%
X7S	-55°C to +125°C ±22%
X7T	-55°C to +125°C +22, -33%
X8R	-55°C to +150°C ±15%

Capacitance Tolerance	
Description	
B	±0.10 pF
C	±0.25 pF
D	±0.50 pF
F	±1%
G	±2%
J	±5%
K	±10%
M	±20%

Thickness Code	
Description	
020	0.20 mm
030	0.30 mm
045	0.45 mm
050	0.50 mm
055	0.55 mm
060	0.60 mm
070	0.70 mm
080	0.80 mm
085	0.85 mm
100	1.00 mm
110	1.10 mm
115	1.15 mm
125	1.25 mm
130	1.30 mm
160	1.60 mm
200	2.00 mm
230	2.30 mm
250	2.50 mm
280	2.80 mm
290	2.90 mm
320	3.20 mm
335	3.35 mm
500	5.00 mm

Rated Voltage Code									
A	C	D	E	F	G	H	J	V	W
0				4V			6.3V		
1	10V	16V	25V		50V			35V	
2	100V	200V	250V			630V			450V
3	1KV	2KV	3KV						

Nominal Capacitance

The capacitance is expressed in three digit codes as follows:
 The first and second digits identify the first and second significant digits of the nominal capacitance.
 The third digit identifies the multiplier or multiplier point.
 Ex. 0R2 = 0.2pF; 103 = 10,000pF; 105 = 1,000,000pF

CGA.5.L.3.X7R.1H.105.K.16

Series Name	
Description	
CGA	Automotive Grade
CGJ	High Reliability Grade
CEU	Serial Design

Case Size Code		
CGA	CGJ	CEU
0.60 x 0.30	1	
1.00 x 0.50	2	2
1.60 x 0.80	3	3
2.00 x 1.25	4	4
3.20 x 1.60	5	5
3.20 x 2.50	6	
4.50 x 2.00	7	
4.50 x 3.20	8	
5.70 x 5.00	9	

Thickness Code	
Description	
A	0.30 mm
B	0.50 mm
C	0.60 mm
E	0.80 mm
F	0.85 mm
G	1.10 mm
H	1.15 mm
J	1.25 mm
K	1.30 mm
L	1.60 mm
M	2.00 mm
N	2.30 mm
P	2.50 mm
Q	2.80 mm
R	3.20 mm

Capacitance Tolerance	
Description	
C	± 0.25 pF
D	± 0.50 pF
F	± 1%
J	± 5%
K	± 10%
M	± 20%

Nominal Capacitance

The capacitance is expressed in three digit code (pF). The first and second digits identify the first two of the capacitance. The third digit identifies the decimal point.
 Ex. 0R2 = 0.2pF; 103 = 10,000pF; 105 = 1,000,000pF

Life Test Condition or Function Identification Code	
Description	
1	1.0 x Rated Voltage
2	2.0 x Rated Voltage
3	1.5 x Rated Voltage
4	1.2 x Rated Voltage
A	ESD Protection

Temperature Characteristics		
Temperature	Temperature	Coefficient of Capacitance Change
C0G	-55°C to +125°C	0±30ppm/°C
NP0	-55°C to +150°C	0±30ppm/°C
X5R	-55°C to +85°C	±15%
X6S	-55°C to +105°C	±22%
X7R	-55°C to +125°C	±15%
X7S	-55°C to +125°C	±22%
X7T	-55°C to +125°C	+22, -33%
X8R	-55°C to +150°C	±15%

Rated Voltage Code						
A	C	D	E	F	H	J
0						6.3
1	10V	16V	25V	50V		
2	100V	200V	250V	500V	630V	
3	1KV	2KV		3KV		

CGB.3.C.1.X5R.0J.106.M.06

Series Name	
Description	Low Profile
CGB	

Case Size Code	
CGB	Description
1	0.60 x 0.30
2	1.00 x 0.50
3	1.60 x 0.80
4	2.00 x 1.25

Thickness Code	
Description	Thickness
T	0.22 mm max.
A	0.33 mm max.
S	0.50 mm max.
B	0.55 mm max.
C	0.65 mm max.

Capacitance Tolerance	
Description	Tolerance
K	±10%
M	±20%

Nominal Capacitance

The capacitance is expressed in three digit codes (pF). The first and second digits identify the first of the capacitance. The third digit identifies the decimal point.

Ex. 0R2 = 0.2pF; 103 = 10,000pF; 105 = 1,000,000pF



Life Test Condition	
Description	Condition
1	1.0 x Rated Voltage
3	1.5 x Rated Voltage

Temperature Characteristics	
Temperature	Tolerance
JB	-25°C to +85°C ±10%
X5R	-55°C to +85°C ±15%
X6S	-55°C to +105°C ±22%
X7R	-55°C to +125°C ±15%
X7S	-55°C to +125°C ±22%

Rated Voltage Code	
Code	Voltage
0	4V
1	6.3V
A	10V
C	16V
E	25V

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