

# Super-HiQ Series, Ultra Low ESR, NP0

## RF Capacitors, RoHS & REACH Compliant

### DESCRIPTION

Lowest ESR in class  
 Highest working voltage in class – 1'500V  
 Standard EIA sizes  
 Laser Marked (optional)  
 High Self Resonance Frequencies



### APPLICATIONS

- Cellular Base Station Equipment
- Broadband Wireless Service
- Point to Point/Multipoint Radios
- RF Generators (NMR...)

### CIRCUIT APPLICATIONS

- Filter Networks
- Matching Networks
- Tuning, Coupling and DC Blocking

## I. ELECTRICAL SPECIFICATIONS

Parameter	Value
Capacitance	0.2 to 1'000 pF
Tolerances	A, B, C, D below 10 pF F, G, J, K above 10 pF
Working Voltage (WVDC)	see Capacitance Value chart
Temperature Coefficient	0 +/-30ppm/°C, -55°C to +125°C
Insulation Resistance	10 <sup>5</sup> MΩ min
Dielectric Withstanding (test voltage applied for 5 seconds)	2.5 x WVDC for WVDC ≤ 500V 1.5 x WVDC for 500V < WVDC
Aging	none
Piezo Effects	none

## II. MECHANICAL SPECIFICATIONS

Parameter	Value	Comment
Case Size	L	0402
	A	0505
	S	0603
	F	0805
	N	1206
	T	1210
	B	1111

For each case size, the recommended terminations are listed below.

NB:

- all the terminations are backward compatible and lead-free.
- the non-magnetic terminations are all Magnetism-free Rated.

**MR** certified®

**ITAR** Free®

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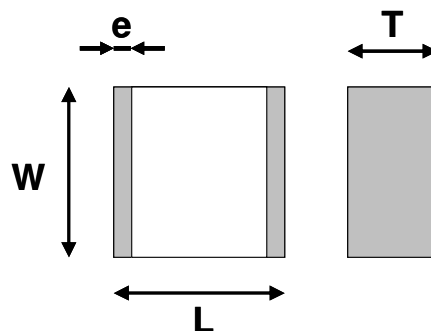
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Termination Type	Code	SHL	SHS	SHA-SHF SHN-SHT	SHB
Standard (tin-plated nickel)	S	AVAILABLE	AVAILABLE	AVAILABLE	AVAILABLE
Non-magnetic (silver-palladium)	A			AVAILABLE <sup>(3)</sup>	
Non-magnetic (tin-plated copper)	C		AVAILABLE <sup>(1)</sup>		AVAILABLE <sup>(2)</sup>

(1): limited range up to 39pF for SHS with copper terminations. For higher capacitance values, please consult factory.  
 (2): range up to 470pF only for SHB. For higher capacitance values, please consult factory.  
 (3): limited range between 0.5pF and 150pF for SHF with silver-palladium terminations. For higher capacitance values, please consult factory.

### III. OUTLINE DIMENSIONS

Parameter	L (0402)	A (0505)	S (0603)	F (0805)	N (1206)	T (1210)	B (1111)
Length (L)	1.00 ±0.15mm	1.40 ±0.25mm	1.60 ±0.25mm	2.03 ±0.25mm	3.18 ±0.25mm	3.18 ±0.25mm	2.80 ±0.40mm
Width (W)	0.50 ±0.15mm	1.40 ±0.25mm	0.80 ±0.25mm	1.27 ±0.25mm	1.58 ±0.25mm	2.41 ±0.25mm	2.80 ±0.40mm
Thickness (T)	0.50 mm (max.)	1.40 mm (max.)	0.90 mm (max.)	1.27 mm (max.)	1.27 mm (max.)	1.52 mm (max.)	2.60 mm (max.)
End-Band (e)	0.25 ±0.15mm	0.25 ±0.15mm	0.35 ±0.20mm	0.50 ±0.30mm	0.50 ±0.25mm	0.50 ±0.25mm	0.40 ±0.25mm



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### IV. ENVIRONMENTAL SPECIFICATIONS

Parameter	Value
Life Test	1'000 hours, +125 °C at 2.0 x WVDC
Moisture Resistance Test 1	240 hours, 85% relative humidity at +85 °C (ESA/SCC n°3009)
Moisture Resistance Test 2	56 days, 93% relative humidity at +40 °C 0V, 5V, WVDC

### V. HOW TO ORDER

501	SH	B	100	J	S		L	E	ROHS
voltage	dielectric	case size	capacitance	tolerance code	termination code	mechanical code	marking code	tape and reel	
please refer to Volt.Code given in Capacitance Values chart		L A S F N T B	please refer to Cap. Code given in Capacitance Values chart	A=±0.05pF B=±0.1pF C=±0.25pF D=±0.5pF F=±1% G=±2% J=±5% K=±10%	please refer to Mechanical Specification chart	please refer to Mechanical Configuration chart	"L" means laser marking required  leave blank if no marking requested	"E" means tape and reel required  leave blank if no tape and reel requested	the RoHS tag is not part of the reference  tag added at the end of P/N for information
250=25V 500=50V 101=100V 151=150V 201=200V 251=250V 301=301V 501=500V 601=600V 102=1000V 152=1500V									

NB:

- for capacitance values lower than 10pF, tolerances B, C and D apply. For capacitance values equal to or higher than 10pF, tolerances F, G, J and K apply. Also, the A tolerance is only available up to 2pF inclusive (please consult us for specific requirements).
- marking is only available on A and B case sizes.

### VI. TAPE AND REEL

The following chart gives the number of components per reel.

	SHL	SHA	SHS	SHF	SHN	SHT	SHB
Parts per Reel	10'000	3'000	4'000	4'000	3'000	3'000	1'000

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### VII. CAPACITANCE VALUES

Value (pF)	Cap. Code	L (0402)	S (0603)	F (0805)	N (1206)	T (1210)
0.2	0R2	50V	250V	250V	500V	500V
0.3	0R3					
0.4	0R4					
0.5	0R5					
0.6	0R6					
0.7	0R7					
0.8	0R8					
0.9	0R9					
1.0	1R0					
1.1	1R1					
1.2	1R2					
1.3	1R3					
1.4	1R4					
1.5	1R5					
1.6	1R6					
1.7	1R7					
1.8	1R8					
1.9	1R9					
2.0	2R0					
2.1	2R1					
2.2	2R2					
2.4	2R4					
2.7	2R7					
3.0	3R0					
3.3	3R3					
3.6	3R6					
3.9	3R9					
4.3	4R3					
4.7	4R7					
5.1	5R1					
5.6	5R6					
6.2	6R2					
6.8	6R8					
7.5	7R5					
8.2	8R2					
9.1	9R1					
10	100					
11	110					
12	120					
15	150					
16	160					
18	180					
20	200					
22	220					
24	240					
27	270					
30	300					
33	330					
36	360					
39	390					
43	430					
47	470					
51	510					
56	560					
62	620					
68	680					
75	750					
82	820					
91	910					
100	101					
110	111					
120	121					
130	131					
150	151					
160	161					
180	181					
200	201					
220	221					
240	241					
270	271					
300	301					
330	331					
360	361					
390	391					
430	431					
470	471					
510	511					
560	561					
620	621					
680	681					
750	751					
820	821					
910	911					
1 000	102					

NB: special values, tolerances, higher WVDC and matching available, please consult factory.

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Value (pF)	Cap. Code	A (0505)	B (1111)	
			Standard	Extended
0.2	0R2	250V	500V	1500V
0.3	0R3			
0.4	0R4			
0.5	0R5			
0.6	0R6			
0.7	0R7			
0.8	0R8			
0.9	0R9			
1.0	1R0			
1.1	1R1			
1.2	1R2			
1.3	1R3			
1.4	1R4			
1.5	1R5			
1.6	1R6			
1.7	1R7			
1.8	1R8			
1.9	1R9			
2.0	2R0			
2.1	2R1			
2.2	2R2			
2.4	2R4			
2.7	2R7			
3.0	3R0			
3.3	3R3			
3.6	3R6			
3.9	3R9			
4.3	4R3			
4.7	4R7			
5.1	5R1			
5.6	5R6			
6.2	6R2			
6.8	6R8			
7.5	7R5			
8.2	8R2			
9.1	9R1			
10	100			
11	110			
12	120			
15	150			
16	160			
18	180			
20	200			
22	220			
24	240			
27	270			
30	300			
33	330			
36	360			
39	390			
43	430			
47	470			
51	510			
56	560			
62	620			
68	680			
75	750			
82	820			
91	910			
100	101			
110	111			
120	121			
130	131			
150	151			
160	161			
180	181			
200	201			
220	221			
240	241			
270	271			
300	301			
330	331			
360	361			
390	391			
430	431			
470	471			
510	511			
560	561			
680	681			
750	751			
850	851			
920	921			
1 000	102			

NB: special values, tolerances, higher WVDC and matching available, please consult factory.

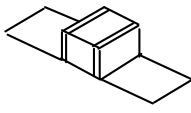
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### VIII. MECHANICAL CONFIGURATIONS

#### VIII.1. Lead/Ribbon and Wire Types

Termination Type	Code	Description
	1	Micro-strip Ribbon

NB: when coding ribbons or wires, for the designation of the part, the termination has to be mentioned for MR<sub>certified</sub> types to make sure only non-magnetic materials are used.

Examples :    501 SHB 470 J1L                    any termination material could be used  
                   501 SHB 470 JC1L                only non-magnetic termination materials could be used

#### VIII.2. Lead/Ribbon and Wire Matrix

Termination Type	Code	SHL/SHA/SHS SHF/SHN/SHT	SHB
Micro-strip Ribbon	1		AVAILABLE

#### VIII.3. Lead/Ribbon and Wire Dimensions

Within each cell, first the length and then the width/diameter of any single ribbon or wire are given.

Termination Type	Code	SHL/SHA/SHS SHF/SHN/SHT	SHB
Micro-strip Ribbon	1		8.00 2.40

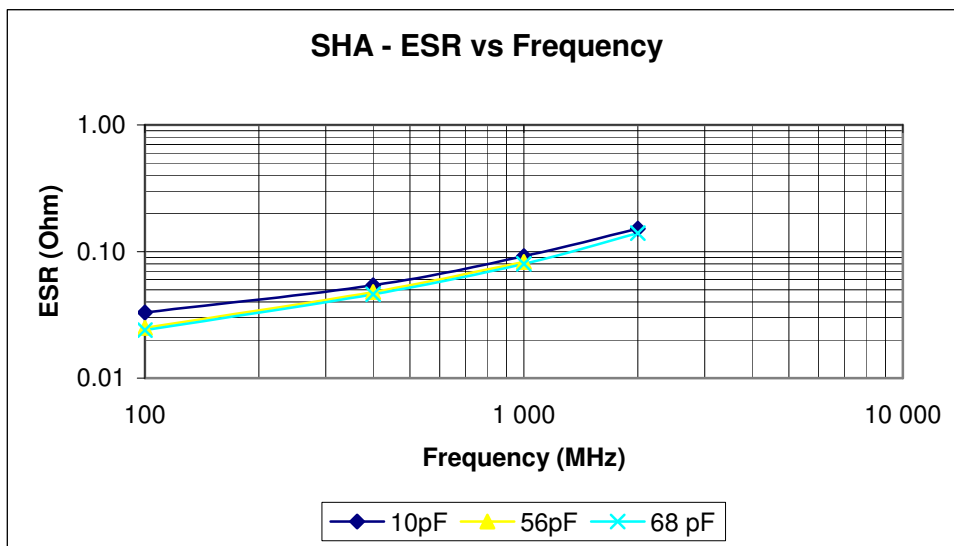
NB: dimensions are in mm, length is the minimum value.

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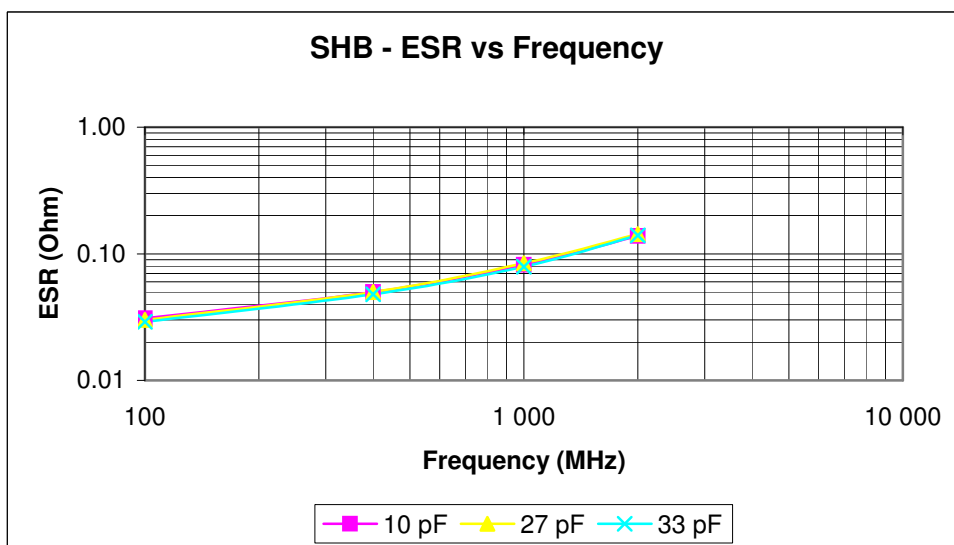
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### IX. TYPICAL PERFORMANCE DATA

#### IX.1. CAPACITANCE IN A SIZE (0505): SUPER-HIQ SERIES



#### IX.2. CAPACITANCE IN B SIZE (1111): SUPER-HIQ SERIES

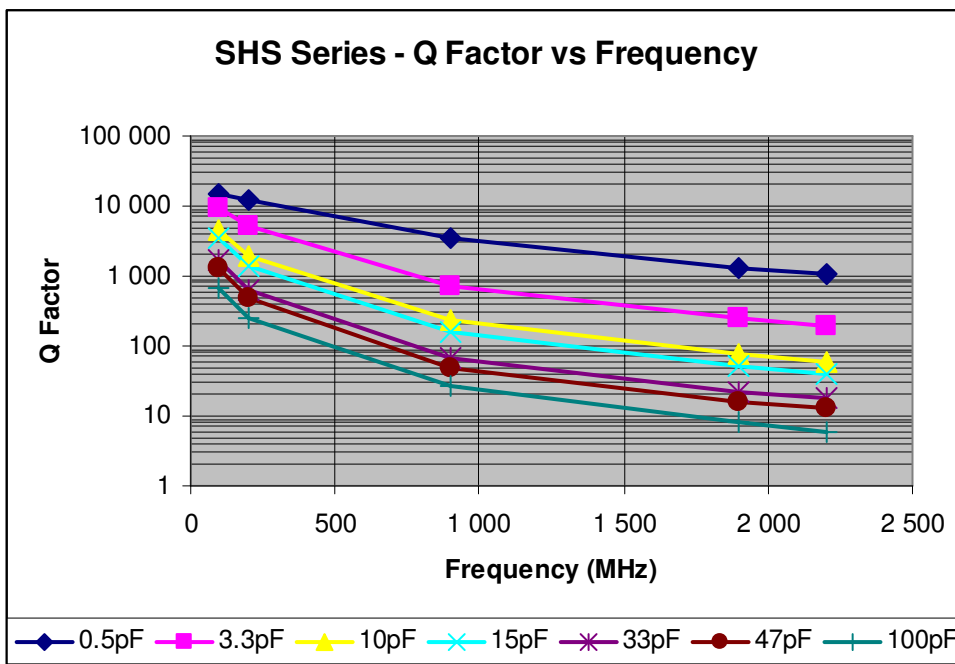
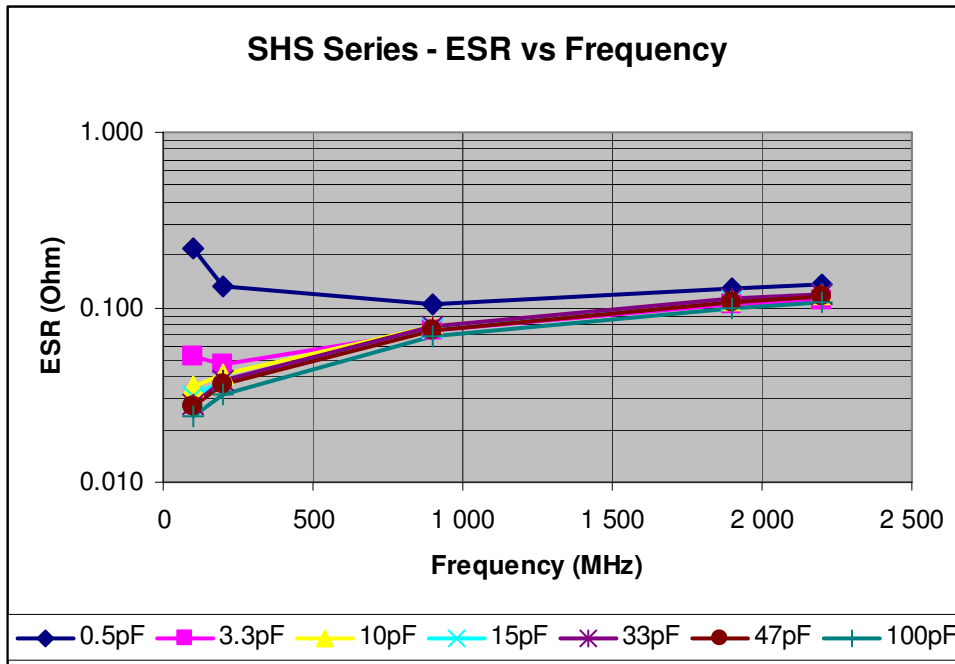


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### IX.3. CAPACITANCE IN S SIZE (0603): SUPER-HIQ SERIES



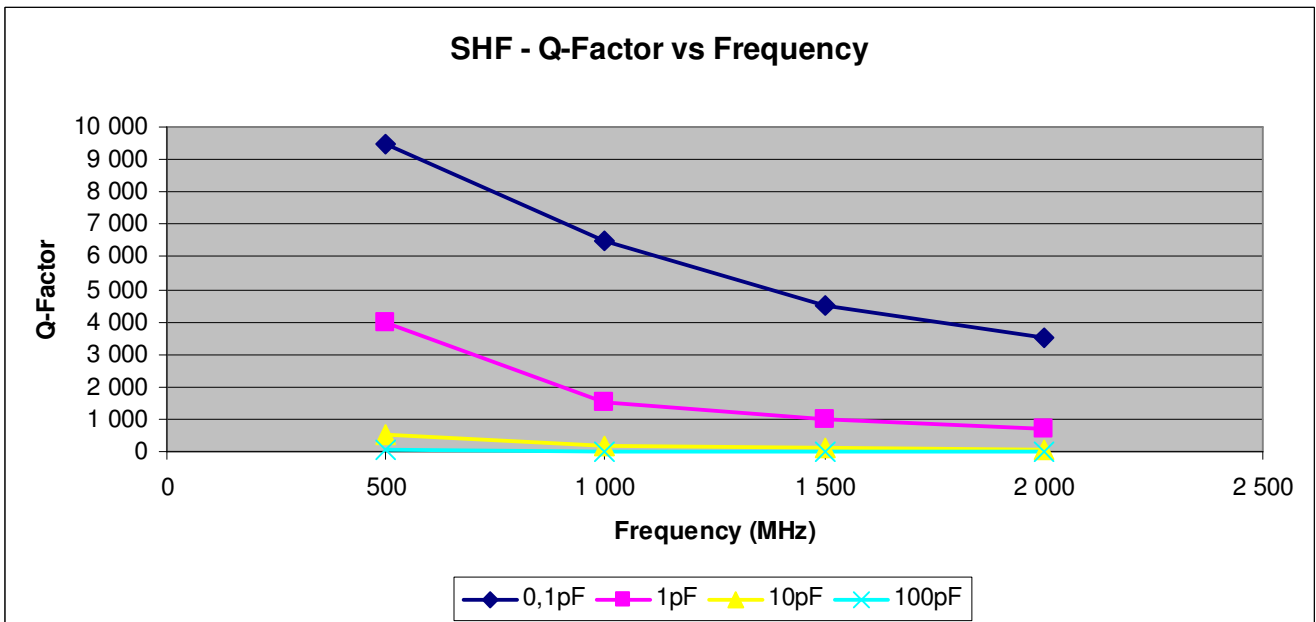
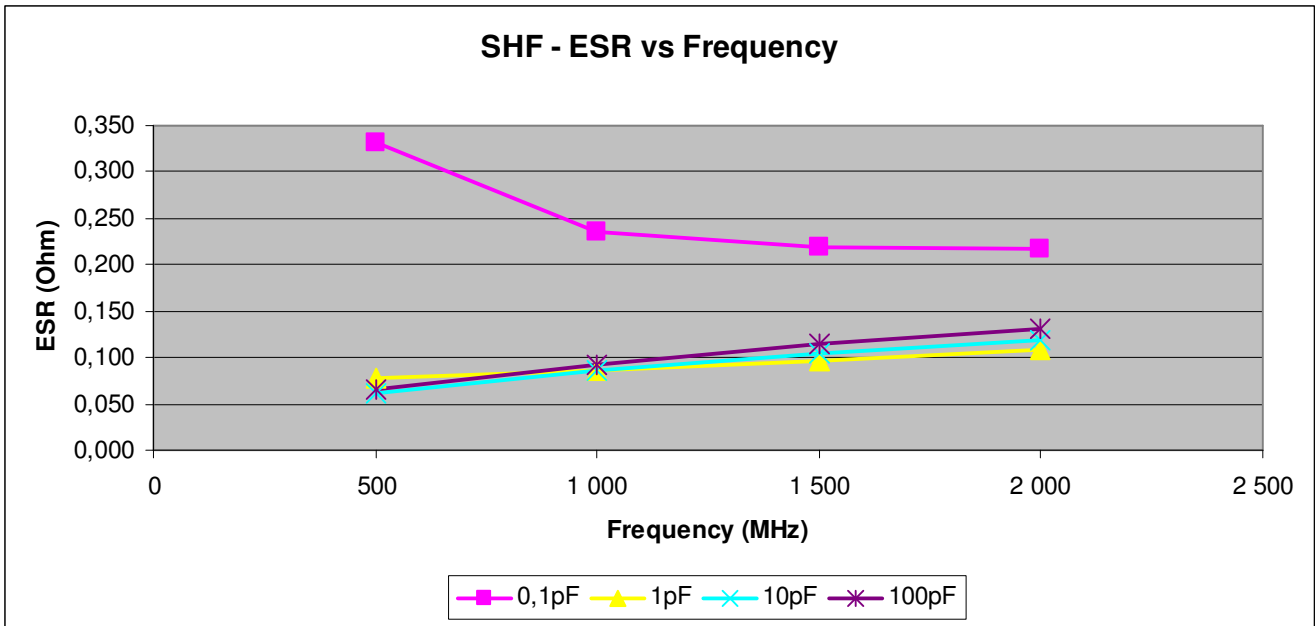
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### IX.4. CAPACITANCE IN F SIZE (0805): SUPER-HIQ SERIES



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