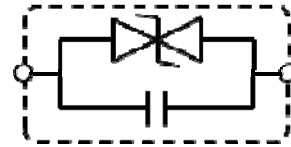


Multilayer Chip Varistor : AVRH10C101KT1R2YE8

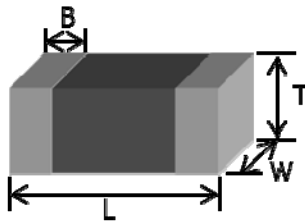
Features

- Automotive (AEC-Q200) grade
- Size : EIA0402 (1.0x0.5mm)
- Excellent ESD clamp characteristics
- High ESD durability : IEC61000-4-2, Contact 8kV
- Operating temperature range : -55°C to 150°C
- Compliant with OPEN Alliance 1000BASE-T1

Equivalent Circuit



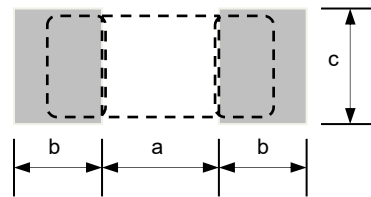
Shapes & Dimensions



Unit / mm

EIA	L	W	T	B
0402	1.0±0.05	0.5±0.05	0.5±0.05	0.1 Min.

Recommended PCB Pattern



Unit / mm

EIA	a	b	c
0402	0.3 to 0.5	0.35 to 0.45	0.4 to 0.6

Product Identification

AVRH	10	C	101	K	T	1R2	Y	E	8
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

(1)	Series name / AVRH
(2)	Dimension / 10:1.0x0.5(mm)
(3)	Structure
(4)	Varistor voltage / 101:10x10 ¹ (V) *Based on OA EMC Test Spec. (100V min.)
(5)	Varistor voltage tolerance / K : ±10(%)
(6)	Packaging scheme / T : Taping
(7)	Capacitance / 1R2 : 1.2(pF)
(8)	Capacitance tolerance / Y : ±0.13(pF)
(9)	ESD Tolerance (IEC61000-4-2) / E : ±8(kV)
(10)	Operating temperature (Max.) / 8 : 150(°C)

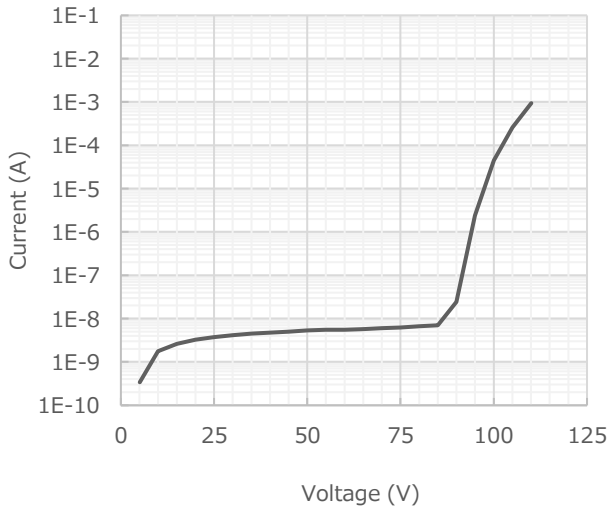
Electrical Characteristics

TDK Product Name	Varistor voltage (Breakdown voltage)	Rated voltage DC Max./Vdc	Clamping voltage 8/20µs Typ./Vcl	Capacitance 1MHz, 1Vrms Icl C
	(V)	(V)	(V)	(A) (pF)
AVRH10C101KT1R2YE8	110 (100 to 120)	70	187	0.3 1.23 (1.10 to 1.36)

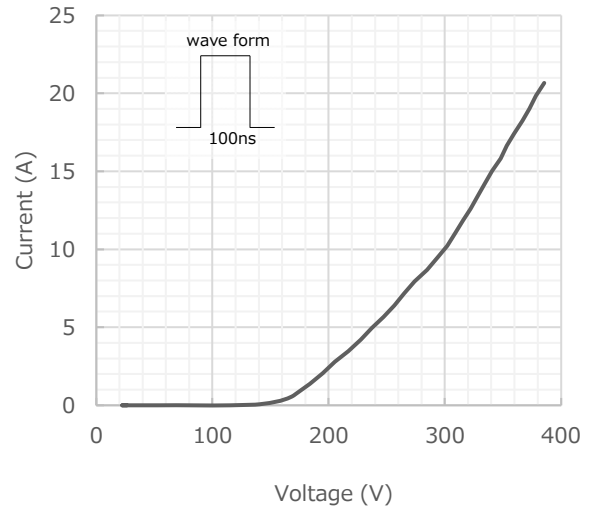
Energy	Power peak pulse	Peak current	ESD Tolerance	ESD Tolerance
10/1000µs Max./E (Joule)	10/1000µs Typ. /Ppp (W)	8/20µs Max./Ip (A)	IEC61000-4-2 (kV)	with MDI Circuit (kV)
0.007	5.3	0.3	Contact 8kV	Contact 25kV

Multilayer Chip Varistor : AVRH10C101KT1R2YE8

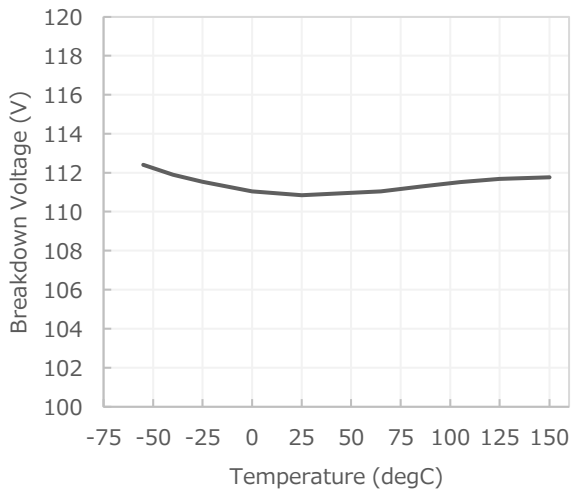
Current - Voltage



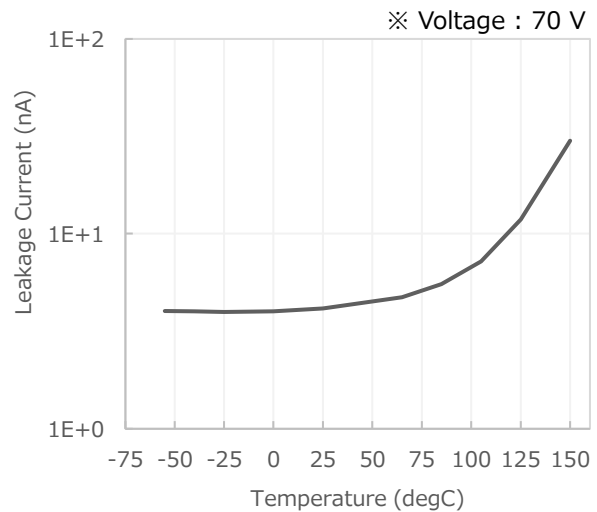
Current - Voltage (TLP)



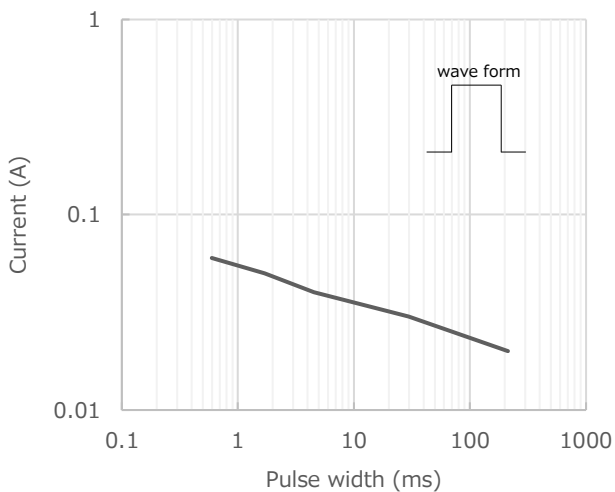
Breakdown Voltage - Temp.



Leakage current - Temp.

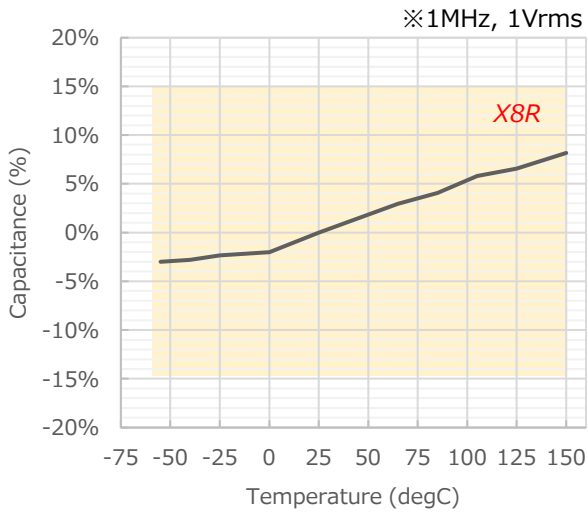


Durability of Pulse Current (Typ. values)

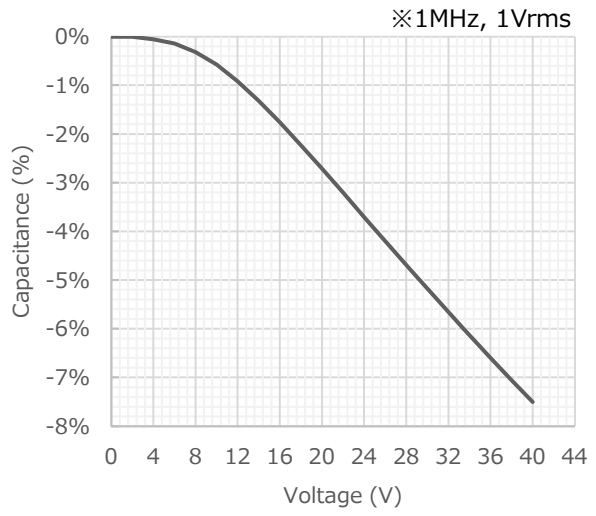


Multilayer Chip Varistor : AVRH10C101KT1R2YE8

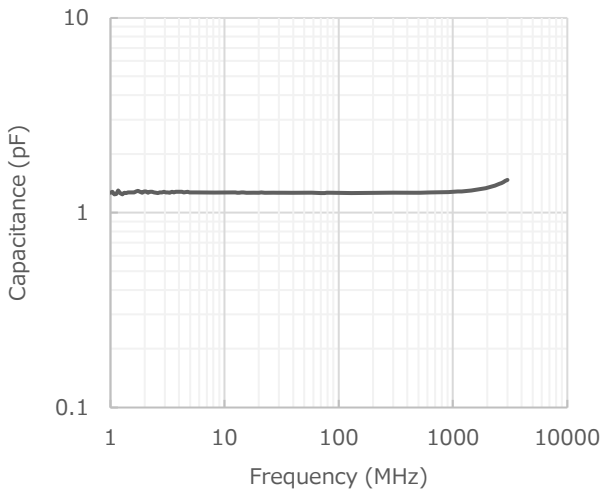
Capacitance - Temp.



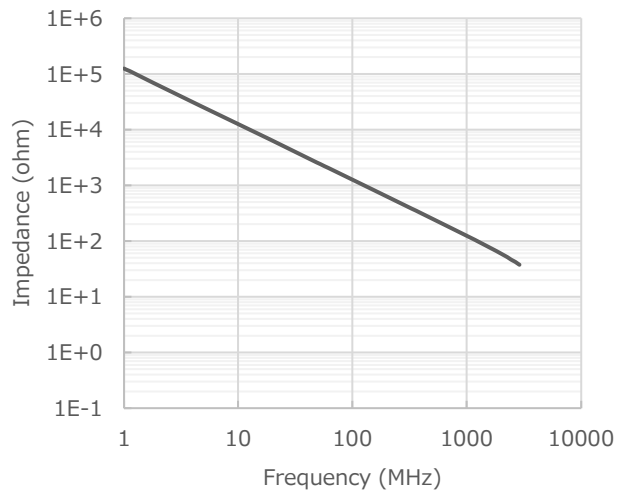
DC bias



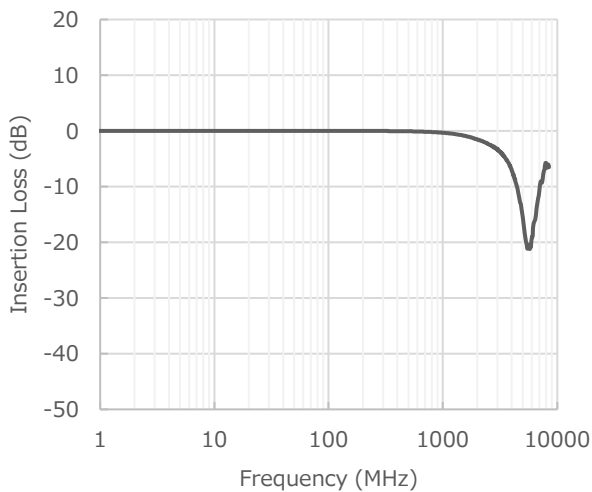
Capacitance - Freq.



Impedance - Freq.



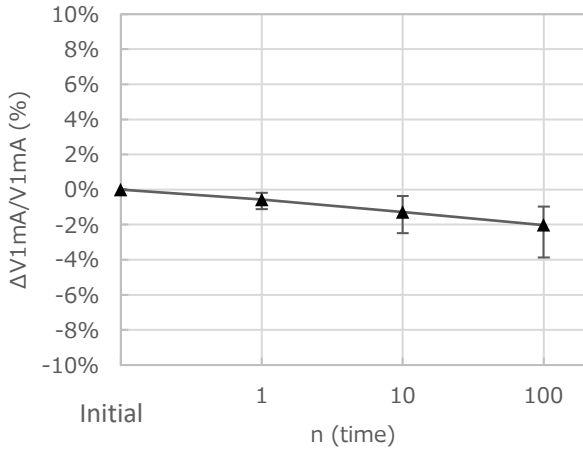
Insertion Loss



Multilayer Chip Varistor : AVRH10C101KT1R2YE8

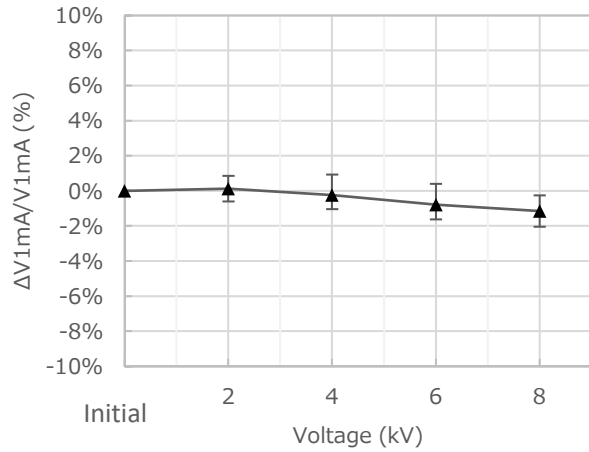
ESD Discharge

▶ 150pF/330ohm, ±8kV, 100times



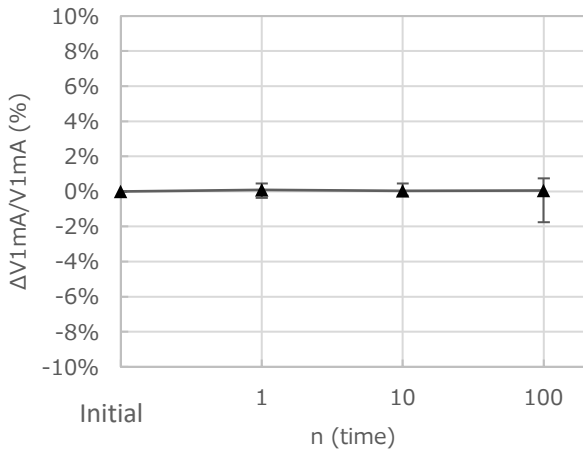
ESD Discharge

▶ 150pF/330ohm, ~±8kV, 10times



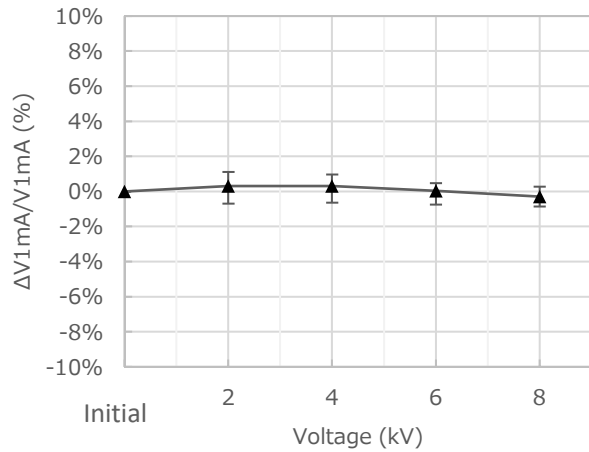
ESD Discharge

▶ 330pF/2000ohm, ±8kV, 100times



ESD Discharge

▶ 330pF/2000ohm, ~±8kV, 10times

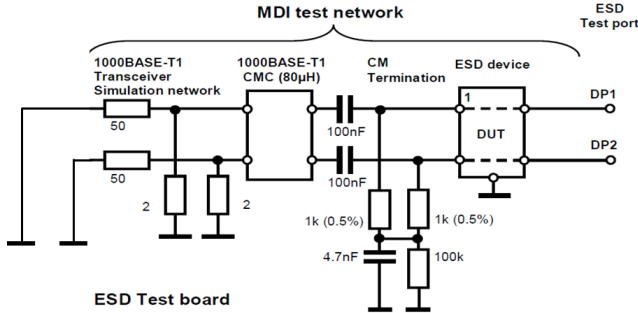


※Criteria : $\Delta V1mA/V1mA \leq 10\%$

Multilayer Chip Varistor : AVRH10C101KT1R2YE8

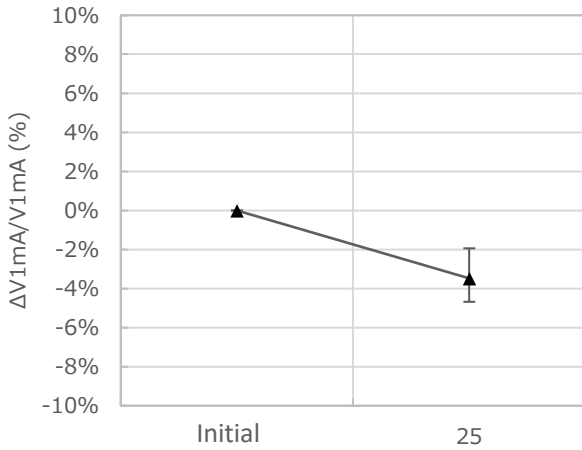
ESD Discharge (Varistor with OPEN Alliance MDI Circuit)

■ OPEN Alliance MDI Circuit

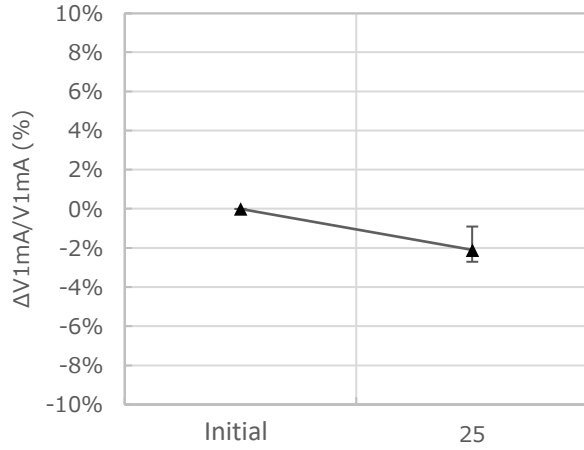


- ✓ CMC Part No. ACT1210G-800-2P-TL10
- ✓ Other device's spec refer to "OPEN Alliance System Implementation Specification"

▶ 150pF/330ohm, ±25kV, 10times



▶ 330pF/2000ohm, ±25kV, 10times



※Criteria : $\Delta V_{1mA}/V_{1mA} \leq 10\%$

Multilayer Chip Varistor : AVRH10C101KT1R2YE8

Test results of OPEN Alliance 1000BASE-T1

<i>Single test</i>	<i>Result / Resulting class</i>
S-Parameter	Pass
Damage ESD	Pass
ESD Discharge Current Measurement CMC Saturation class I	±3 kV : class II
	±5 kV : no class reached
	±6 kV : no class reached
	±7 kV : no class reached
	±15 kV : no class reached
RF clamping	Pass : class III

※Standard be used : 1000BASE-T1 EMC Test Specification for ESD Suppression Devices,
version 1.0, October 30, 2020