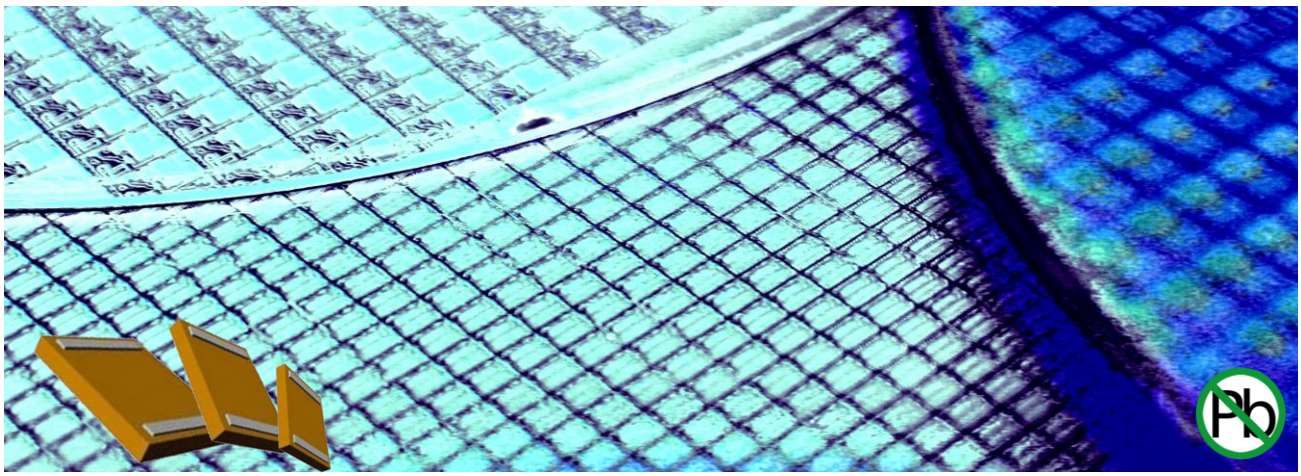
HTSC424.xxx - 0402 High Temperature Silicon Capacitor

Rev 3.1



Key features

- **High stability up to 200°C:**
  - **Temperature <±1% (-55 °C to +200 °C)**
  - **Voltage <0.1 %/V**
  - **Negligible capacitance loss through aging**
- **Unique high capacitance in EIA/0402 package size, up to 47 nF**
- **High reliability (FIT <0.017 parts / billion hours)**
- **Low leakage current down to 100 pA**
- **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 **T**emperature **S**ilicon **C**apacitors are dedicated to applications where **reliability** up to **200°C** is the main parameter.

This technology features a capacitor integration capability (up to 250nF/mm^2) 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 market with a **Temperature coefficient Lower than ±1%.**

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.

ipdia
The 3D Silicon Leader

Electrical specification

Unit	Capacitance value: 10	15	22	33	47	68
1 pF	*Contact IPDIA Sales*	*Contact IPDIA Sales*	*Contact IPDIA Sales*	*Contact IPDIA Sales*	*Contact IPDIA Sales*	*Contact IPDIA Sales*
10 pF	**100 pF: 935.132.424.310**	**150 pF: 935.132.424.315**	**220 pF: 935.132.424.322**	**330 pF: 935.132.424.333**	**470 pF: 935.132.424.347**	**680 pF: 935.132.424.368**
0.1 nF	**1 nF: 935.132.424.410**	**1.5 nF: 935.132.424.415**	**2.2 nF: 935.132.424.422**	**3.3 nF: 935.132.424.433**	**4.7 nF: 935.132.424.447**	**6.8 nF: 935.132.424.468**
1 nF	**10 nF: 935.132.424.510**	**15 nF: 935.132.424.515**	**22 nF: 935.132.424.522**	**33 nF: 935.132.424.533**	**47 nF: 935.132.424.547 935.132.724.547**	*Contact IPDIA Sales*
10 nF	**100 nF: 935.132.424.610**					

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

(**) Extended temperature range (up to +250 °C) available, see Xtreme Temperature Silicon Capacitor product: XTSC

(***) Other values on request.

Parameters	Value
Capacitance range	*100 pF to 100 nF(***)*
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, 30VDC*
Capacitance variation versus RVDC	*0.1 % /V (from 0 V to RVDC)*
Equivalent Serial Inductor (ESL)	*Max 100 pH*
Equivalent Serial Resistor (ESR)	*Max 400mΩ(***)*
Insulation resistance	*50GΩ min @ 3V,25°C* *20GΩ min @ 3V,200°C*
Ageing	*Negligible, < 0.001 % / 1000 h*
Reliability	*FIT<0.017 parts / billion hours,*
Capacitor height	*Max 400 µm (*)*

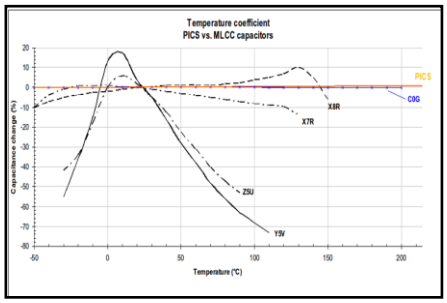


Fig.1 Capacitance change versus temperature variation compared with alternative dielectrics

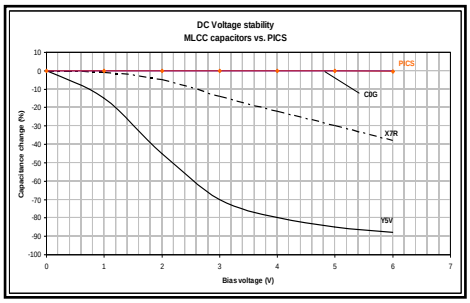


Fig.2 Capacitance change versus voltage variation compared with alternative dielectrics

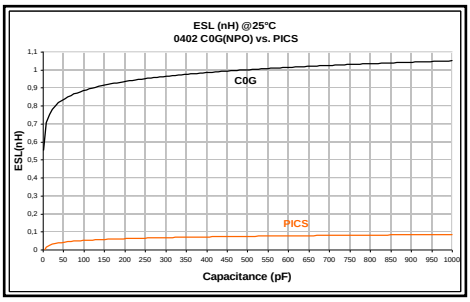


Fig.3 ESL versus capacitance value compared with alternative dielectrics

Part Number

935.132. **B.2** → **Breakdown Voltage**: 4 = 11V, 7 = 30V; **S.** **Size**: 4 = 0402; **U** **Unit**: 0 = 10 f, 1 = 0.1 p, 2 = 1 p, 3 = 10 p, 4 = 0.1 n, 5 = 1 n, 6 = 10 n, 7 = 0.1 µ, 8 = 1 µ, 9 = 10 µ; **XX** → **Value**: 10, 15, 22, 33, 47, 68

i.e.: 47 nF/0402 case (HTSC type)
→ 935.132.424.547

Termination and Outline

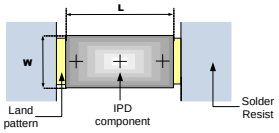
Termination

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

Typical dimensions, all dimensions in mm.

Package outline

Typ.		0402
Comp. size	L	1.20±0.05
	W	0.70±0.05



(0402 PCB footprint)

Packaging

Tape and reel, tray, waffle pack or wafer delivery.

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Date of release: 28th February 2014
Document identifier: CL431 111 615 132

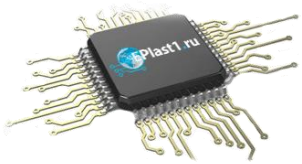
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Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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