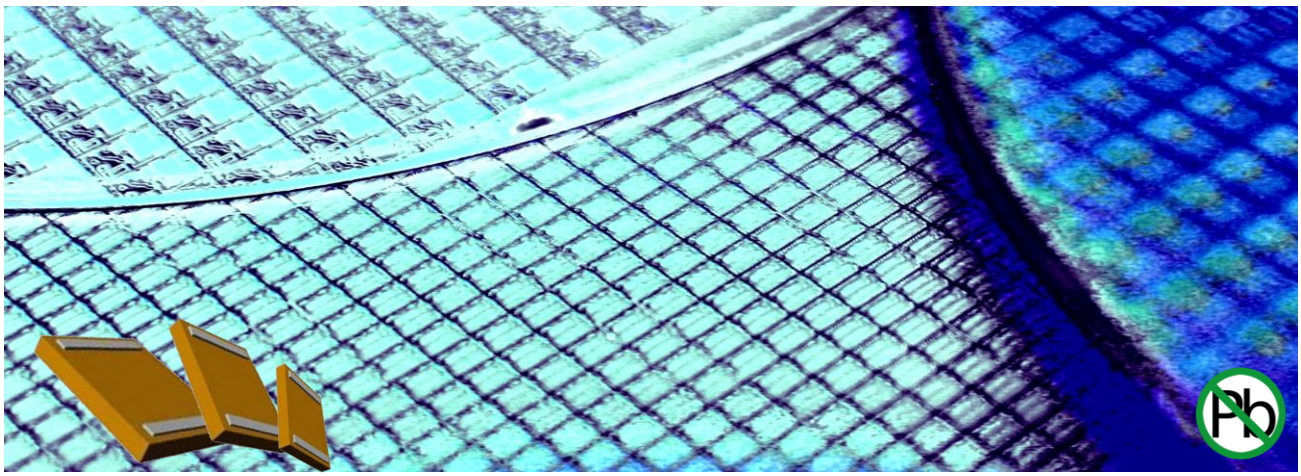
HSSC423.xxx - 0201 High Stability Silicon Capacitor

Rev 3.2



Key features

- **Ultra high stability :**
  - **Temperature <±0.5% (-55 °C to +150 °C)**
  - **Voltage <0.1 %/V**
  - **Negligible aging <0.001% /1000hours**
- **Unique high capacitance in EIA/0201 package size, up to 10 nF**
- **High reliability (FIT <0.017 parts / billion hours)**
- **Low leakage current down to 100 pA**
- **Low ESL and Low ESR**
- **Suitable with lead free reflow-soldering** ***Please refer to our assembly Application Note for further recommendations**

Key applications

- **All demanding applications, such as medical, aerospace, automotive industry**
- **High stability applications**
- **Decoupling / Filtering / Charge pump (i.e.: Pacemakers / defibrillators)**
- **Devices with battery operations**
- **Replacement of X7R and NP0**
- **Downsizing**

Thanks to the unique IPDiA Silicon capacitor technology, most of the problems encountered in demanding application can be solved.

High **S**tability **S**ilicon **C**apacitors are dedicated to applications where **Reliability** is the main parameter thanks to our end of production Burn-in.

HSSC avoid the need to oversize the capacitor value for sensitive capacitive circuitry and offers a **higher DC voltage stability**.

This technology provides industry leading performances relative to the **capacitor stability** over the full **operating voltage & temperature range.**

The very high and stable insulation resistance of silicon capacitors can enhance up to 30 % the **battery lifetime** in mobile applications.

The IPDiA technology features a capacitor integration capability (up to 250nF/mm^2) which allows a **smaller case size** than existing solutions to answer high volume constraints. This technology also offers **high reliability**, up to 10 times better than alternative capacitor technologies, such as Tantalum or MLCC, and eliminates cracking phenomena.

This Silicon based technology is RoHS compliant and compatible with lead free reflow soldering process.

ipdia
The 3D Silicon Leader

Electrical specification

Unit	Capacitance value	10	15	22	33	47	68
Unit	1 pF	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales
Unit	10 pF	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales
Unit	0.1 nF	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales
Unit	1 nF	10nF: 935.131.423.510 935.131.723.510					

(*) Thinner thickness (as low as 100 µm thick) available, see Low Profile Silicon Capacitor product: LPSC

(**) Extended temperature range (up to +250 °C) available, see Xtreme Temperature Silicon Capacitor product: XTSC

(***) Other values on request.

Parameters	Value
Capacitance range	*10 nF(***)*
Capacitance tolerances	*±15 %(***)*
Operating temperature range	*-55 °C to 150 °C (**)*
Storage temperatures	*- 70 °C to 165 °C*
Temperature coefficient	*<±0.5 %, from -55 °C to +150 °C*
Breakdown voltage (BV)	*11, 30 V(***)*
Capacitance variation versus RVDC	*0.1 % /V (from 0 V to RVDC)*
Equivalent Serial Inductor (ESL)	*Max 100 pH*
Equivalent Serial Resistor (ESR)	*Max 400mΩ(***)*
Insulation resistance	*100GΩ min @ 3V,from -55°C to +150°C*
Ageing	*Negligible, < 0.001 % / 1000 h*
Reliability	*FIT<0.017 parts / billion hours,*
Capacitor height	*Max 400 µm (*)*

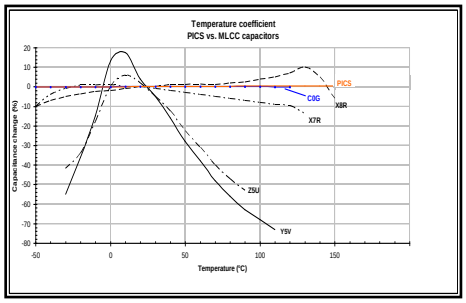


Fig.1 Capacitance change versus temperature variation compared with alternative dielectrics

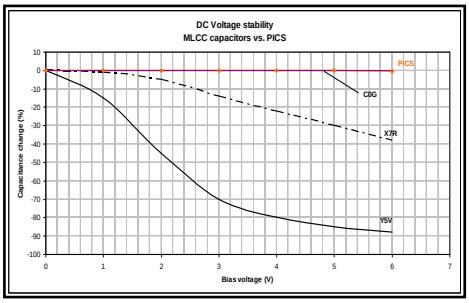


Fig.2 Capacitance change versus voltage variation compared with alternative dielectrics

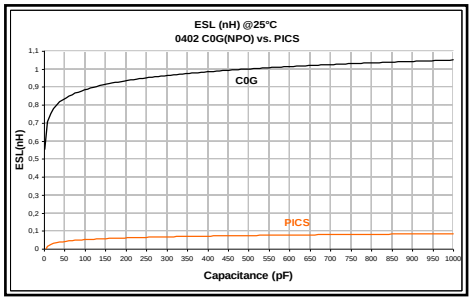


Fig.3 ESL versus capacitance value compared with alternative dielectrics

Part Number

935.131. **B.2** **S.** **U** **XX** → **Value (E6)**

i.e.: 10 nF/0201 case (HSSC type)
→ 935.131.423.510

Breakdown Voltage
4 = 11V
7 = 30V

Size
3 = 0201

Unit
0 = 10 f
1 = 0.1 p
2 = 1 p
3 = 10 p
4 = 0.1 n
5 = 1 n
6 = 10 n
7 = 0.1 µ
8 = 1 µ
9 = 10 µ

Value (E6)
10
15
22
33
47
68

Termination and Outline

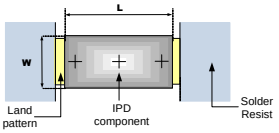
Termination

Lead-free nickel/solder coating compatible with automatic soldering technologies: reflow and manual.

Typical dimensions, all dimensions in mm.

Package outline

Typ.		0201
Comp. size	L	0.76±0.03
	W	0.56±0.03



(0201 PCB footprint)

Packaging

Tape and reel, tray, waffle pack or wafer delivery.

For more information, please visit: http://www.ipdia.com
To contact us, email to: sales@ipdia.com

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