LPSC

Low Profile Si Capacitors down to 100 µm

Rev 2.0

Key features

- Ultra low profile (100 µm, 80 µm on request)
- High stability of capacitance value:
  - Temperature +60 ppm/K (-55°C to +150°C)
  - Voltage <0.1 % / Volts
  - Negligible capacitance loss through aging
- Unique high capacitance in 1206 package size, up to 1 µF
- 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 more details)

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

Thanks to the unique Murata* Silicon capacitor technology, most of the problems encountered in demanding applications can be solved. **Low Profile Silicon Capacitors** are available with **thicknesses down to 80 µm** 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 for **utmost decoupling behaviours**. The Silicon capacitor technology offers a capacitor integration capability (up to 250 nF/mm²) which allows **downsizing** compared with Tantalum and MLCC.

The Murata Silicon technology features **high reliability**, up to 10 times better than alternative capacitor technologies 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.

*Murata Integrated Passive Solutions

Electrical specifications

LPSC.xxx	Low profile Si capacitors down to 100 µm from -55°C to 150°C			
Part number	Capacitance	BV	Case size	Thickness
935121423510-xxN	10 nF	11 V	0201	100 µm
935121424247-xxN	47 pF	11 V	0402	100 µm
935121424310-xxN	100 pF	11 V	0402	100 µm
935121424347-xxN	470 pF	11 V	0402	100 µm
935121424410-xxN	1 nF	11 V	0402	100 µm
935121424510-xxN	10 nF	11 V	0402	100 µm
935121424522-xxN	22 nF	11 V	0402	100 µm
935121424533-xxN	33 nF	11 V	0402	100 µm
935121424547-xxN	47 nF	11 V	0402	100 µm
935121424610-xxN	100 nF	11 V	0402	100 µm
935121425610-xxN	100 nF	11 V	0603	100 µm
935121426610-xxN	100 nF	11 V	0805	100 µm
935121427610-xxN	100 nF	11 V	1206	100 µm
935121427710-xxN	1 µF	11 V	1206	100 µm

Parameter	Value
Capacitance range	47 pF to 1 µF(*)
Capacitance tolerance	±15 %(*)
Operating temperature range	-55°C to 150°C (*)
Storage temperature	-70°C to 165°C (**)
Temperature coefficient	+60 ppm/K
Breakdown voltage (BV)	11 VDC
Capacitance variation versus RVDC	0.1 %/V (from 0 to RVDC)
Insulation resistance	100 GΩ @ 3 V, @ 25°C, t>120s, for 100 nF
Aging	Negligible, < 0.001 % / 1000h
Reliability	FIT<0.017 parts / billions hours
Capacitor height	100 µm(*)
(*) Other values on request (**) w/o packing	

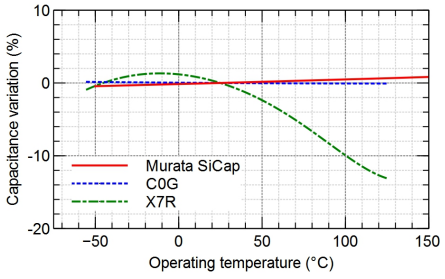


Fig. 1: Capacitance variation vs temperature (for LPSC and MLCC technologies)

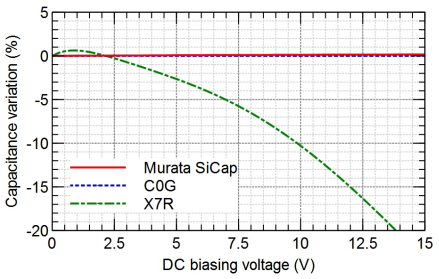
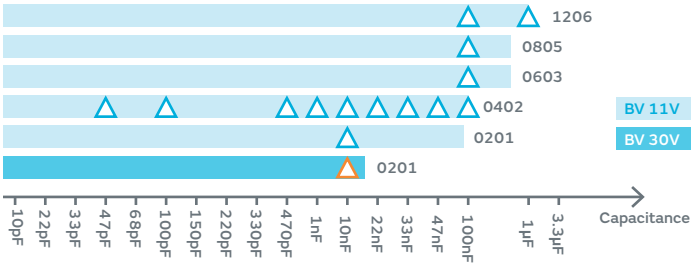


Fig.2: Capacitance variation vs DC biasing voltage @ BV11 (for LPSC and MLCC technologies)

Capacitance range



Available parts.
For other values, contact your Murata sales representative.

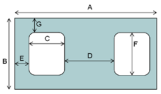
Under development.

Termination

Lead-free NiAu finishing compatible with wirebonding or automatic soldering technologies. Aluminum pads on request.

Package Outline

	Case size		Pad dimensions (±0.02 µm)				
	A	B	C	D	E	F	G
0201	0.80	0.60	0.15	0.3	0.1	0.4	0.1
0402	1.20	0.70	0.3	0.4	0.1	0.5	0.1
0603	1.80	1.10	0.4	0.8	0.1	0.9	0.1
0805	2.20	1.40	0.5	1	0.1	1.2	0.1
1206	3.40	1.80	0.6	2	0.1	1.6	0.1

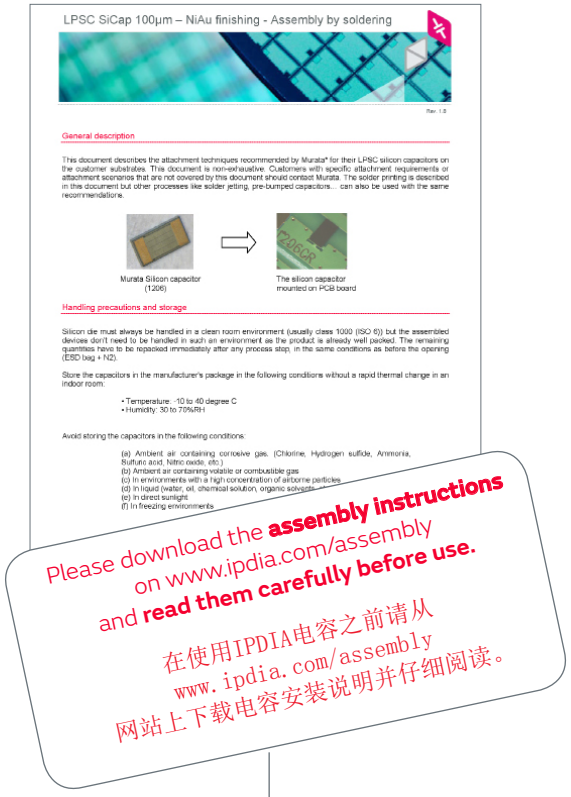


Packaging

Wafers, on foil, sawn and grinded. Raw wafers. Tape & reel.

Assembly by Soldering

The attachment techniques recommended by Murata for the LPSC capacitors on the customers substrates are fully detailed in specific documents available on our website. To assure the correct use and proper functioning of Murata Silicon capacitors **please download the assembly instructions on www.ipdia.com/assembly and read them carefully.**



Please download the **assembly instructions** on www.ipdia.com/assembly and **read them carefully before use.**

在使用IPDIA电容之前请从 www.ipdia.com/assembly 网站上下载电容安装说明并仔细阅读。

For LPSC assembly instructions, please go to : www.ipdia.com/assembly and download the pdf file called **“LPSC Capacitors 100 µm - Assembly by Soldering”**

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