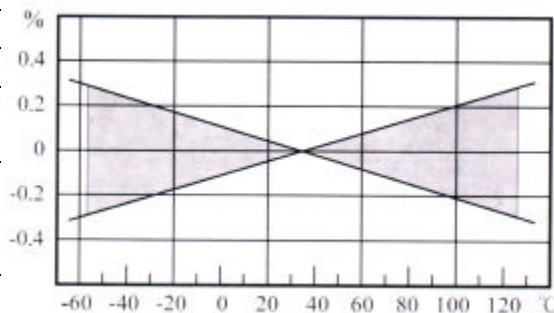


NPO SERIES



■ **Specification**

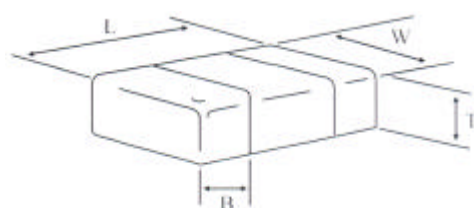
Operating Temperature Range	-55 °C to +125 °C
Temperature Coefficient	0±30ppm/°C ΔC max.
Dissipation Factor (tanδ), @25°C	0.001(0.1%) max.
Insulation Resistance (IR), @25 °C *whichever is smaller @125 °C	>100GΩ or >1000MΩ • μF >10GΩ or >100MΩ • μF
Dielectric Withstanding Voltage	25 to 200V, 2.5 x VDCW 201 to 500V, 1.5 x VDCW >500V, 1.2 x VDCW
Aging Rate	0% per decade hour
Test Parameters, @25 °C	1KHz±10%, 1.0±0.2Vrms, 0 Volt. bias



■ **Capacitance**

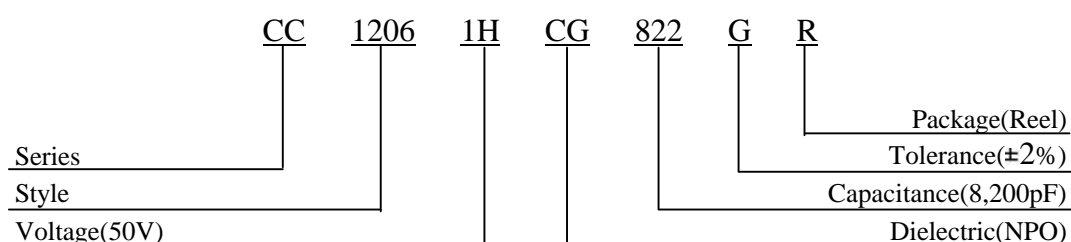
Size Voltage	0402	0603	0805	1206	1210	1808	1812	2220	2225	3640
25V(1E)	121-221	-	-	822-103	103-223	153-273	153-333	223-683	563-104	-
50V(1H)	0R1-151	-	-	332-103	682-153	682-183	682-273	153-563	473-104	-
100V(2A)	0R5-101	-	-	222-472	472-123	562-153	562-183	103-473	393-563	-
200V(2D)	0R5-680	0R5-221	0R5-102	0R5-332	222-562	472-682	472-103	682-333	223-473	-
250V(2E)	0R5-470	0R5-151	0R5-102	0R5-222	222-472	472-682	472-752	682-223	103-333	-
500V(2H)			0R5-471	0R5-152	040-272	100-332	100-682	102-153	682-223	103-563
1KV(3A)			0R5-331	0R5-102	040-152	050-222	100-392	101-822	101-103	102-223
2KV(3D)				010-271	040-681	050-102	100-222	101-332	101-472	471-103
3KV(3F)						030-471	100-102	221-152	221--222	471-562
4KV(3G)						100-151	100-331	221-102	221-152	221-332

■ **Dimension**



	0402	0603	0805	1206	1210	1808	1812	2220	2225	3640	Unit:mm
L	1.0±0.05	1.6±0.1	2.0±0.2	3.2±0.4	3.2±0.2	4.5±0.5	4.5±0.5	5.6±0.5	5.6±0.5	9.2±0.5	
W	0.5±0.05	0.8±0.1	1.25±0.2	1.6±0.2	2.5±0.3	2.0±0.3	3.2±0.4	5.0±0.5	6.3±0.5	10.16±0.5	
T max.	0.60	0.90	1.45	1.60	1.90	2.10	2.50	2.50	2.50	2.00	
B min.	0.15	0.20	0.20	0.20	0.25	0.25	0.25	0.25	0.25	0.25	

■ **How To Order**

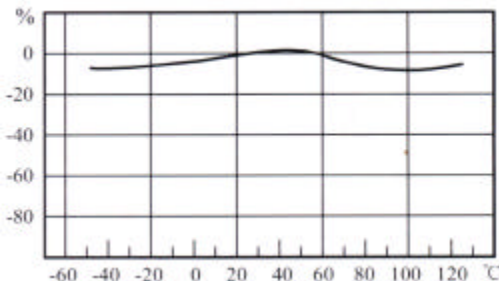


X7R SERIES



■ **Specification**

Operating Temperature Range	-55 °C to +125 °C (X5R:-55 °C to +85 °C)
Temperature Coefficient	±15% ΔC max.
Dissipation Factor (tanδ), @25°C	0.025(2.5%) max.
Insulation Resistance (IR), @25 °C	>10GΩ or >100MΩ • μF
*whichever is smaller @125 °C	>1GΩ or >10MΩ • μF
Dielectric Withstanding Voltage	6.3 to 200V, 2.5 x VDCW
	201 to 500V, 1.5 x VDCW
	>500V, 1.2 x VDCW
Aging Rate	~2.0% per decade hour
Test Parameters, @25 °C	1KHz±10%, 1.0±0.2Vrms, 0 Volt. Bias



■ **Capacitance**

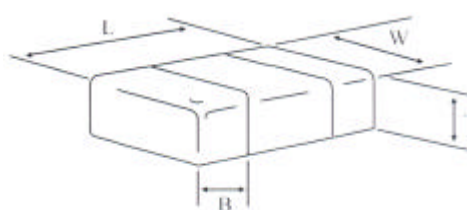
Size Voltage	0402	0603	0805	1206	1210	1808	1812	2220	2225	3640
16V(1C)	562-473	-	-	105-335	335-475	105-475	105-106	106-226	106-226	-
25V(1E)	332-103	-	-	474-105	155-225	225-335	225-475	475-156	475-156	-
50V(1H)	221-472	-	-	224-334	474-105	474-105	474-155	155-475	155-475	-
100V(2A)	221-222	-	-	104-224	154-334	224-334	224-684	474-155	105-155	-
200V(2D)	121-152	221-682	221-333	221-104	683-224	104-224	104-474	334-105	474-105	-
250V(2E)	121-152	221-562	221-273	221-104	333-224	104-224	104-474	334-105	474-105	-
500V(2H)			221-103	221-333	221-104	222-104	472-274	103-564	223-824	104-105
1KV(3A)			221-222	221-682	221-223	102-333	222-563	472-124	103-224	473-394
2KV(3D)				221-102	221-222	221-392	221-822	102-153	222-333	103-563
3KV(3F)						221-102	221-222	681-472	102-103	102-223
4KV(3G)						221-561	221-102	681-222	102-682	102-103

● **X5R Dielectric**

6.3V(0J)	473-104	334-105	155-475	685-106	685-226	685-106	106-476	336-107	336-107	-
10V(1A)	333-104	154-105	684-335	225-475	685-106	685-106	106-336	336-476	336-476	-

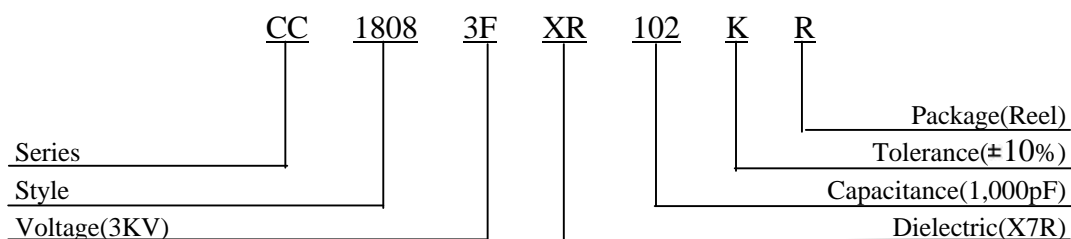
■ **Dimension**

Unit:mm



	0402	0603	0805	1206	1210	1808	1812	2220	2225	3640
L	1.0±0.05	1.6±0.1	2.0±0.2	3.2±0.2	3.2±0.4	4.5±0.5	4.5±0.5	5.6±0.5	5.6±0.5	9.2±0.5
W	0.5±0.05	0.8±0.1	1.25±0.2	1.6±0.2	2.5±0.3	2.0±0.3	3.2±0.4	5.0±0.5	6.3±0.5	10.16±0.5
T max.	0.60	0.90	1.45	1.60	1.90	2.10	2.50	2.50	2.50	2.00
B min.	0.15	0.20	0.20	0.20	0.25	0.25	0.25	0.25	0.25	0.25

■ **How To Order**

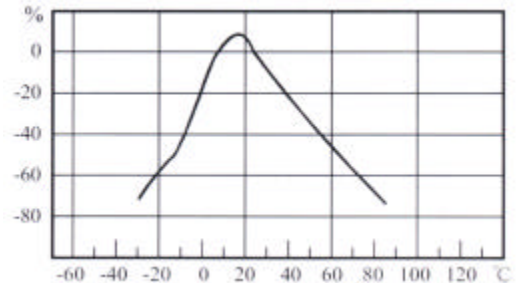


Y5V SERIES



■ **Specification**

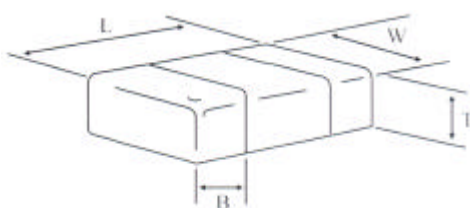
Operating Temperature Range	-30 °C to +85 °C
Temperature Coefficient	-82% to +22% ΔC max.
Dissipation Factor (tanδ), @25°C	0.07(7.0%) max.
Insulation Resistance (IR), @25 °C *whichever is smaller	>10GΩ or >100MΩ • μF
Dielectric Withstanding Voltage	10 to 100V, 2.0 x VDCW 101 to 250V, 1.5 x VDCW
Aging Rate	~7.0% per decade hour
Test Parameters, @25 °C	1KHz±10%, 0.5±0.05Vrms, 0 Volt. bias



■ **Capacitance**

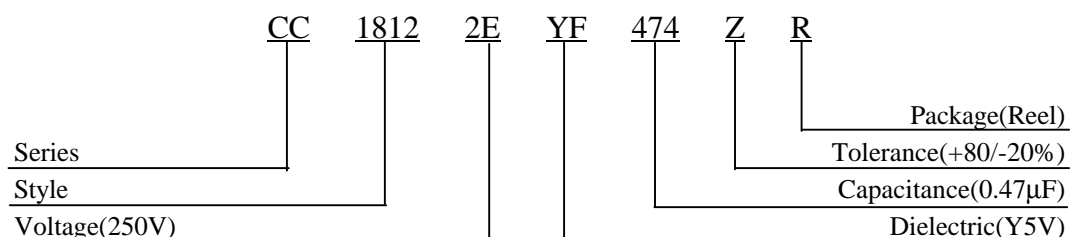
Size	0402	0603	0805	1206	1210	1812	2220	2225
10V(1A)	104-224	-	-	106-226	106-226	106-476	226-107	226-107
16V(1C)	223-104	-	-	335-106	475-106	685-156	106-336	106-336
25V(1E)	103-223	-	-	105-225	335-475	475-106	685-226	106-226
50V(1H)	222-153	-	-	474-105	105-225	225-106	475-106	475-156
100V(2A)	152-472	-	-	474-334	224-684	474-155	105-335	225-335
200V(2D)	102-152	332-682	472-333	224-104	473-224	154-474	474-105	684-155
250V(2E)	102-152	332-682	472-333	472-683	473-154	154-474	474-684	474-105

■ **Dimension**



	0402	0603	0805	1206	1210	1808	1812	2220	2225
L	1.00±0.05	1.60±0.10	2.00±0.20	3.20±0.20	3.20±0.40	4.50±0.50	4.50±0.50	5.60±0.50	5.60±0.50
W	0.50±0.05	0.80±0.10	1.25±0.20	1.60±0.20	2.50±0.30	2.00±0.30	3.20±0.40	5.00±0.50	6.30±0.50
T max.	0.60	0.90	1.45	1.60	1.90	2.10	2.50	2.50	2.50
B min.	0.15	0.20	0.20	0.20	0.25	0.25	0.25	0.25	0.25

■ **How To Order**

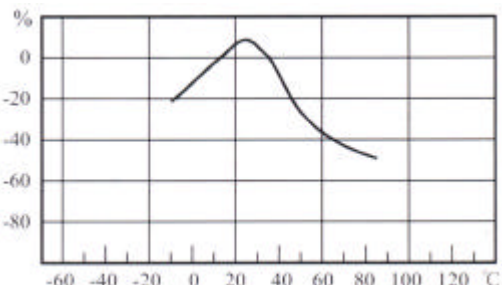


Z5U SERIES



■ **Specification**

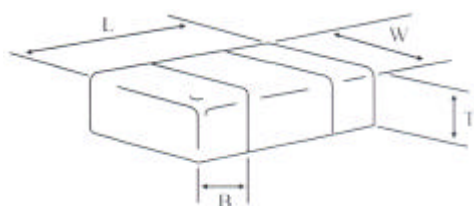
Operating Temperature Range	+10 °C to +85 °C
Temperature Coefficient	-56% to +22% ΔC max.
Dissipation Factor (tanδ), @25°C	0.05(5.0%) max.
Insulation Resistance (IR), @25 °C *whichever is smaller	>10GΩ or >100MΩ • μF
Dielectric Withstanding Voltage	25 to 100V, 2.0 x VDCW 101 to 250V, 1.5 x VDCW
Aging Rate	~5.0% per decade hour
Test Parameters, @25 °C	1KHz±10%, 0.5±0.05Vrms, 0 Volt. bias



■ **Capacitance**

Size	0402	0603	0805	1206	1210	1812	2220	2225
25V(1E)	682-223	-	-	474-155	105-475	475-106	106-226	106-226
50V(1H)	222-153	-	-	104-105	474-155	225-335	475-106	475-106
100V(2A)	102-472	-	-	104-224	104-474	474-155	225-335	225-335
200V(2D)	681-152	222-682	103-333	223-683	683-154	104-474	334-105	684-105
250V(2E)	681-152	222-472	103-223	223-683	683-154	104-474	334-684	474-105

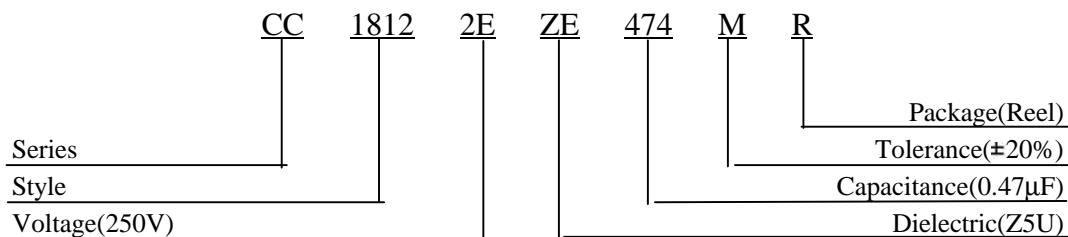
■ **Dimension**



	0402	0603	0805	1206	1210	1808	1812	2220	2225
L	1.00±0.05	1.60±0.10	2.00±0.20	3.20±0.20	3.20±0.40	4.50±0.50	4.50±0.50	5.60±0.50	5.60±0.50
W	0.50±0.05	0.80±0.10	1.25±0.20	1.60±0.20	2.50±0.30	2.00±0.30	3.20±0.40	5.00±0.50	6.30±0.50
T max.	0.60	0.90	1.45	1.60	1.90	2.10	2.50	2.50	2.50
B min.	0.15	0.20	0.20	0.20	0.25	0.25	0.25	0.25	0.25

Unit:mm

■ **How To Order**



STACKED CHIP

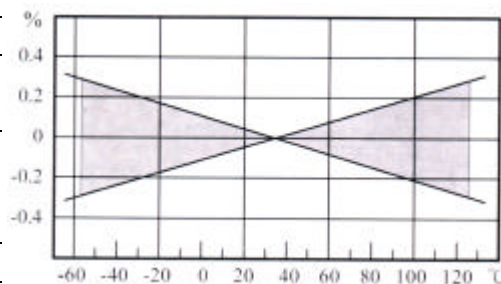
NPO SERIES

Feature

- With High Capacitance and High Voltage, Stacked Chip Capacitors are designed for use in high frequency switched mode power supply, DC-DC converters and similar application.
- Low ESR and ESL give the assemblies a high current capability up to 1 MHz

Specification

Operating Temperature Range	-55 °C to +125 °C
Temperature Coefficient	0±30ppm/°C ΔC max.
Dissipation Factor (tanδ), @25°C	0.001(0.1%) max.
Insulation Resistance (IR), @25 °C *whichever is smaller @ 125 °C	>100GΩ or >1000MΩ • μF >10GΩ or >100MΩ • μF
Dielectric Withstanding Voltage	50 to 200V, 2.5 x VDCW 201 to 500V, 1.5 x VDCW >500V, 1.2 x VDCW
Aging Rate	0% per decade hour
Test Parameters, @25 °C	1KHz±10%, 1.00±0.2Vrms, 0 Volt. bias 1MHz±20% for Capacitance <100pF



Capacitance

Size	1812				2220				2225			
Unit	2	3	4	5	2	3	4	5	2	3	4	5
50V(1H)	333-563	683-823	104-124	124-184	683-104	124-154	184-224	224-274	104-154	184-224	274-334	334-564
100V(2A)	223-393	473-563	683-823	823-154	473-823	104-124	124-154	154-184	683-124	154-184	184-224	224-474
200V(2D)	822-123	153-223	223-273	273-104	223-273	333-473	473-563	563-104	333-393	473-563	683-823	823-334
500V(2H)	822-123	153-183	223-273	333-393	183-273	333-473	473-563	563-683	223-393	473-563	683-823	823-104
1KV(3A)	392-472	562-822	822-103	103-123	822-123	153-183	183-223	223-273	123-153	183-223	273-333	333-393
2KV(3D)	102-122	152-222	272-332	332-392	272-332	392-472	562-682	682-822	332-392	472-562	682-822	822-103

Size	3640				5550				8060			
Unit	2	3	4	5	2	3	4	5	2	3	4	5
50V(1H)	274-394	474-564	684-824	824-125	474-824	105-125	125-155	155-185	105-155	185-225	225-275	275-335
100V(2A)	184-274	334-394	474-684	684-105	394-684	824-105	105-125	125-155	824-125	155-185	185-225	225-275
200V(2D)	823-124	154-184	224-274	274-564	154-274	334-394	474-564	564-824	334-474	564-684	824-105	105-125
500V(2H)	683-104	124-154	154-224	224-274	124-224	274-334	334-394	394-564	274-394	474-564	684-824	824-105
1KV(3A)	273-393	473-683	683-823	823-104	473-823	104-124	124-154	154-184	104-124	154-184	224-274	274-334
2KV(3D)	682-123	153-183	223-273	273-333	123-223	273-333	333-393	473-563	273-333	393-473	563-683	683-823
3KV(3F)	222-272	332-472	562-682	682-822	392-682	822-103	103-123	123-153	822-123	153-223	223-273	273-333
4KV(3G)	102-152	182-222	272-332	332-392	182-332	392-472	562-682	682-822	392-682	822-103	103-123	123-153
5KV(3H)	561-821	102-122	152-182	182-222	122-182	222-272	332-392	392-472	272-392	472-682	682-822	822-103

STACKED CHIP

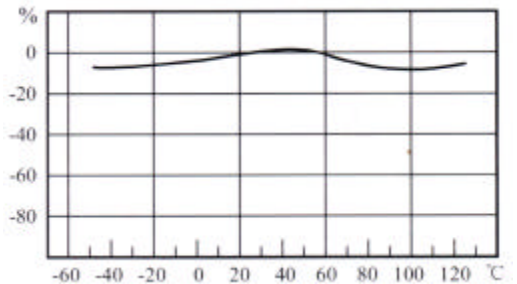
X7R SERIES

■ Feature

- With High Capacitance and High Voltage, Stacked Chip Capacitors are designed for use in high frequency switched mode power supply, DC-DC converters and similar application.
- Low ESR and ESL give the assemblies a high current capability up to 1 KHz

■ Specification

Operating Temperature Range	-55 °C to +125 °C
Temperature Coefficient	±15% ΔC max.
Dissipation Factor (tanδ), @25°C	0.025(2.5%) max.
Insulation Resistance (IR), @25 °C *whichever is smaller @125 °C	>10GΩ or >100MΩ • μF >1GΩ or >10MΩ • μF
Dielectric Withstanding Voltage	50 to 200V, 2.5 x VDCW 201 to 500V, 1.5 x VDCW >500V, 1.2 x VDCW
Aging Rate	~2.0% per decade hour
Test Parameters, @25 °C	1KHz±10%, 1.00±0.2Vrms, 0 Volt. bias



■ Capacitance

Size	1812				2220				2225			
Unit	2	3	4	5	2	3	4	5	2	3	4	5
50V(1H)	185-275	335-475	475-565	565-685	335-395	475-685	685-825	825-106	395-685	825-106	106-126	126-156
100V(2A)	824-125	155-185	225-275	335-395	125-185	225-275	335-395	395-475	185-275	335-475	475-565	685-106
200V(2D)	564-684	824-125	125-155	185-225	824-125	155-185	225-275	275-335	105-155	185-225	275-335	395-565
500V(2H)	184-224	274-334	394-474	564-684	334-474	564-824	824-105	105-125	474-684	824-125	125-155	185-225
1KV(3A)	333-473	473-563	683-823	823-104	683-104	104-124	154-184	184-224	104-124	124-154	184-224	224-274
2KV(3D)	562-822	103-123	153-183	183-223	153-223	273-333	393-473	473-563	183-273	333-393	473-563	563-683

Size	3640				5550				8060			
Unit	2	3	4	5	2	3	4	5	2	3	4	5
50V(1H)	825-126	156-186	226-276	276-336	156-226	276-336	396-476	476-566	276-476	566-686	686-826	826-107
100V(2A)	475-685	825-106	126-156	186-226	825-156	186-226	226-276	276-396	186-276	336-396	476-566	566-686
200V(2D)	225-395	475-565	685-825	106-186	475-825	106-126	126-156	156-226	106-156	186-226	276-336	336-396
500V(2H)	105-155	185-275	275-335	395-475	225-395	475-565	685-825	825-106	395-685	825-106	106-126	156-186
1KV(3A)	224-334	394-474	564-684	684-824	474-684	824-105	125-155	155-185	125-185	225-275	335-395	395-475
2KV(3D)	563-823	104-124	154-184	184-224	104-154	184-224	224-274	334-394	184-274	334-394	474-564	564-684
3KV(3F)	123-183	223-273	333-393	393-473	333-473	563-823	823-104	104-124	683-104	124-154	184-224	224-274
4KV(3G)					183-273	333-393	473-563	563-683	333-473	563-823	823-104	104-124
5KV(3H)					103-153	183-223	273-333	333-393	223-333	393-473	563-683	683-823

STACKED CHIP

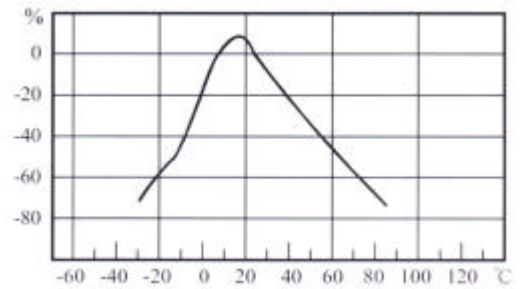
Y5V SERIES

Feature

- With High Capacitance and High Voltage, Stacked Chip Capacitors are designed for use in high frequency switched mode power supply, DC-DC converters and similar application.
- Low ESR and ESL give the assemblies a high current capability up to 1 KHz

Specification

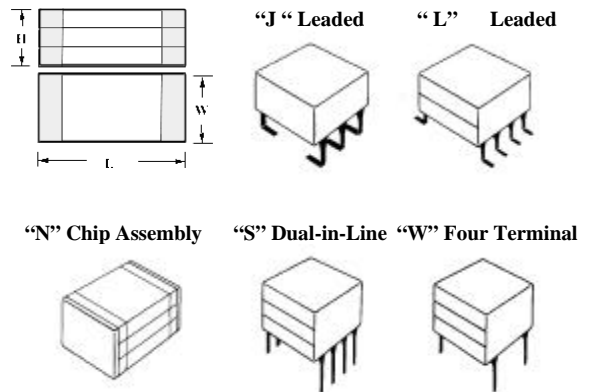
Operating Temperature Range	-30 °C to +85 °C
Temperature Coefficient	-82% to +22% ΔC max.
Dissipation Factor (tanδ), @25°C	0.07(7.0%) max.
Insulation Resistance (IR), @25 °C *whichever is smaller	>10GΩ or >100MΩ • μF
Dielectric Withstanding Voltage	2.0 x VDCW
Aging Rate	~7.0% per decade hour
Test Parameters, @25 °C	1KHz±10%, 0.5±0.05Vrms, 0 Volt. bias



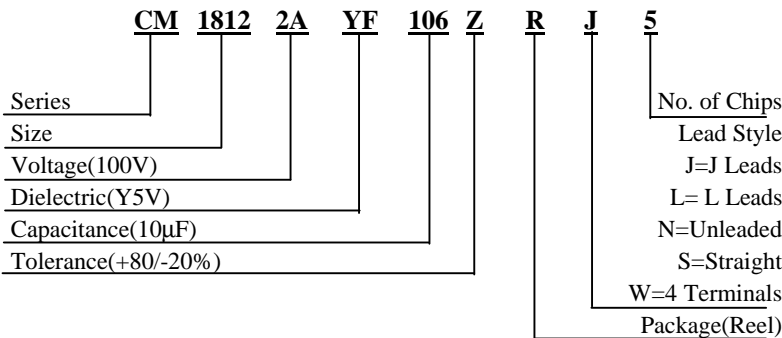
Capacitance

Size	1812				2225			
	2	3	4	5	2	3	4	5
50V(1H)	335-475	475-106	106-156	156-226	685-106	106-156	156-336	336-566
100V(2A)	105-155	225-335	335-475	475-106	225-335	335-475	475-106	106-226

Dimension



How To Order



Bare chip assemblies(mm nominal)

No. of Chip	1812			2225		
	L	W	H	L	W	H
2	5	3.5	5	6.2	6.6	5
3	5	3.5	7.5	6.2	6.6	7.5
4	5	3.5	10	6.2	6.6	10
5	5	3.5	12.5	6.2	6.6	12.5

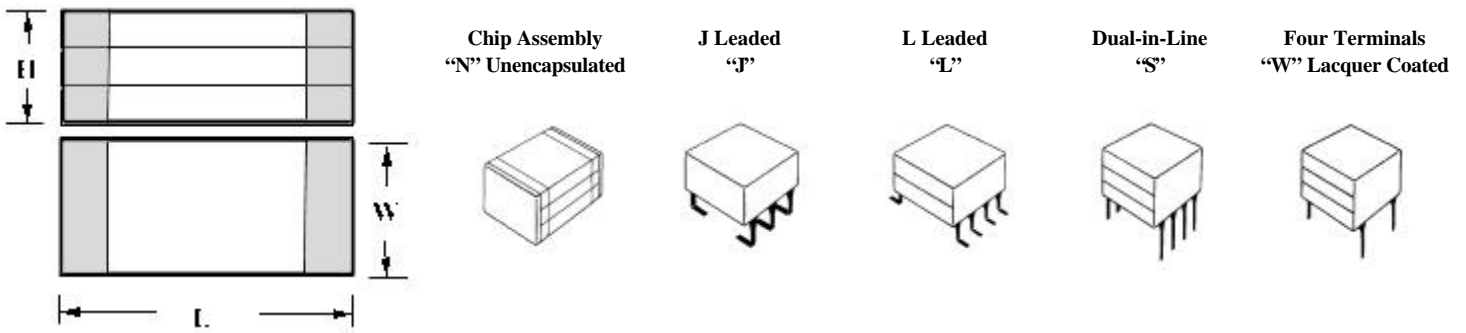
Chip sizes up to and including 2225 will be solder dipped, but the solder melting point required should be specified when ordering. The options available are: 1)180°C, 2)230°C

Leaded assemblies(mm maximum)

No. of	1812			2225		
	L	W	H	L	W	H
1	7.5	5.2	5.5	8.7	8.3	5.5
2	7.5	5.2	8	8.7	8.3	8
3	7.5	5.2	10.5	8.7	8.3	10.5
4	7.5	5.2	13	8.7	8.3	13
5	7.5	5.2	15.5	8.7	8.3	15.5

Chip sizes up to greater than 2225 will use Conductive Epoxy for electrical connection. Smaller chip sizes may be connected with Conductive Epoxy at customer's request.

■ Dimension



● Bare chip assemblies(mm nominal)

No. of Chips	1812			2220			2225			3640			5550			8060		
	L	W	H	L	W	H	L	W	H	L	W	H	L	W	H	L	W	H
2	5	3.5	5	6.2	5.3	5	6.2	6.6	5	9.2	10.2	5	14	12.7	5	20.4	15.3	5
3	5	3.5	7.5	6.2	5.3	7.5	6.2	6.6	7.5	9.2	10.2	7.5	14	12.7	7.5	20.4	15.3	7.5
4	5	3.5	10	6.2	5.3	10	6.2	6.6	10	9.2	10.2	10	14	12.7	10	20.4	15.3	10
5	5	3.5	12.5	6.2	5.3	12.5	6.2	6.6	12.5	9.2	10.2	12.5	14	12.7	12.5	20.4	15.3	12.5

Chip sizes up to and including 2225 will be solder dipped, but the solder melting point required should be specified when ordering. The options available are: 1)180°C, 2)230°C, 3)300°C

● Leaded assemblies(mm maximum)

No. of Chips	1812			2220			2225			3640			5550			8060		
	L	W	H	L	W	H	L	W	H	L	W	H	L	W	H	L	W	H
1	7.5	5.2	5.5	8.7	7	5.5	8.7	8.3	5.5	13.2	13.2	5.5	18	15.7	6	24.4	18.3	6.2
2	7.5	5.2	8	8.7	7	8	8.7	8.3	8	13.2	13.2	8	18	15.7	9	24.4	18.3	9.4
3	7.5	5.2	10.5	8.7	7	10.5	8.7	8.3	10.5	13.2	13.2	10.5	18	15.7	12	24.4	18.3	12.6
4	7.5	5.2	13	8.7	7	13	8.7	8.3	13	13.2	13.2	13	18	15.7	15	24.4	18.3	15.8
5	7.5	5.2	15.5	8.7	7	15.5	8.7	8.3	15.5	13.2	13.2	15.5	18	15.7	18	24.4	18.3	19

Chip sizes up to greater than 2225 will use Conductive Epoxy for electrical connection. Smaller chip sizes may be connected with Conductive Epoxy at customer's request.

■ How To Order

