

EMSC

Wire-bondable or embedded low profile Si Cap down to 100 μm



Rev 4.4

Key features

- Ultra Low profile 100 μm (80 μm on request).
- High stability (temperature, voltage and aging).
- Low ESL and ESR.
- Low leakage current.
- High reliability.
- Embedding or wire-bonding solutions

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

Key applications

- Any demanding applications, such as medical, aerospace, automotive industrial...
- Supply decoupling / filtering of active device
- High reliability applications
- Devices with battery operations
- Volume limited applications

Thanks to the unique Murata* Silicon capacitor technology, most of the problems encountered in demanding applications can be solved. The wire bondable or embedded low profile Silicon Capacitors are available with **thicknesses of 100 μm (down to 80 μm on request)** and are the most appropriate solution for embedded applications, when designers are looking at **utmost decoupling behaviours**. EMSC are optimized for laminate substrate package, rigid / flex PCB, FR4, ceramic, glass, leadframe or foil platforms.

The Silicon capacitor technology offers a capacitor integration capability (up to 250 nF / mm^2) which allows **downsizing** compared with existing solutions. The Murata 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 can be compatible with lead free reflow soldering process.

*Murata Integrated Passive Solutions



Electrical specifications

EMSC.xxx	Wire-bondable or embedded low profile Si Cap from -55°C to 150°C			
Part number	Capacitance	BV	Case size	Thickness
935123730510-xxA	10 nF	30 V	0202	100 μm
935123421610-xxA	100 nF	11 V	0404	100 μm
935123733610-xxA	100 nF	30 V	0605	100 μm
935123422622-xxA	220 nF	11 V	0505	100 μm
935123424710-xxA	1 μF	11 V	1208	100 μm

Parameter	Value
Capacitance range	390 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 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	100 μm(***)

(*) Other values on request (**) w/o packing (***) 80 μm thickness on request

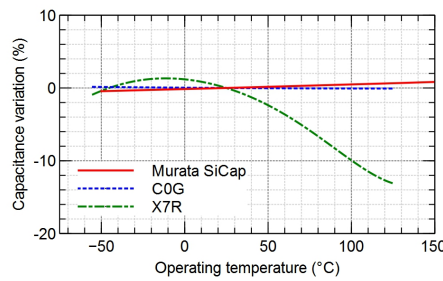


Fig. 1: Capacitance variation vs temperature (for EMSC and MLCC technologies)

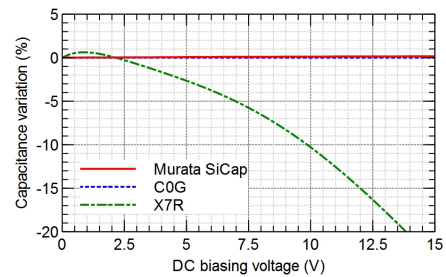
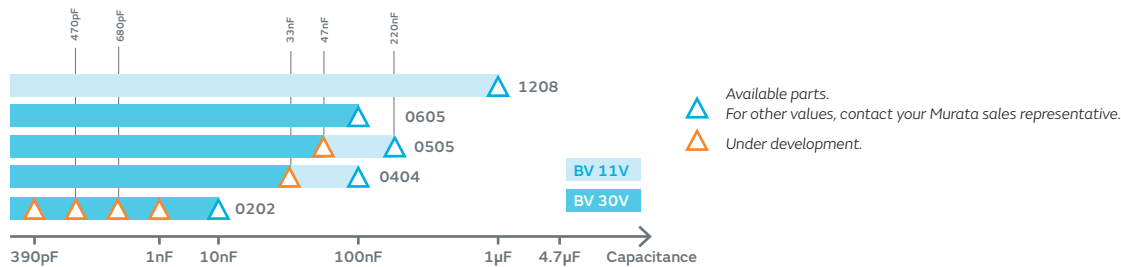


Fig. 2: Capacitance variation vs DC biasing voltage @ BV11 (for EMSC and MLCC technologies)

Capacitance range

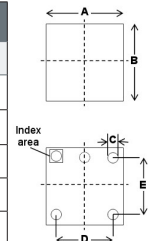


Termination

Pad finishing in Aluminum. Other finishing available such as copper, nickel or gold. Applicable for almost all embedded applications.

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



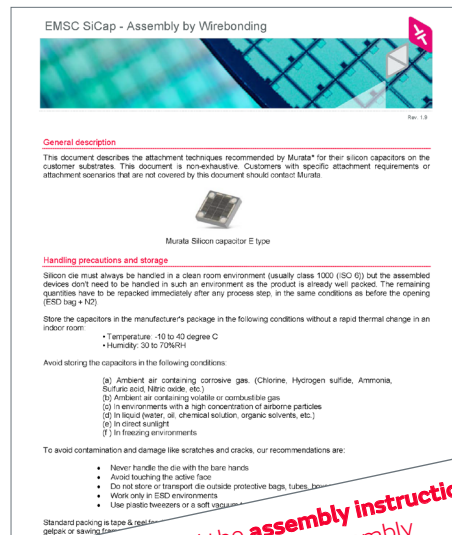
Packaging

Tape & reel, waffle pack or wafer delivery.



Assembly by Soldering

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

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