

# SH / SG Soft Termination Capacitors

- MLCC's TER,OMATOPMS BUILT WITH A SOFT & FLEXIBLE POLYMER TO WITHSTAND HIGH BENDING STRESS IN SMT LINES



## GENERAL SPECIFICATION

	NPO	X7R
Capacitance Range	0.5pF~0.082μF	100pF ~ 22μF
Capacitance Tolerance	≤5pF - B, C ; ≤10pF - C, D ≥10pF - F, G, J, K	J, K, M
Temperature Characteristic	± 30ppm	± 15 %
Available Sizes	0603, 0805, 1206, 1210, 1808, 1812, 2220, 2225	
Operating Temperature	-55°C ~ +125°C	
Rated Voltage (WVDC)	10V, 16V, 25V, 50V, 100V, 200V, 250V, 500V, 630V, 1KV, 2KV, 3KV	
Termination	Ni/Sn (Lead-free Termination)	

### 0402 - SH / SG Series

	NPO	Case	X7R	Case
10V	0.5 ~ 1,000	E	100 ~ 0.10μF	E
16V	0.5 ~ 1,000	E	100 ~ 0.10μF	E
25V	0.5 ~ 1,000	E	100 ~ 47,000	E
50V	0.5 ~ 1,000	E	100 ~ 10,000	E
100V	0.5 ~ 220	E	100 ~ 4,700	E

### 0805 - SH / SG Series

	NPO	Case	X7R	Case
10V	0.5 ~ 330	A	100 ~ 0.22μF	D
	390 ~ 2,200	B	0.27μf ~ 1.5μF	I
	2,700 ~ 10,000	D	-----	-
16V	0.5 ~ 330	A	100 ~ 0.22μF	D
	390 ~ 2,200	B	0.27μf ~ 1.5μF	I
	2,700 ~ 10,000	D	-----	-
25V	0.5 ~ 330	A	100 ~ 0.22μF	D
	390 ~ 2,200	B	0.27μf ~ 1.5μF	I
	2,700 ~ 10,000	D	-----	-
50V	0.5 ~ 330	A	100 ~ 0.22μF	B
	390 ~ 2,200	B	0.27μf ~ 0.47μF	I
	2,700 ~ 10,000	D	-----	-
100V	0.5 ~ 330	A	100 ~ 0.1μF	D
	390 ~ 2,200	B		
	2,700 ~ 6,800	D		
200V	0.5 ~ 120	A	100 ~ 82,000	D
	150 ~ 180	B		
	220 ~ 2,200	D		
250V	0.5 ~ 82	A	100 ~ 0.68μF	D
	100 ~ 120	B		
	150 ~ 2,200	D		
500V	0.5 ~ 68	A	100 ~ 22,000	D
	82 ~ 100	B		
	120 ~ 390	D		
	470 ~ 1,000	I		
630V	0.5 ~ 68	A	100 ~ 22,000	D
	82 ~ 100	B		
	120 ~ 390	D		
	470 ~ 1,000	I		
1000V	0.5 ~ 390	D	100 ~ 8,200	D

### 0603 - SH / SG Series

	NPO	Case	X7R	Case
10V	0.5 ~ 1,000	S	100 ~ 0.22μF	S
	1,200 ~ 3,300	X	0.27uF ~ 1.0μF	X
16V	0.5 ~ 1,000	S	100 ~ 0.22μF	S
	1,200 ~ 3,300	X	0.27uF ~ 1.0μF	X
25V	0.5 ~ 1,000	S	100 ~ 0.10μF	S
	1,200 ~ 3,300	X	0.27uF ~ 0.47μF	X
50V	0.5 ~ 1,000	S	100 ~ 0.1μF	S
	1,200 ~ 3,300	X	33,000 ~ 0.1μF	X
100V	0.5 ~ 1,000	S	100 ~ 10,000	S
		X	12,000 ~ 82,000	X
200V	0.5 ~ 220	S	100 ~ 10,000	X
	270 ~ 470	X		
250V	0.5 ~ 220	S	100 ~ 10,000	X
	270 ~ 470	X		

All vales in pF unless noted otherwise.

SH Series = with Ag polymer  
SG Series = with Cu polymer

## 1206 - SH / SG Series

	NPO	Case	X7R	Case
10V	1.5 ~ 5,600	B	150 ~ 0.12 $\mu$ F	D
	6,800 ~ 10,000	D	0.15 $\mu$ F ~ 0.33 $\mu$ F	C
	12,000 ~ 39,000	P	0.39 $\mu$ F ~ 2.2 $\mu$ F	J
	-----	-	3.3 $\mu$ F ~ 4.7 $\mu$ F	P
16V	1.5 ~ 5,600	B	150 ~ 0.12 $\mu$ F	D
	6,800 ~ 10,000	D	0.15 $\mu$ F ~ 0.33 $\mu$ F	C
	12,000 ~ 39,000	P	0.39 $\mu$ F ~ 2.2 $\mu$ F	J
	-----	-	3.3 $\mu$ F ~ 4.7 $\mu$ F	P
25V	1.5 ~ 5,600	B	150 ~ 0.12 $\mu$ F	D
	6,800 ~ 10,000	D	0.15 $\mu$ F ~ 0.33 $\mu$ F	C
	12,000 ~ 39,000	P	0.39 $\mu$ F ~ 1.0 $\mu$ F	J
	-----	-	1.5 $\mu$ F ~ 4.7 $\mu$ F	P
50V	1.5 ~ 5,600	B	150 ~ 0.12 $\mu$ F	D
	6,800 ~ 10,000	D	0.15 $\mu$ F ~ 0.22 $\mu$ F	C
	12,000 ~ 39,000	P	0.27 $\mu$ F ~ 0.33 $\mu$ F	D
	-----	-	0.39 $\mu$ F ~ 1.0 $\mu$ F	P
100V	1.5 ~ 5,600	B	150 ~ 0.12 $\mu$ F	D
	68,000 ~ 10,000	D	0.15 $\mu$ F ~ 0.47 $\mu$ F	G
	12,000 ~ 22,000	P	0.56 $\mu$ F ~ 0.82 $\mu$ F	P
200V	1.5 ~ 390	B	150 ~ 27,000	D
	470 ~ 1,200	C	33,000 ~ 0.1 $\mu$ F	G
	1,500 ~ 4,700	D	-----	-
250V	1.5 ~ 220	B	150 ~ 27,000	D
	270 ~ 470	C		
	560 ~ 680	D	33,000 ~ 0.1 $\mu$ F	G
	820 ~ 4,700	G		
	-----	-		
500V	1.5 ~ 220	B	150 ~ 18,000	D
	270 ~ 470	C	22,000 ~ 56,000	G
	560 ~ 680	D		
	820 ~ 2,200	G		
-----	-			
630V	1.5 ~ 220	B	150 ~ 18,000	D
	270 ~ 470	C	22,000 ~ 56,000	G
	560 ~ 680	D		
	820 ~ 2,200	G		
-----	-			
1000v	1.5 ~ 39	B	150 ~ 10,000	D
	47 ~ 68	C	12,000 ~ 15,000	G
	82 ~ 150	D		
	180 ~ 1,000	G		
-----	-			
1500V	1.5 ~ 27	B	150 ~ 680	D
	33 ~ 47	C	820 ~ 6,800	G
	68 ~ 100	D		
	120 ~ 220	G		
270 ~ 390	P			
2000V	1.5 ~ 27	B	150 ~ 680	D
	33 ~ 47	C	820 ~ 3,300	G
	68 ~ 100	D		
	120 ~ 220	G		
	270 ~ 390	P		
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## 1210 - SH / SG Series

	NPO	Case	X7R	Case
10V	10 ~ 10,000	C	1,000 ~ 0.47 $\mu$ F	C
			0.56 $\mu$ F ~ 1.0 $\mu$ F	D
	12,000 ~ 15,000	D	1.5 $\mu$ F ~ 3.3 $\mu$ F	G
			4,700	K
16V	10 ~ 10,000	C	1,000 ~ 0.47 $\mu$ F	C
			0.56 $\mu$ F ~ 1.0 $\mu$ F	D
	12,000 ~ 15,000	D	1.5 $\mu$ F ~ 3.3 $\mu$ F	G
			4,700	K
25V	10 ~ 10,000	C	1,000 ~ 0.47 $\mu$ F	C
			0.56 $\mu$ F ~ 1.0 $\mu$ F	D
	12,000 ~ 15,000	D	1.5 $\mu$ F ~ 3.3 $\mu$ F	G
			4,700	K
50V	10 ~ 10,000	C	1,000 ~ 0.47 $\mu$ F	C
	12,000 ~ 15,000	D	0.56 $\mu$ F ~ 1.0 $\mu$ F	D
	-----	-	1.5 $\mu$ F	M
100V	10 ~ 10,000	C	1,000 ~ 0.12 $\mu$ F	C
			0.15 $\mu$ F ~ 0.22 $\mu$ F	D
			0.27 $\mu$ F ~ 0.33 $\mu$ F	G
	12,000 ~ 15,000	D	0.39 $\mu$ F ~ 0.56 $\mu$ F	M
			0.68 $\mu$ F ~ 1.0 $\mu$ F	K
1.5 $\mu$ F	M			
200V	10 ~ 820	C	1,000 ~ 39,000	C
	1,000 ~ 3,900	D	47,000 ~ 56,000	D
	4,700 ~ 10,000	G	68,000 ~ 0.12 $\mu$ F	G
	12,000	K	0.15 $\mu$ F ~ 0.68 $\mu$ F	M
	15,000 ~ 33,000	M	-----	-
	-----	-	-----	-
250V	10 ~ 820	C	1,000 ~ 39,000	C
	1,000 ~ 3,900	D	47,000 ~ 56,000	D
	4,700 ~ 10,000	G	68,000 ~ 0.12 $\mu$ F	G
	12,000	K	0.15 $\mu$ F ~ 0.68 $\mu$ F	M
	15,000 ~ 33,000	M	-----	-
500V	10 ~ 820	C	1,000 ~ 22,000	D
			27,000 ~ 56,000	G
	1,000 ~ 3,900	D	68,000 ~ 0.1 $\mu$ F	K
			0.12 $\mu$ F ~ 0.15 $\mu$ F	M
630V	10 ~ 820	C	1,000 ~ 22,000	D
			27,000 ~ 56,000	G
	1,000 ~ 3,900	D	68,000 ~ 0.1 $\mu$ F	K
0.12 $\mu$ F ~ 0.15 $\mu$ F	M			
1000v	10 ~ 82	C	1,000 ~ 3,300	D
	100 ~ 180	D	3,900 ~ 33,000	G
	220 ~ 1,000	G	39,000	K
	-----	-	47,000 ~ 68,000	M
1500V	10 ~ 47	C	1,000 ~ 8,200	M
	56 ~ 120	D		
	150 ~ 220	G		
	270 ~ 220	K		
	390 ~ 470	M		
2000V	10 ~ 47	C	1,000 ~ 8,200	M
	56 ~ 120	D		
	150 ~ 220	G		
	270 ~ 220	K		
390 ~ 470	M			

## 1808 - SH / SG Series

	NPO	Case	X7R	Case
500V	2.2 ~ 220	D	150 ~ 39,000	D
	270 ~ 2,200	K	5,600 ~ 82,00	K
630V	2.2 ~ 220	D	150 ~ 39,000	D
	270 ~ 2,200	K	5,600 ~ 82,00	K
1000v	2.2 ~ 220	D	150 ~ 39,000	D
	270 ~ 1,000	K	5,600 ~ 56,00	K
1500V	2.2 ~ 120	D	150 ~ 820	D
	150 ~ 680	K	1,000 ~ 6,800	K
2000V	2.2 ~ 120	D	150 ~ 820	D
	150 ~ 680	K	1,000 ~ 6,800	K
2500V	-----	-	150 ~ 270	D
			330 ~ 1,800	K
3000V	2.2 ~ 82	D	150 ~ 270	D
	100 ~ 330	K	330 ~ 1,800	K

## 1812 - SH / SG Series

	NPO	Case	X7R	Case
10V	10 ~ 33,000	D	1,000 ~ 1.0 $\mu$ F	D
16V	10 ~ 33,000	D	1,000 ~ 1.0 $\mu$ F	D
25V	10 ~ 33,000	D	1,000 ~ 1.0 $\mu$ F	D
50V	10 ~ 33,000	D	1,000 ~ 0.56 $\mu$ F	D
			0.68 $\mu$ F ~ 1.0 $\mu$ F	K
			2.2 $\mu$ F	M
100V	10 ~ 33,000	D	1,000 ~ 0.56 $\mu$ F	D
			0.68 $\mu$ F ~ 1.5uF	K
			2.2 $\mu$ F	M
200V	10 ~ 6,800	D	1,000 ~ 0.12 $\mu$ F	D
			0.15uF ~ 0.46 $\mu$ F	K
			0.56uF ~ 1.0 $\mu$ F	M
250V	10 ~ 6,800	D	1,000 ~ 0.12 $\mu$ F	D
			0.15uF ~ 0.46 $\mu$ F	K
			0.56uF ~ 1.0 $\mu$ F	M
500V	10 ~ 3,300	D	1,000 ~ 47,000	D
			56,000 ~ 0.1 $\mu$ F	K
			0.12 $\mu$ F ~ 0.47 $\mu$ F	M
630V	10 ~ 3,300	D	1,000 ~ 47,000	D
			56,000 ~ 0.1 $\mu$ F	K
			0.12 $\mu$ F ~ 0.47 $\mu$ F	M
1000v	10 ~ 390	D	270 ~ 10,000	D
	470 ~ 1,500	K	12,000 ~ 15,000	K
	-----		18,000 ~ 0.1 $\mu$ F	M
1500V	10 ~ 220	D	270 ~ 2,700	D
	270 ~ 1,000	K	3,300 ~ 4,700	K
	-----		5,600 ~ 10,000	M
2000V	10 ~ 220	D	270 ~ 2,700	D
	270 ~ 1,000	K	3,300 ~ 4,700	K
	-----		5,600 ~ 10,000	M
3000v	10 ~ 150	D	270 ~ 1,500	K
	180 ~ 470	K	1,800 ~ 3,300	M

## 1825 - SH Series

	NPO	Case	X7R	Case
200V	10 ~ 33,000	G	-----	-
	39,000 ~ 47,000	K		
	56,000 ~ 0.1 $\mu$ F	M		
250V	10 ~ 33,000	G	1,000 ~ 1.0 $\mu$ F	K
	39,000 ~ 47,000	K	1.5 $\mu$ F ~ 2.2 $\mu$ F	M
	56,000 ~ 0.1 $\mu$ F	M	-----	-
500V	10 ~ 22,000	G	1,000 ~ 0.47 $\mu$ F	K
	27,000 ~ 33,000	K	0.56 $\mu$ F ~ 0.68 $\mu$ F	M
	39,000 ~ 68,000	M	0.82 $\mu$ F	U
630V	10 ~ 22,000	G	1,000 ~ 0.47 $\mu$ F	K
	27,000 ~ 33,000	K	0.56 $\mu$ F ~ 0.68 $\mu$ F	M
	39,000 ~ 68,000	M	0.82 $\mu$ F	U
1000V	10 ~ 3,300	K	1,000 ~ 68,000	K
	3,900 ~ 12,000	M	82,000 ~ 0.1 $\mu$ F	M
	-----	-	0.12 $\mu$ F ~ 0.33 $\mu$ F	U
2000V	10 ~ 1,200	K	1,000 ~ 10,000	K
	1,500 ~ 8,200	M	12,000 ~ 22,000	M
3000V	-----	-	27,000 ~ 56,000	U
	10 ~ 560	K	1,000 ~ 4,700	K
	680 ~ 2,700	M	5,600 ~ 10,000	M
	-----	-	12,000 ~ 18,000	U

## 2225 - SH Series

	NPO	Case	X7R	Case
200V	10 ~ 33,000	G	-----	-
	39,000 ~ 47,000	K		
	56,000 ~ 0.12uF	M		
250V	10 ~ 33,000	G	-----	-
	39,000 ~ 47,000	K		
	56,000 ~ 0.12 $\mu$ F	M		
500V	10 ~ 33,000	G	1,000 ~ 0.68 $\mu$ F	K
	39,000 ~ 47,000	K	0.82 $\mu$ F ~ 1.0 $\mu$ F	M
	56,000 ~ 82,000	M	1.5 $\mu$ F	U
630V	10 ~ 33,000	G	1,000 ~ 0.68 $\mu$ F	K
	39,000 ~ 47,000	K	0.82 $\mu$ F ~ 1.0 $\mu$ F	M
	56,000 ~ 82,000	M	1.5 $\mu$ F	U
1000V	10 ~ 4,700	K	1,000 ~ 82,000	K
	5,600 ~ 12,000	M	0.1 $\mu$ F	M
	-----	-	0.12 $\mu$ F ~ 0.39 $\mu$ F	U
1500V	-----	-	1,000 ~ 10,000	K
			12,000 ~ 33,000	M
			39,000 ~ 56,000	U
2000V	10 ~ 680	K	1,000 ~ 10,000	K
	820 ~ 10,000	M	12,000 ~ 33,000	M
	-----	-	39,000 ~ 56,000	U
3000V	10 ~ 680	K	1,000 ~ 4,700	K
	820 ~ 3,300	M	5,600 ~ 15,000	M
	-----	-	18,000	U

2220 - SH Series

	NPO	Case	X7R	Case
25V	-----	-	1,000 ~ 4.7μF	K
			6.8μF	M
			10μF	U
50V	-----	-	1,000 ~ 4.7μF	K
			6.8μF	M
			10μF	U
100V	-----	-	1,000 ~ 3.3μF	K
			4.7μF	M
			6.8μF ~ 10μF	U
200V	10 ~ 27,000	D	-----	-
	33,000 ~ 39,000	K		
	47,000 ~ 0.1μF	M		
250V	10 ~ 27,000	D	1,000 ~ 1.0μF	K
	33,000 ~ 39,000	K	1.5μF ~ 2.2μF	M
	47,000 ~ 0.1μF	M	-----	-
500V	10 ~ 22,000	G	1,000 ~ 0.47μF	K
	27,000 ~ 33,000	K	0.56μF ~ 0.68μF	M
	39,000 ~ 56,000	M	0.82μF ~ 1.0μF	U
630V	10 ~ 22,000	G	1,000 ~ 0.47μF	K
	27,000 ~ 33,000	K	0.56μF ~ 0.68μF	M
	39,000 ~ 56,000	M	0.82μF ~ 1.0μF	U
1000V	10 ~ 1,000	K	1,000 ~ 0.47μF	K
	1,200 ~ 12,000	M	0.56μF ~ 0.68μF	M
	-----		0.82μF ~ 1.0μF	U
1500V			1,000 ~ 56,000	K
			68,000 ~ 0.12μF	M
			0.15μF ~ 0.39μF	U
2000V	10 ~ 1,000	K	1,000 ~ 6,800	K
	1,200 ~ 8,200	M	8,200 ~ 15,000	M
	-----		18,000 ~ 56,000	U
3000V	10 ~ 270	K	1,000 ~ 6,800	K
	330 ~ 2,700	M	8,200 ~ 10,000	M
	-----	-	12,000 ~ 18,000	U

PACKAGING - T&R

Case Code	Thickness	Qty / Reel
A	0.60 ±0.10	4,000
B	0.80 ±0.10	4,000
C	0.95 ±0.10	3,000
D	1.25 ±0.10	3,000 (1808=2000)
E	0.50 ±0.20	1,000
G	1.60 ±0.20	2,000 (1825=1000)
I	1.25 ±0.30	3,000
K	2.00 ±0.20	1,000
M	2.50 ±0.50	1,000 (2220=500)
P	1.60 ±0.50	2,000
S	0.80 ±0.07	4,000
U	2.80 ±0.30	500
X	0.80 ±0.15	4,000

SH Series = with Ag polymer  
SG Series = with Cu polymer

PART NUMBER

**SH 1808 N 101 J 202 C T**

Series	Size Code	Material	Value	Tolerance	Voltage	Termination	Packaging
SH	0402	N = NPO	3R9 = 3.9pF	B = ±0.1pF	100 = 10V	C = Cu/Ni/Sn	T = T&R
SG	0603	(COG)	100 = 10pF	C = ±0.25pF	160 = 16V		7" reel
	0805	B = X7R	101 = 100pF	D = ±0.5pF	500 = 50V		
	1206		562 = 5,600pF	F = 1%	101 = 100V		
	1210		333 = 0.033μF	G = 2%	501 = 500V		
	1808		104 = 0.1μF	J = 5%	631 = 630V		
	1812		105 = 1.0uF	K = 10%	102 = 1000V		
	1825			M = 20%	152 = 1500V		
	2220				202 = 2000V		
	2225				302 = 3000V		