

## Embedded Silicon Capacitor

**EMSC0303 10nF (50V)**  
**935.142.620.510 (0V)**

### Key features

- Ultra Low Profile (100µm)
  - Temperature  $\pm 0.5\%$  (-55 °C to +150 °C)
  - Voltage  $< 0.1\%$  /V
  - Negligible capacitance loss through ageing
- High reliability (FIT  $< 0.017$  parts / billion hours)
- Low leakage current down to 100 pA
- Low ESL and Low ESR
- Suitable with lead free reflow - soldering

Parameters	Value
Capacitance range	390pF to 4.7µF
Capacitance tolerances	$\pm 15\%$ <sup>(***)</sup>
Operating temperature range	-55 to 150 °C <sup>(**)</sup>
Storage temperatures	-70 to 165 °C
Temperature coefficient	$\pm 0.5\%$ , from -55 to +150°C
Breakdown Voltage (BV)	30V, 11V
Capacitance variation versus RVDC	0.1 % /V (from 0 V to RVDC)
Equivalent Serial Inductor (ESL)	Max 100 pH
Equivalent Serial Resistor (ESR)	Max 0.1Ω
Insulation resistance	100GΩ min @ 3V, 25°C
Aging	Negligible, $< 0.001\%$ / 10000h
Reliability	FIT $< 0.017$ parts / billions hours
Capacitor height	Max 100µm <sup>(*)</sup>

### Key applications

- All demanding applications, such as medical, aerospace, automotive industry
- High stability applications
- Decoupling / Filtering / Charge pump (i.e.: Pacemakers / defibrillators)
- Devices with battery operations
- Replacement of X7R and NP0
- Downsizing

The IPDiA technology features a capacitor integration capability (up to 250nF/mm<sup>2</sup>) which allows a **smaller case size** than existing solutions to answer high volume constraints. 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 process.

		Capacitance value						
		10	15	22	33	39	47	68
Unit	10pF	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	390pF/0202/30V 935 121 72C 339	470pF/0202/30V 935 121 72C 347	680pF/0202/30V 935 121 72C 368
	0.1nF	1nF/0202/30V 935 121 72C 410	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales
	1nF	10nF/0202/30V 935 121 72C 510	Contact IPDIA Sales	Contact IPDIA Sales	33nF/0404/30V 935 121 72F 533	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales
	10nF	100nF/0404/11V 935 121 42F 610 100nF/0605/30V 935 121 72G 610	Contact IPDIA Sales	220nF/0505/11V 935 121 42H 622	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales
	0.1µF	1µF/1208/11V 935 121 42S 710 1µF/1616/30V 935 121 72Y 710	Contact IPDIA Sales	2.2µF/1612/11V 935 121 42V 722	3.3µF/1616/11V 935 121 42Y 733	Contact IPDIA Sales	4.7µF/2016/11V 935 121 42X 747	

(\*) 80µm thickness on request

(\*\*) For extended temperature range (up to +250°C), see Embedded Xtreme Temperature Silicon Capacitor product (EXSC).

(\*\*\*) other values on request