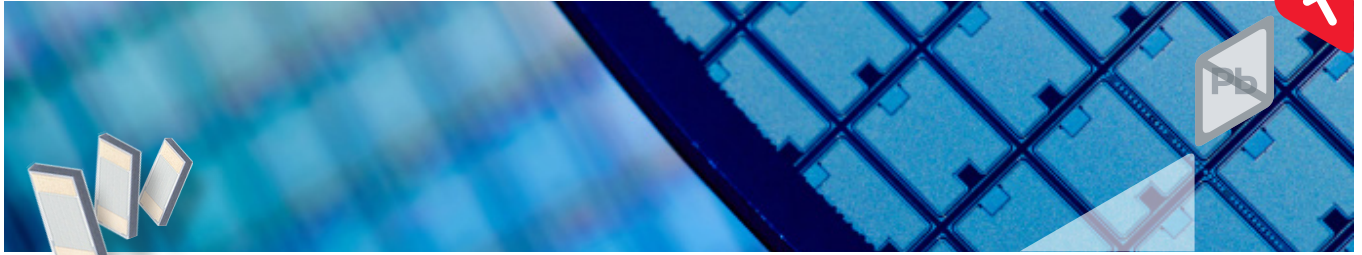


HTSC

High Temperature Silicon Capacitors up to 200 °C



Rev 2.0

Key features

- Extended operating temperature range (up to 200°C) with low capacitance variation
- High stability
- High reliability
- Low leakage current
- Suitable for lead-free reflow or wire bonding soldering

(please refer to our Assembly Application Note for more details)

Key applications

- All applications up to 200°C, such as aerospace and automotive industries
- High reliability applications
- Replacement of X7R and C0G dielectrics
- Decoupling / Filtering / Charge pump (i.e.: motor management, temperature sensors)
- Downsizing

Thanks to the unique Murata* Silicon capacitor technology, most of the problems encountered in demanding applications can be solved. The High Temperature Silicon Capacitors are dedicated to applications where **reliability** up to **200°C** is the main parameter. This technology features a capacitor integration capability (up to 250 nF/mm²) which offers capacitance value similar to X7R dielectric, but with better electrical performances than C0G/NP0 dielectrics.

The HTSC provide the highest capacitor **stability** over the full -55°C/+200°C temperature range with a **Temperature Coefficient of +60ppm/K**. Murata Silicon technology offers industry leading performances relative to **failure rate** with a FIT < 0.017. 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.

*Murata Integrated Passive Solutions



Electrical specifications

HTSC.xxx	High Temperature Si Capacitors 400µm from -55°C to 200°C			
Part number	Capacitance	BV	Case size	Thickness
935132424247-xxN	47 pF	11 V	0402	400 µm
935132424310-xxN	100 pF	11 V	0402	400 µm
935132424347-xxN	470 pF	11 V	0402	400 µm
935132424410-xxN	1 nF	11 V	0402	400 µm
935132424510-xxN	10 nF	11 V	0402	400 µm
935132424522-xxN	22 nF	11 V	0402	400 µm
935132424533-xxN	33 nF	11 V	0402	400 µm
935132424547-xxN	47 nF	11 V	0402	400 µm
935132424610-xxN	100 nF	11 V	0402	400 µm
935132425610-xxN	100 nF	11 V	0603	400 µm
935132427710-xxN	1 µF	11 V	1206	400 µm
935132429733-xxN	3.3 µF	11 V	1812	400 µm

Parameter	Value
Capacitance range	47 pF to 3.3 µF(*)
Capacitance tolerances	±15 %(*)
Operating temperature range	-55°C to 200°C (**)
Storage temperature range	-70°C to 215°C (**)
Temperature coefficient	+60 ppm/K
Breakdown Voltage (BV)	11 VDC or 30 VDC
Capacitance variation versus RVDC	0.1 %/V (from 0 to RVDC)
Insulation resistance	100 GΩ @ 3 V, @ 25°C, t>120s, for 100nF
Aging	Negligible, < 0.001% / 1000 h
Reliability	FIT<0.017 parts / billions hours
Capacitor thickness	400 µm (*)

(*) Other values on request (**) w/o packing

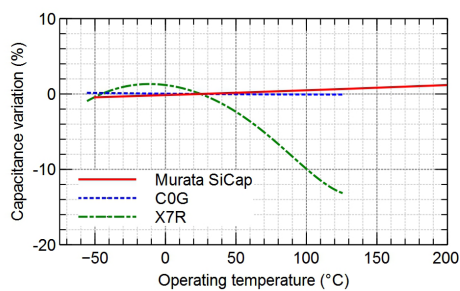


Fig. 1: Capacitance variation vs temperature (for HTSC and MLCC technologies)

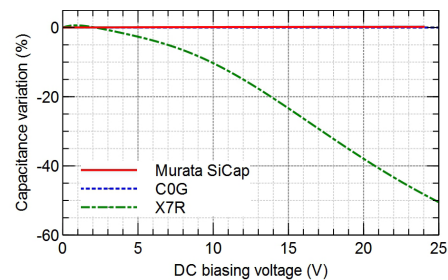
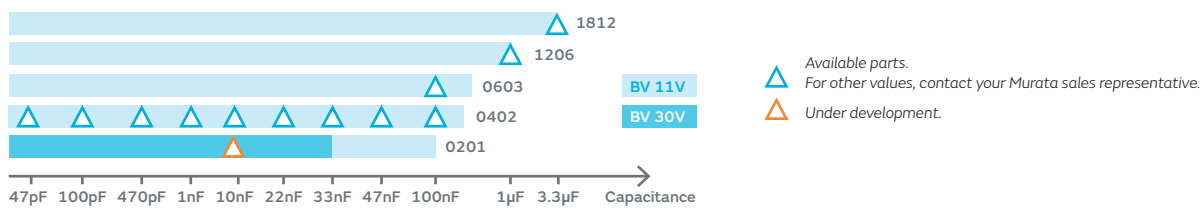


Fig. 2: Capacitance variation vs DC biasing voltage @ BV 30 (for HTSC and MLCC technologies)

Capacitance range

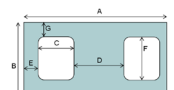


Termination

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

Package Outline

	Case size		Pad dimensions (±0.05 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
1812	4.70	3.60	0.8	2.9	0.1	3.4	0.1



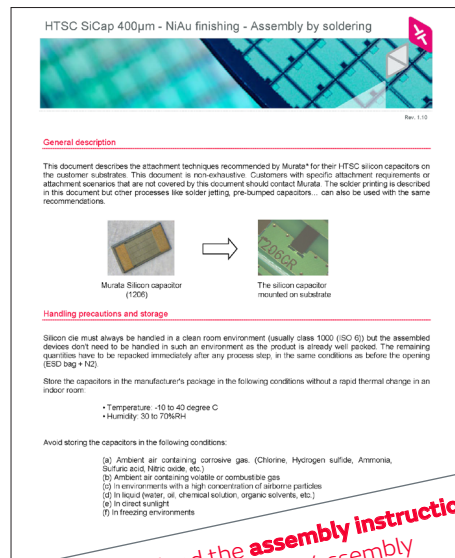
Packaging

Tape & reel, waffle pack or wafer delivery.



Assembly by Soldering

The attachment techniques recommended by Murata for the HTSC 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 HTSC assembly instructions,
please go to :
www.ipdia.com/assembly and
download the pdf file called
**"HTSC Capacitors 400 µm -
Assembly by Soldering"**

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