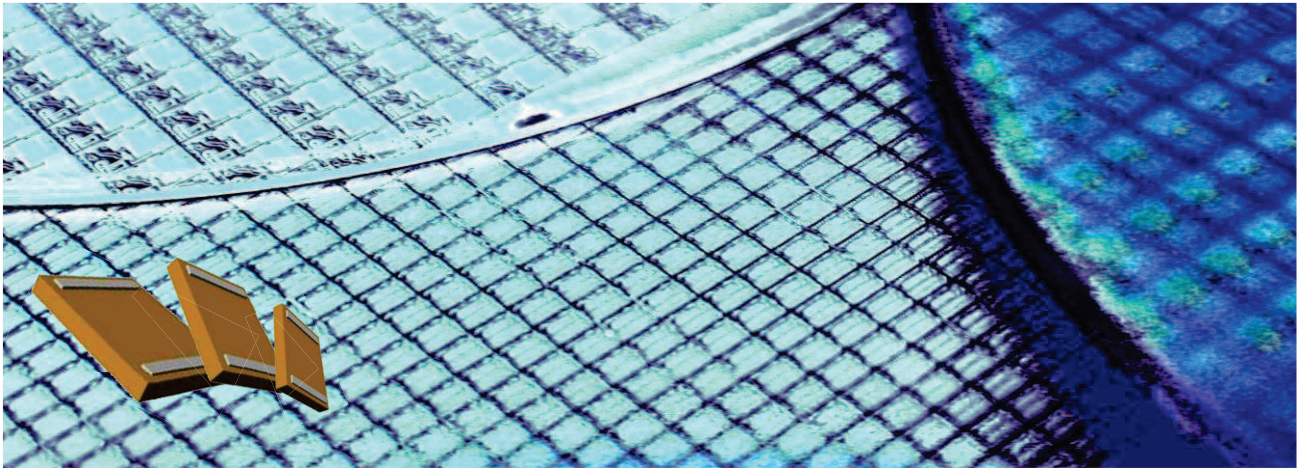


## Manual Handling recommendation



These capacitors are designed to be mounted with a standard pick and place machine, with reflow.

In case of manual handling, please follow below recommendations:

- Minimize mechanical pressure on the capacitors (use of a vacuum nozzle is recommended).
- Minimize temperature shocks (pre-heat the substrate).
- No wirebonding on 0402 47nF, 0402 100nF, 1206 1 $\mu$ F, 1812 3,3 $\mu$ F

Process steps:

- On substrate, form the solder meniscus on each land pattern targeting 100 meniscus height after reflow (screen printing, dispensing solder paste or by wire soldering).
- Pick the capacitor from the tape & reel or the Gel Pack keeping backside visible using a vacuum nozzle.
- Temporary place the capacitor on land pattern assuming remaining flux will stick the capacitor.
- Reflow the assembly with a dedicated profile ( see reflow recommendation profile )
- After soldering, no solder paste should touch the side of the capacitor dies.

If you have any questions prior to mounting the capacitors, please contact IPDiA (contact details below) and ask for our assembly specialist.

### IPDiA

Tel : +33 2 535401

e-mail : [sales@ipdia.com](mailto:sales@ipdia.com)

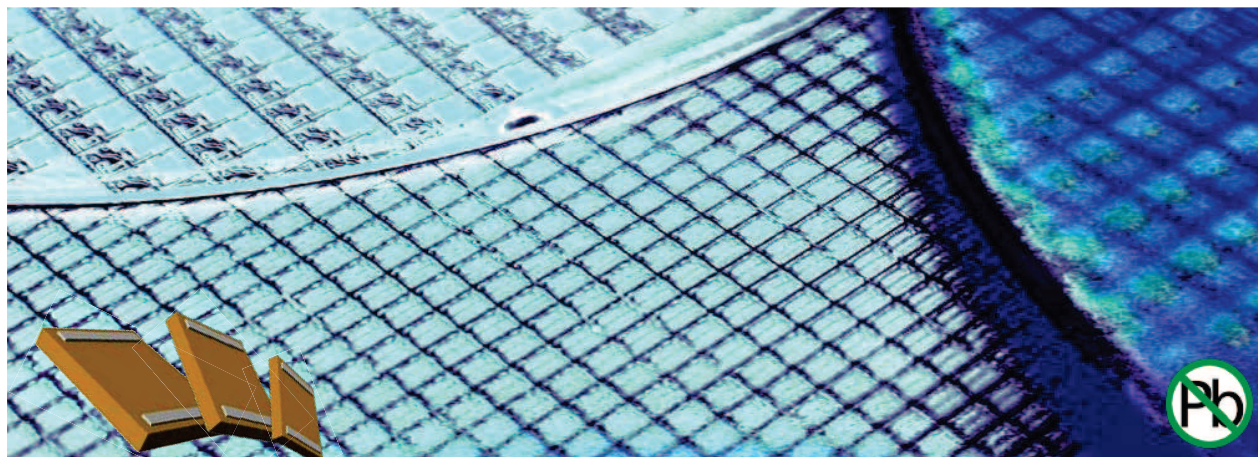
[www.ipdia.com](http://www.ipdia.com)





# LPSC427.xxx - 1206 Low Profile Silicon Capacitor

Rev 3.0



## Key features

- Ultra low profile (100µm)
- High stability of capacitance value:
  - ◆ Temperature  $\leq \pm 0.5\%$  (-55°C to +150°C)
  - ◆ Voltage  $< 0.1\%$ /Volts
  - ◆ Negligible capacitance loss through ageing
- Unique high capacitance in 1206 package size, up to 1 µF
- High reliability (FIT  $< 0.017$  parts / billion hours)
- Low leakage current  $< 100$  pA
- Low ESL and Low ESR
- Suitable for lead free reflow-soldering

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

Low Profile Silicon Capacitors are available with **thicknesses down to 80µm** and are the most appropriate solution in applications with height constraints.

LPSC is the perfect choice for embedded technologies, modules, systems in package, when designers are looking at **utmost decoupling behaviours**.

The Silicon capacitor technology offers a capacitor integration capability (up to 250nF/mm<sup>2</sup>) which allows **downsizing** compared to Tantalum and MLCC.

## Key applications

- All demanding applications, such as medical, telecom, computer industries
- Decoupling / Filtering / Charge pump (i.e.: Pacemakers / mobile phones)
- High reliability applications
- Devices with battery operations
- Extreme miniaturization
- Suitable for Embedded technologies

The IPDiA technology features **high reliability**, up to 10 times better than alternative capacitor technologies, such as Tantalum or MLCC, and eliminates cracking phenomena.

Silicon Capacitor technology also offers a very stable capacitor value over the full operating voltage & temperature range, with a high and stable insulation resistance.

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

## Electrical specification

		Capacitance value					
		10	15	22	33	47	68
Unit	1 nF	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales
	10 nF	100nF 935.121.427.610	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	470nF 935.121.427.647	Contact IPDIA Sales
	0,1 µF	1µF 935.121.427.710					
	1 µF						

(\*) 80 µm thickness on request

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

(\*\*\*) Other values on request.

Parameters	Value
Capacitance range	100 nF to 1µF <sup>(*)</sup>
Capacitance tolerances	±15 % <sup>(***)</sup>
Operating temperature range	-55 °C to 150 °C <sup>(*)</sup>
Storage temperatures	-70 °C to 165 °C
Temperature coefficient	<±0.5 %, from -55 °C to +150 °C
Breakdown voltage (BV)	11 VDC <sup>(***)</sup>
Capacitance variation versus RVDC	0.1 % /V (from 0 V to RVDC)
Equivalent Serial Inductor (ESL)	Max 1nH
Equivalent Serial Resistor (ESR)	Max 500mΩ <sup>(***)</sup>
Insulation resistance	60GΩ min @ RVDC, 25°C
Ageing	Negligible, < 0.001 % / 1000 h
Reliability	FIT<0.017 parts / billion hours,
Capacitor height	Max 100 µm <sup>(*)</sup>

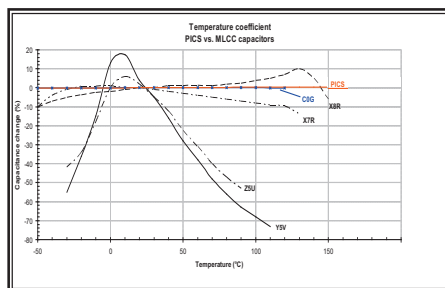


Fig.1 Capacitance change versus temperature variation compared with alternative dielectrics

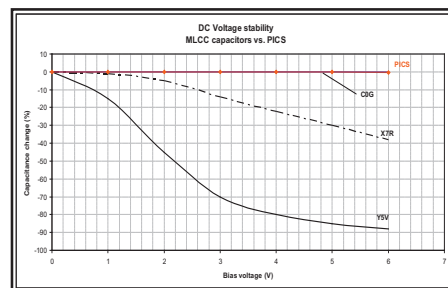


Fig.2 Capacitance change versus voltage variation compared with alternative dielectrics

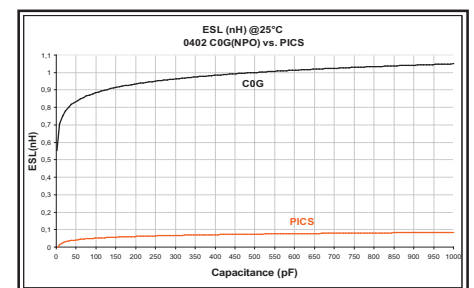


Fig.3 ESL versus capacitance value compared with alternative dielectrics

## How to order

**935.121.**

**BV**  
Breakdown  
Voltage  
42 = 11V

**S.**  
Size  
5 = 1206

**U**

**XX** → Value (E6)

i.e.: 1 µF/1206 case (LPSC type)  
→ 935.121.427.710

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

## Termination and Outline

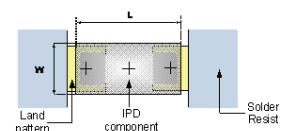
### Termination

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

Typical dimensions, all dimensions in mm

### Package outline

Typ.		1206
Comp. size	L	3.40±0.05
	W	1.80±0.05



(1206 PCB footprint)

## Packaging

Tape and reel, tray, waffle pack or wafer delivery

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