

EXSC

Extreme temp. wire-bondable Si Capacitors up to 250°C



Rev 4.4

Key features

- Ultra high operating temperature up to 250°C
- Low profile (250 µm)
- High stability (temperature, voltage and aging)
- Low leakage current
- High reliability
- Dedicated to high temperature wire-bonding

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

Key applications

- All applications up to 250°C, such as downhole and aerospace industries
- High reliability applications
- Replacement of X8R and COG 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 Extreme Temperature Wirebond Silicon Capacitors are dedicated to applications where **reliability** up to **250°C** is the main parameter. EXSC are the most appropriate solution for Chip On Board, Chip On Foil, Chip On Glass, Chip On Ceramic, flip chip and embedded applications. This technology features a capacitor integration capability (up to 250 nF/mm²) which offers capacitance value similar to X8R dielectric, but with better electrical performances than COG/NP0 dielectrics, up to **250°C**.

EXSC provide the highest capacitor **stability** over the full -55°C/+250°C temperature range in the market with a **temperature coefficient equals to +60 ppm/K**. The Murata Silicon technology offers industry leading performances relative to **failure rate** with a FIT<0.017 parts/billions hours. 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.

*Murata Integrated Passive Solutions



Electrical specifications

EXSC-xxx	Extreme Temp. Wirebondable Si Capacitors from -55°C to 250°C			
Part number	Capacitance	BV	Case size	Thickness
935125421610-xxA	100 nF	11 V	0404	250 μm
935125422622-xxA	220 nF	11 V	0505	250 μm
935125424710-xxA	1 μF	11 V	1208	250 μm
935125425722-xxA	2.2 μF	11 V	1612	250 μm
935125426733-xxA	3.3 μF	11 V	1616	250 μm
935125427747-xxA	4.7 μF	11 V	2016	250 μm
935125730510-xxA	10 nF	30 V	0202	250 μm
935125733610-xxA	100 nF	30 V	0605	250 μm
935125736710-xxA	1 μF	30 V	1616	250 μm

Parameter	Value
Capacitance range	390 pF to 4.7 μF
Capacitance tolerance	±15 %(*)
Operating temperature range	-55°C to 250°C
Storage temperature	-70°C to 265°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 100 nF
Aging	Negligible, < 0.001% / 1000 h
Reliability	FIT<0.017 parts / billions hours
Capacitor height	250 μm

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

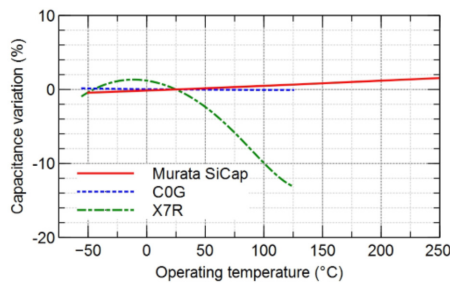


Fig. 1: Capacitance variation vs temperature (for EXSC and MLCC technologies)

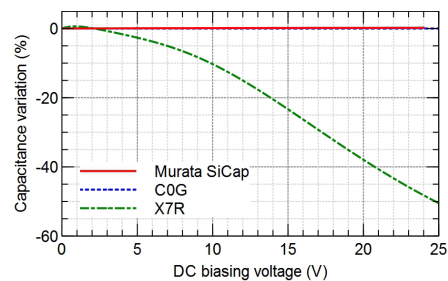
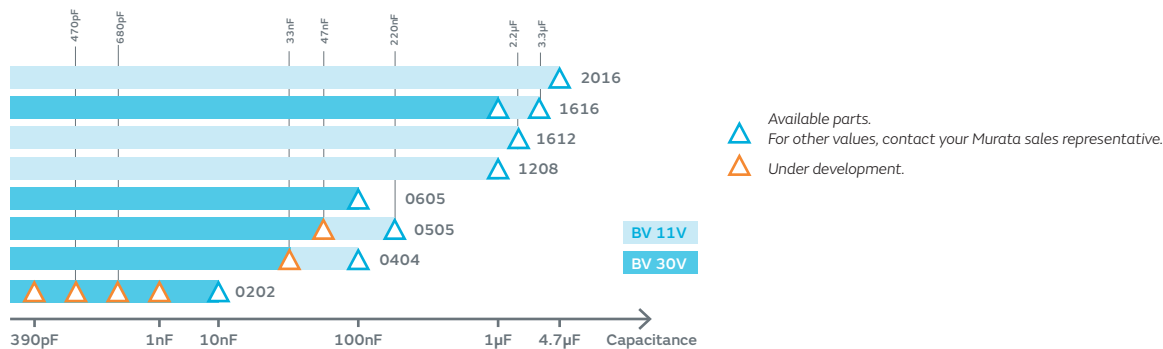


Fig. 2: Capacitance variation vs DC biasing voltage @ BV11 (for EXSC and MLCC technologies)

Capacitance range

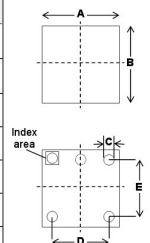


Termination

Pad finishing in Aluminum. Other finishing available such as nickel or gold.

Package Outline

	Case size		Pad dimensions (±0.05 μm)		
	A	B	c	d	e
0202	0.65	0.65	0.15	0.30	0.30
0404	1.07	1.07	0.15	0.72	0.72
0505	1.32	1.32	0.15	0.97	0.97
0605	1.59	1.32	0.15	1.22	1.22
1208	3.07	2.07	0.15	2.72	1.72
1612	4.07	3.07	0.15	3.72	2.72
1616	4.07	4.07	0.15	3.72	3.72
2016	5.07	4.07	0.15	4.72	3.72



Packaging

Tape & reel, waffle pack or wafer delivery.



Assembly by Soldering

The attachment techniques recommended by Murata for the EXSC 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 EXSC assembly instructions,
please go to :
www.ipdia.com/assembly and
download the pdf file called
**“ETSC / EXSC Capacitors 250
µm - Assembly by Wirebonding”**

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