Introduction

Silicon capacitors are manufactured using semiconductor chip production processes, with silicon as the substrate and thin-film materials such as silicon dioxide/silicon nitride serving as the dielectric. Compared with ceramic capacitors (MLCC), they feature small size, thin thickness, low impedance, high-frequency low insertion loss, high temperature stability, and high reliability.

Silicon capacitors are commonly used for DC blocking, RF bypassing, or as fixed capacitive tuning elements in filters, oscillators, and matching networks. They are widely applicable in power distribution networks, aerospace, telecommunications, energy, automation, and medical fields.

This product is a 0101-sized 30V, 1nF capacitor with top and bottom electrode utilizing unique 3D silicon capacitance technology. It ensures outstanding stability of the capacitor across the entire operating voltage and temperature range.

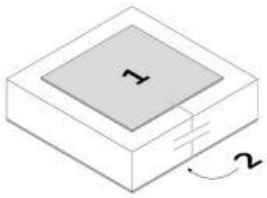
Features

- High temperature stability（up to 150°C）
- Temperature Coefficient of Capacitance(TCC): <70 ppm /K
- Voltage Coefficient of Capacitance(VCC): <0.1%/V
- Capacitance loss due to aging is negligible
- Leakage current < 1nA@RV_{DC}
- High reliability
- high- temperature cycles during manufacturing（Over 300°C）
- Thickness：100μm minimum

Applications

- Optical communication, optical modules
- decoupling and filtering for active devices
- High reliability applications
- High speed data processing system
- High temperature application
- high volumetric efficiency (i.e., capacitance per unit volume)

Pin definition



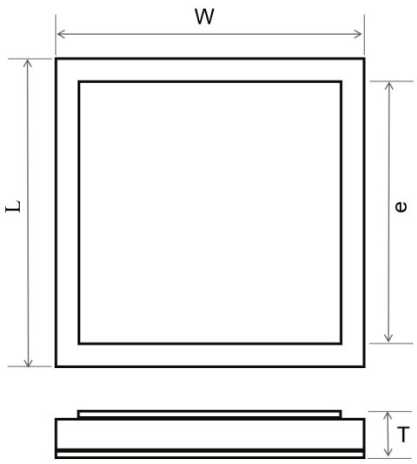
Pin #	Name	Electrode Material
1	Signal	NiAu
2	GND	TiNiAu

Other electrode materials can be customized according to customer requirements.

Electrical Characteristics

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
C	Capacitance	@+25℃, 1KHz, 1Vrms	-	1	-	nF
ΔC_P	Tolerance	@+25℃	-15	-	15	%
T_{OP}	Operating temperature		-55	25	150	℃
T_{STG}	Storage temperature		-70	-	175	℃
ΔC_T	TCC	-55℃~+150℃			70	ppm/K
RV_{DC}	Rated voltage		-	-	15	V_{DC}
BV	Breakdown voltage	@+25℃	30	-	-	V_{DC}
ΔC_{RVDC}	VCC	From 0V to R_{VDC}@25℃	-	-	0.1	%/V_{DC}
IR	Insulation resistance	@ R_{VDC}, +25℃,120s	-	10	-	GΩ
ESR	Equivalent series resistance	@+25℃，shunt mode	-	350	-	mΩ
ESL	Equivalent series inductance	@+25℃，shunt mode	-	-	15	pH

Product Dimensions



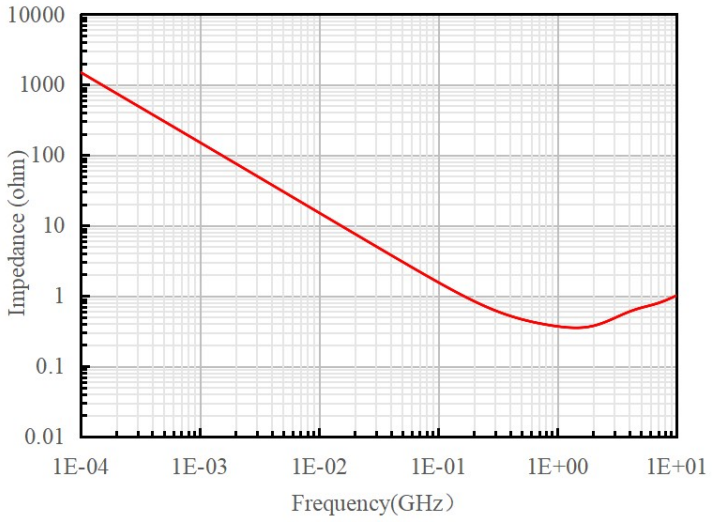
L(mm)	W(mm)	T(mm)	e(mm)
0.25±0.02	0.25±0.02	0.1	0.18±0.02

The typical thickness is 100 μm, which can be customized according to customer needs.

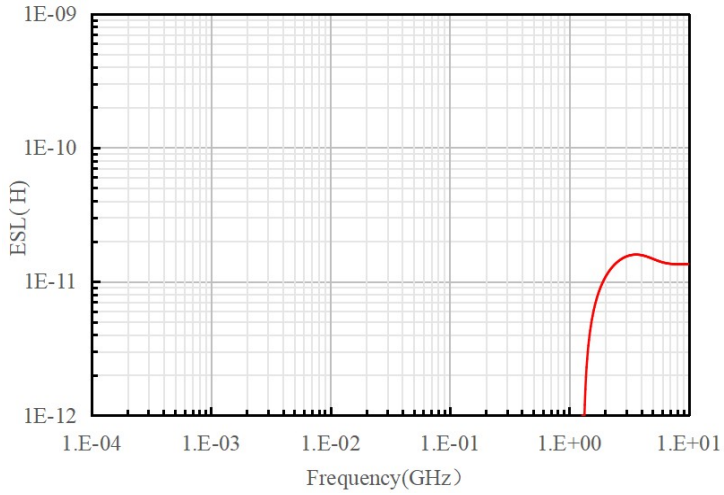
Ordering Part Number

Part number	Electrode material	Packaging
LHF102WA0K0301NHBX	ENIG	Blue Film
LHF102WA0K0301NABX	ENIG	Wafer

Product Characteristics



0101/30V/1nF Impedance characteristics



0101/30V/1nF ESL characteristics

Revision History

Rev.	Date	Changes	Author
1.0	2026/08/25	First release	Randy