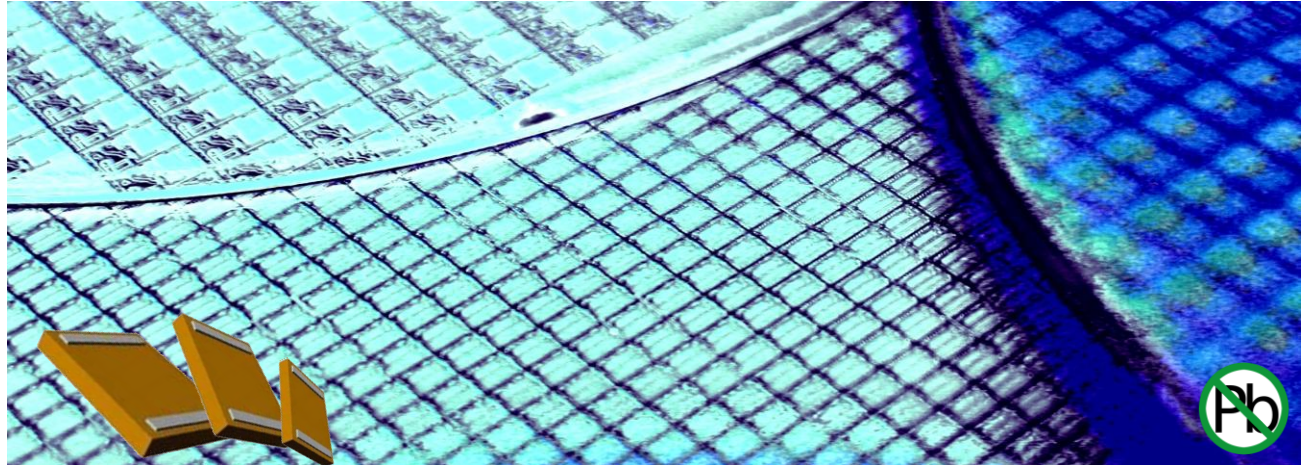


HTSC429.xxx - 1812 High Temperature Silicon Capacitor

Rev 2.1



Key features

- High stability up to 200°C:
 - ◆ Temperature $<\pm 1\%$ (-55 °C to +200 °C)
 - ◆ Voltage $<0.1\%$ /V
 - ◆ Negligible capacitance loss through aging
- Unique high capacitance in EIA/1812 package size, up to 3,3 μ F
- High reliability (FIT <0.017 parts / billion hours)
- Low leakage current <3 nA
- Low ESL and Low ESR
- Suitable for lead free reflow-soldering *Please refer to our assembly Application Note for further recommendations

Key applications

- All applications up to 200°C, such as military, 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 IPDiA Silicon capacitor technology, most of the problems encountered in demanding applications can be solved.

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 250nF/mm²) which offers capacitance value similar to X7R dielectric, but with better electrical performances than C0G/NP0 dielectrics, up to **200°C**.

HTSC provides the highest capacitor **stability** over the full -55°C/+200°C temperature range in

The IPDiA 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 process.

Electrical specification

		Capacitance value					
		10	22	27	33	47	68
Unit	1 nF						
	10 nF	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales	Contact IPDIA Sales		
	0,1 µF	1µF 935.xxx.xxx.xxx	2.2µF 935.xxx.xxx.xxx	2.7µF 935.xxx.xxx.xxx	3.3µF 935.132.429.733		
	1 µF						

(*) Thinner thickness (as low as 100 µm thick) available, see Low Profile Silicon Capacitor product: LPSC

(**) Other values on request.

Parameters	Value
Capacitance range	1µF to 3.3µF ^(*)
Capacitance tolerances	±15 % ^(**)
Operating temperature range	-55 °C to 200 °C
Storage temperatures	- 70 °C to 215 °C
Temperature coefficient	<±1 %, from -55 °C to +200 °C
Breakdown voltage (BV)	11 VDC ^(**)
Capacitance variation versus RVDC	0.1 % /V (from 0 V to RVDC)
Equivalent Serial Inductor (ESL)	Max 1nH
Equivalent Serial Resistor (ESR)	Max 800mΩ ^(**)
Insulation resistance	1GΩ min @ 3V,25°C 100MΩ min @ 3V,200°C
Ageing	Negligible, < 0.001 % / 1000 h
Reliability	FIT<0.017 parts / billion hours,
Capacitor height	Max 400 µm ^(*)

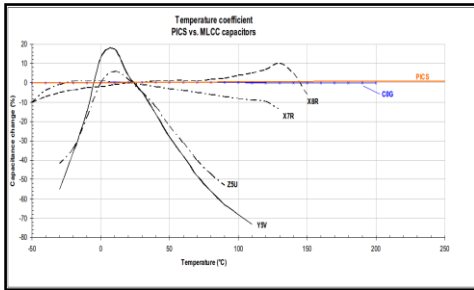


Fig.1 Capacitance change versus temperature variation compared with alternative dielectrics

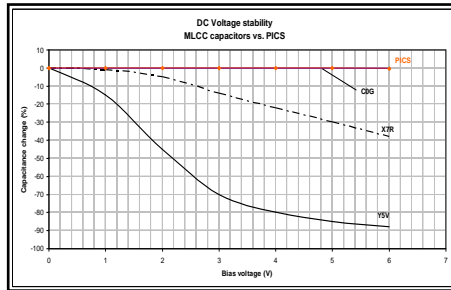


Fig.2 Capacitance change versus voltage variation compared with alternative dielectrics

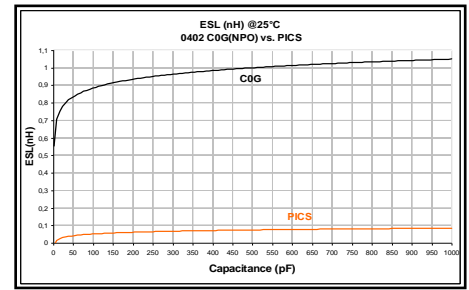


Fig.3 ESL versus capacitance value compared with alternative dielectrics

Part Number

935.132.

B.2 → Breakdown Voltage
4 = 11V

S. ↓ Size
9 = 1812

U ↓ Unit
0 = 10 f 5 = 1 n
1 = 0.1 p 6 = 10 n
2 = 1 p 7 = 0.1 µ
3 = 10 p 8 = 1 µ
4 = 0.1 n 9 = 10 µ

XX → Value (E6)
10
22
27
33
47
68

i.e.: 3.3 µF/1812 case (HTSC type)
→ 935.132.429.733

Termination and Outline

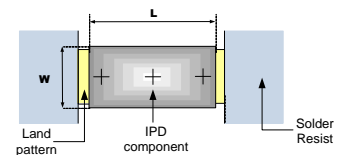
Termination

Lead-free nickel/solder coating compatible with automatic soldering technologies: reflow and manual

Typical dimensions, all dimensions in mm

Package outline

Typ.		1812
Comp. size	L	4.66 ± 0.05
	W	3.56 ± 0.05
IPD Land patterns size	X	0.9
	Y	3.4



Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent- or other industrial or intellectual property rights.