

# Super-HiQ Series, Ultra Low ESR, NP0

## RF & Microwave Capacitors, RoHS Compliant

### DESCRIPTION

Lowest ESR in class  
 Highest working voltage in class - 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	0.1 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>6</sup> MΩ min
Dielectric Withstanding	2.5 x WVDC for 5 seconds
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.



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Termination Type	Code	SHL	SHA-SHF SHN-SHT	SHS	SHB
Standard (tin-plated nickel)	S	AVAILABLE	AVAILABLE	AVAILABLE	AVAILABLE
Non-magnetic (silver-palladium)	A		AVAILABLE	PRELIMINARY	
Non-magnetic (tin-plated copper)	C				AVAILABLE

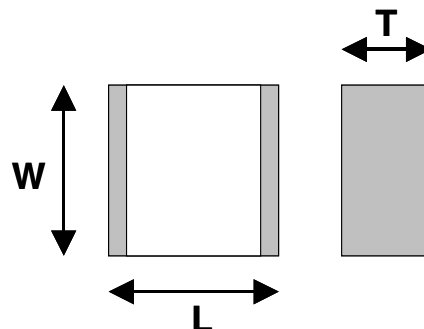
NB: P terminations are still available on request. Please consult us.

### III. ENVIRONMENTAL SPECIFICATIONS

Parameter	Value
Life Test	2'000 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

### IV. 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.)



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### 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 Termination 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 501=500V						leave blank if no mechanical requested			

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).
- the ROHS tag is for information only and does not belong to the reference itself. This tag is added on our stickers so that our customers can ensure that they use RoHS compliant parts on their process line.
- marking is only available on A and B case sizes.

### VI. TAPE AND REEL

The following chart gives the number of components per reel.

Parts per Reel	SHL	SHA	SHS	SHF	SHN	SHT	SHB
MPQ	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)	A (0505)	S (0603)	F (0805)	N (1206)	T (1210)	B (1111)
0.1	0R1	50V	250V	250V	250V	500V	500V	500V
0.2	0R2							
0.3	0R3							
0.4	0R4							
0.5	0R5							
1.0	1R0							
1.2	1R2							
1.5	1R5							
1.8	1R8							
2.2	2R2							
2.7	2R7							
3.3	3R3							
3.9	3R9							
4.7	4R7							
5.6	5R6							
6.8	6R8							
8.2	8R2							
10	100							
12	120							
15	150							
18	180							
22	220							
27	270							
30	300	25V	150V	150V	200V	200V	200V	200V
33	330							
39	390							
47	470							
56	560							
68	680							
82	820							
100	101							
120	121							
150	151							
180	181							
220	221							
270	271							
330	331							
390	391							
470	471							
510	511							
620	621							
680	681							
820	821							
1 000	102							

NB: intermediate values are available within the indicated range. Values above 470pF in SHB type are available on request. Please consult us.

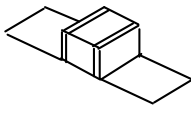
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### VIII. MECHANICAL CONFIGURATIONS

#### 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 A type to make sure only non-magnetic materials are used.

Examples : 251 SHA 220 JA1L is valid  
 501 SHB 470 JC1L is valid  
 501 SHB 470 JS1L is replaced by 501 SHB 470 J1L

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

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

NB:

#### 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

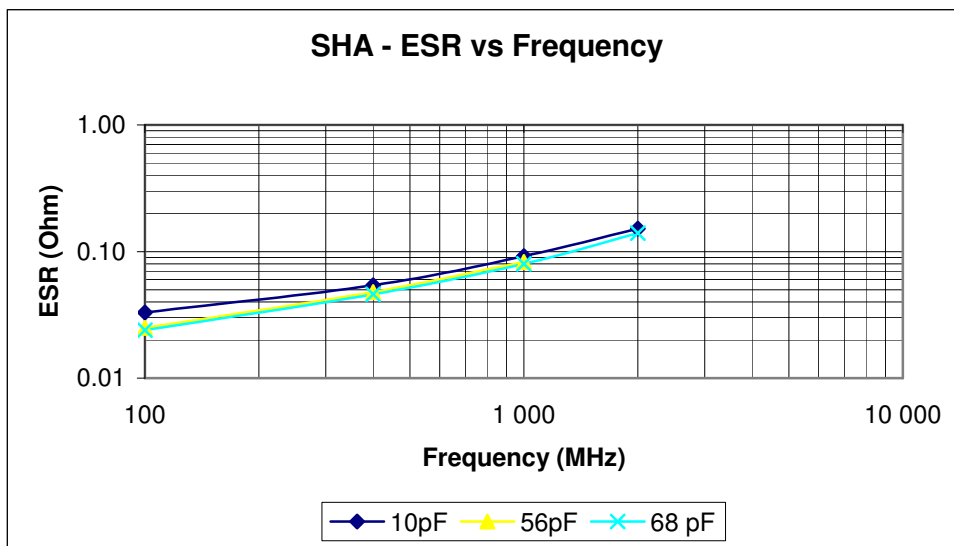
NB: dimensions are in mm, length is the minimum value.

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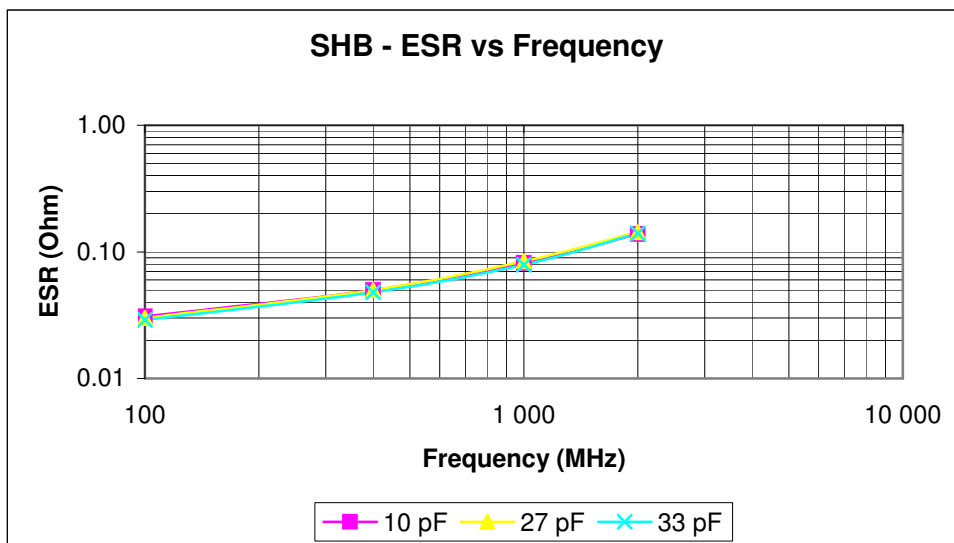
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### IX. TYPICAL PERFORMANCE DATA

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



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



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