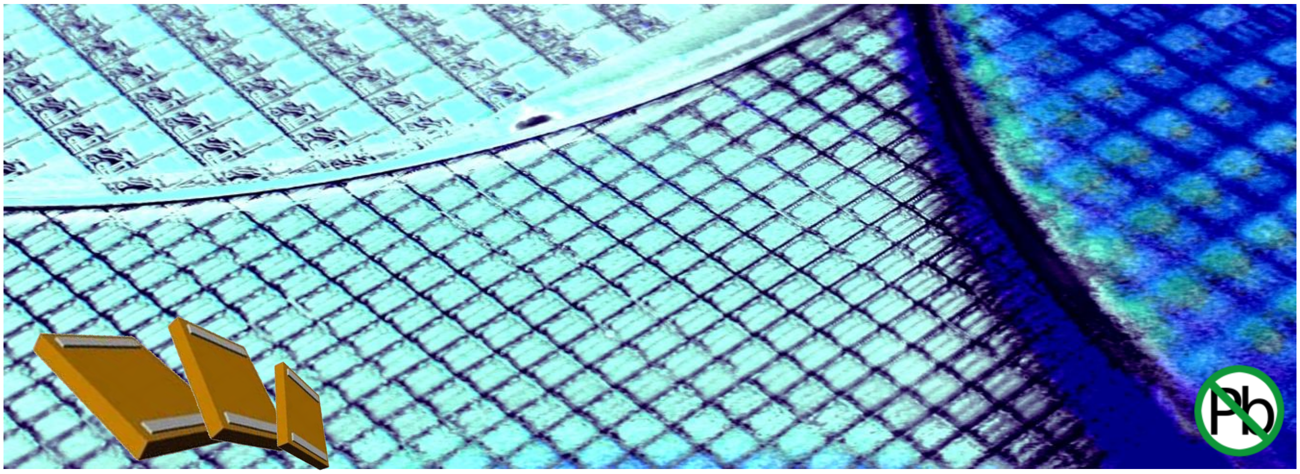
LPSC424.xxx - 0402 Low Profile Silicon Capacitor

Rev 3.1



Key features

- Ultra low profile (100µm)
- High stability of capacitance value:
  - Temperature <±0.5% (-55°C to +150°C)
  - Voltage <0.1%/Volts
  - Negligible capacitance loss through ageing
- Unique high capacitance in EIA/0402 package size, up to 100 nF
- High reliability (FIT <0.017 parts / billion hours)
- Low leakage current down to 100 pA
- Low ESL and Low ESR
- Suitable for lead free reflow-soldering *Please refer to our assembly Application Note for further recommendations

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

Low **P**rofile **S**ilicon **C**apacitors 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 $250nF/mm^2$) 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.

ipdia
The 3D Silicon Leader

Electrical specification

Unit	Capacitance value: 10	15	22	33	47	68
1 pF	*Contact IPDIA Sales*	*Contact IPDIA Sales*	*Contact IPDIA Sales*	*Contact IPDIA Sales*	*Contact IPDIA Sales*	*Contact IPDIA Sales*
10 pF	**100 pF: 935.121.424.310**	**150 pF: 935.121.424.315**	**220 pF: 935.121.424.322**	**330 pF: 935.121.424.333**	**470 pF: 935.121.424.347**	**680 pF: 935.121.424.368**
0.1 nF	**1 nF: 935.121.424.410**	**1.5 nF: 935.121.424.415**	**2.2 nF: 935.121.424.422**	**3.3 nF: 935.121.424.433**	**4.7 nF: 935.121.424.447**	**6.8 nF: 935.121.424.468**
1 nF	**10 nF: 935.121.424.510**	**15 nF: 935.121.424.515**	**22 nF: 935.121.424.522**	**33 nF: 935.121.424.533**	**47 nF: 935.121.424.547 935.121.724.547**	*Contact IPDIA Sales*
10 nF	**100 nF: 935.121.424.610**					

Parameters	Value
Capacitance range	*100 pF to 100 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 VDC, 30VDC*
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,25°C*
Ageing	*Negligible, < 0.001 % / 1000 h*
Reliability	*FIT<0.017 parts / billion hours,*
Capacitor height	*Max 100 µm* (*)

(*) 80 µm thickness on request

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

(***) Other values on request.

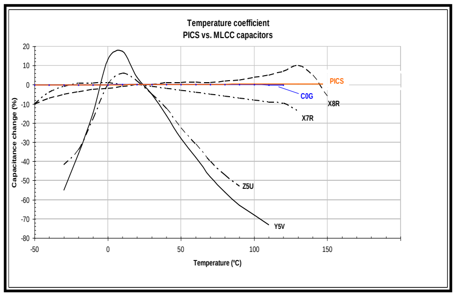


Fig.1 Capacitance change versus temperature variation compared with alternative dielectrics

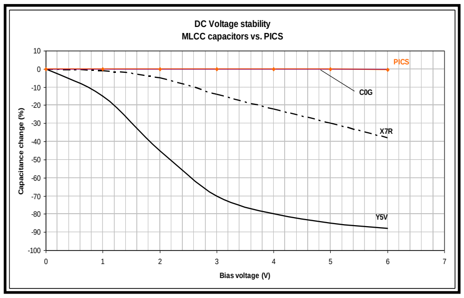


Fig.2 Capacitance change versus voltage variation compared with alternative dielectrics

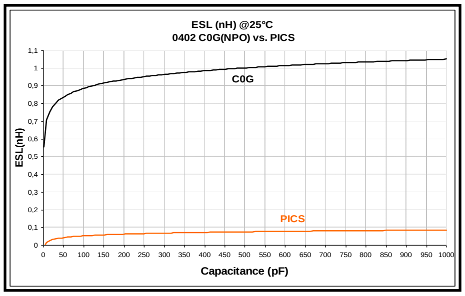


Fig.3 ESL versus capacitance value compared with alternative dielectrics

Part Number

935.121. **B.2** **S.** **U** **xx** →

Breakdown Voltage
4 = 11V
7 = 30V

Size
4 = 0402

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
10
15
22
33
47
68

i.e.: 100 nF/0402 case (LPSC type)
→ 935.121.424.610

Termination and Outline

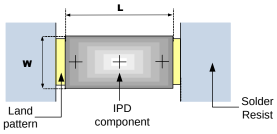
Termination

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

Typical dimensions, all dimensions in mm.

Package outline

Typ.		0402
Comp. size	L	1.20±0.05
	W	0.70±0.05



(0402 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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