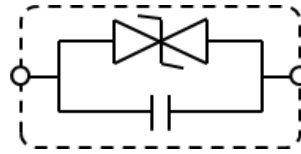


# Multilayer Chip Varistor : AVRH10C101KT4R7YA8

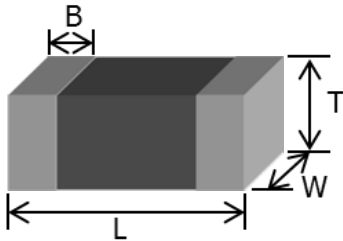
## Features

- Automotive (AEC-Q200) grade
- Size : EIA0402 (1.0x0.5mm)
- Excellent ESD clamp characteristics
- High ESD durability : IEC61000-4-2, Contact 25kV
- Operating temperature range : -55°C ~ 150°C
- Compliant with OPEN Alliance 100BASE-T1

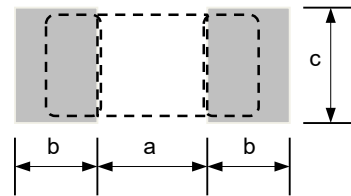
## Equivalent Circuit



## Shapes & Dimensions



## Recommended PCB Pattern



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

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**   **4R7**   **Y**   **A**   **8**  
 (1)   (2)   (3)   (4)   (5)   (6)   (7)   (8)   (9)   (10)

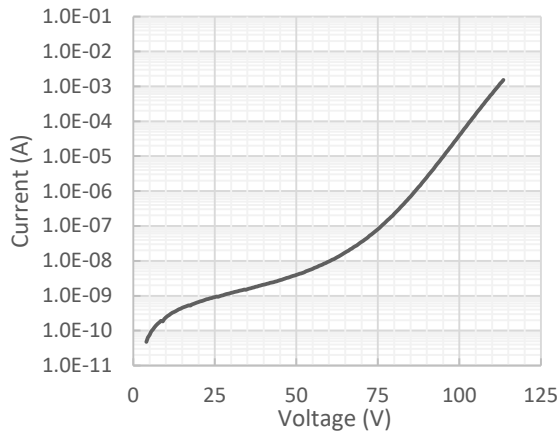
(1)	Series name / AVRH
(2)	Dimension / 10:1.0x0.5(mm)
(3)	Structure
(4)	Varistor voltage / 101:10x10 <sup>1</sup> (V) *Based on OPEN Alliance (100V min.)
(5)	Varistor voltage tolerance / K : ±10(%)
(6)	Packaging scheme / T : Taping
(7)	Capacitance / 4R7 : 4.7(pF)
(8)	Capacitance tolerance / Y : ±0.57(pF)
(9)	ESD Tolerance (IEC61000-4-2) / A : ±25(kV)
(10)	Operating temperature (Max.) / 8 : 150(°C)

## Electrical Characteristics

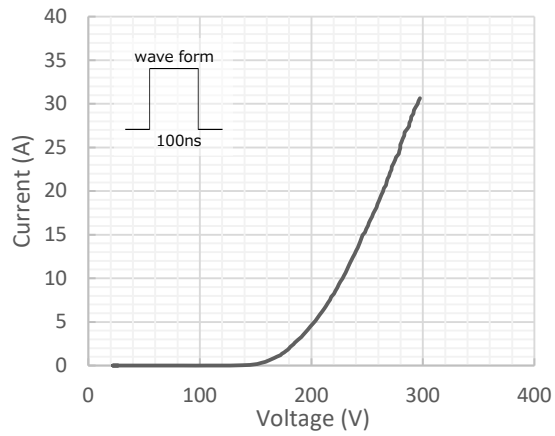
TDK Product Name	Varistor voltage (Breakdown voltage)	Rated voltage	Clamping voltage		Energy	Power Peak Pulse	Peak current	Capacitance
	V1mA	DC Max.	8/20µs Typ.	Vcl Icl	10/1000µs Max. E (Joule)	10/1000µs Typ. Ppp (W)	8/20µs Max. Ip (A)	1MHz, 1Vrms C (pF)
AVRH10C101KT4R7YA8	115 (103.5~126.5)	70	212	1	0.03	24.5	1	4.7 (4.13~5.27)

# Multilayer Chip Varistor : AVRH10C101KT4R7YA8

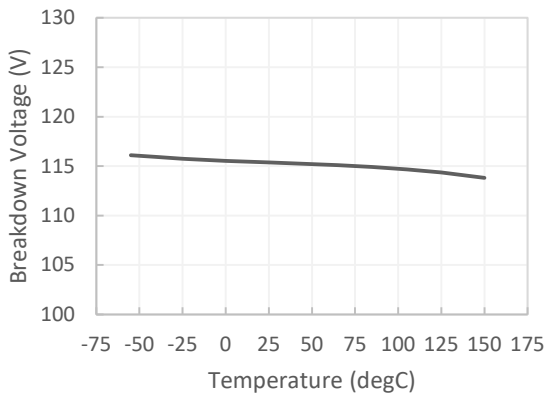
**Current - Voltage**



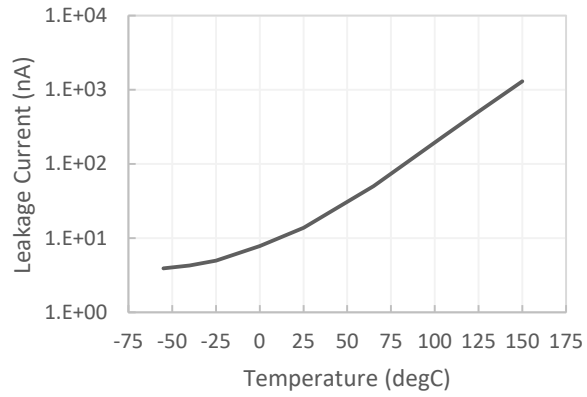
**Current - Voltage (TLP)**



**Breakdown Voltage - Temp.**



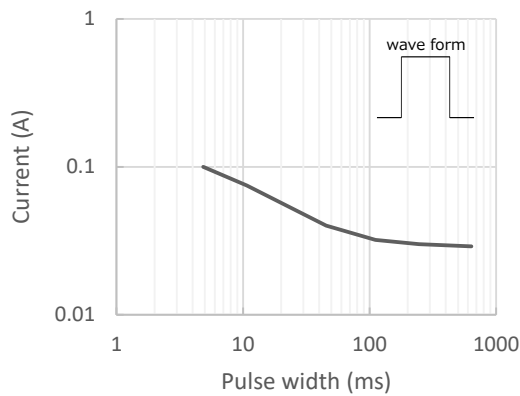
**Leakage current - Temp.**



※ Voltage : 70 V

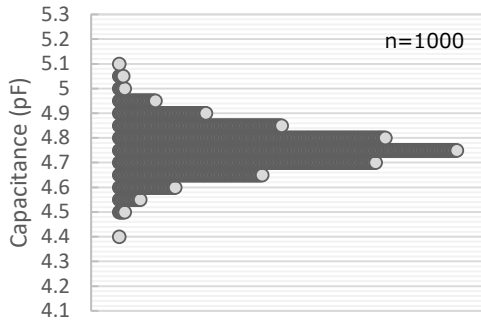
**Durability of Pulse Current**

( Typ. values )

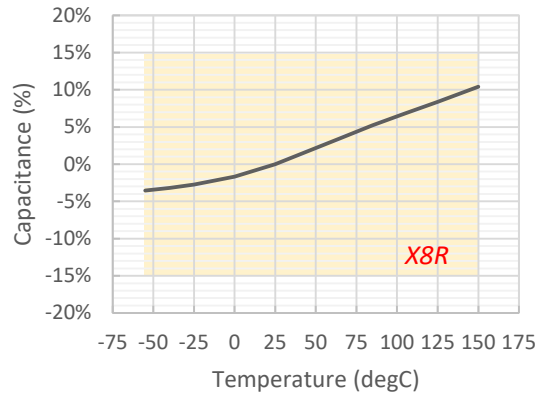


# Multilayer Chip Varistor : AVRH10C101KT4R7YA8

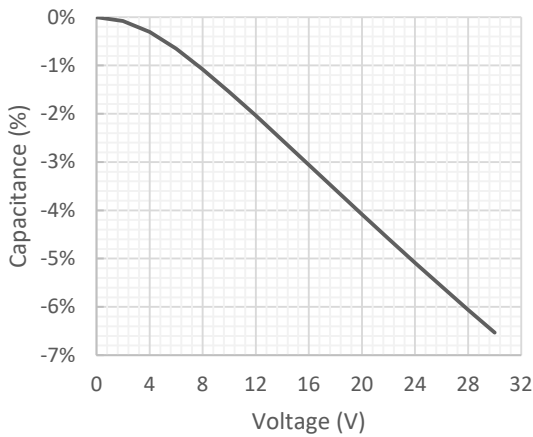
**Capacitance Dispersion** ※1MHz, 1Vrms



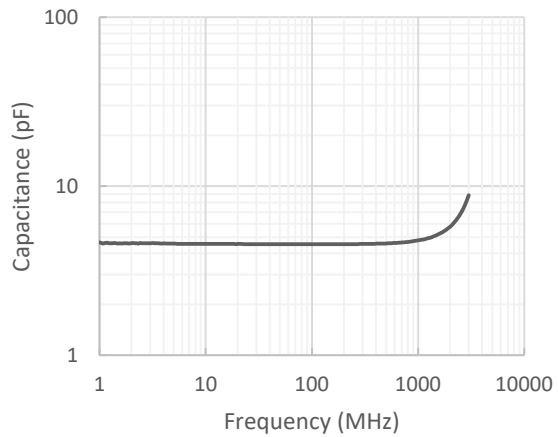
**Capacitance - Temp.** ※1MHz, 1Vrms



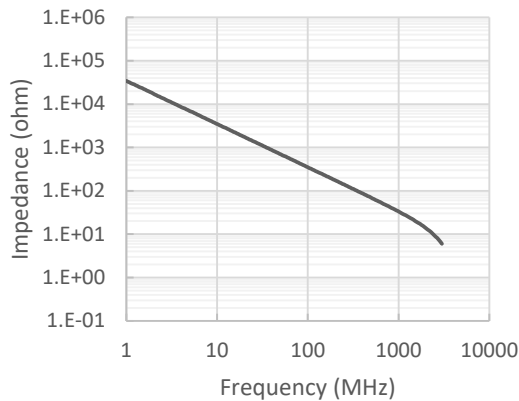
**DC bias** ※1MHz, 1Vrms



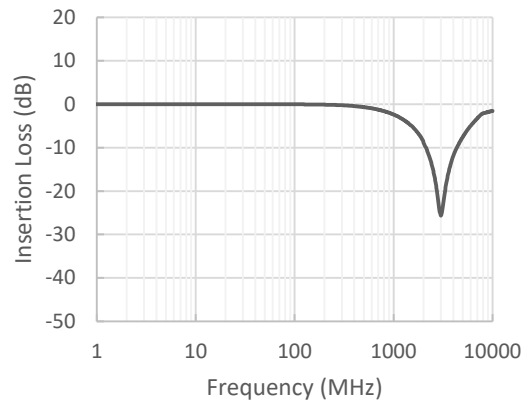
**Capacitance - Freq.**



**Impedance - Freq.**



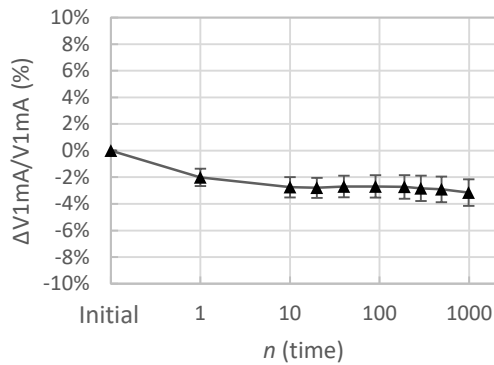
**Insertion Loss**



# Multilayer Chip Varistor : AVRH10C101KT4R7YA8

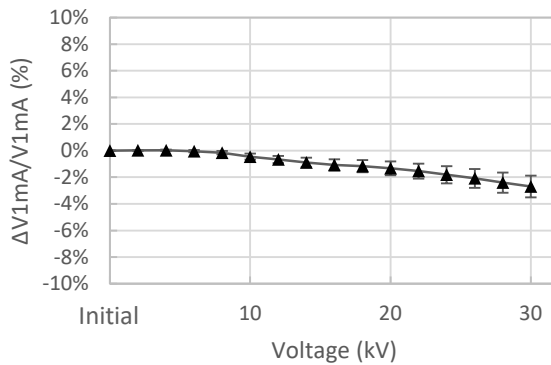
## ESD Discharge

▶ 150pF/330ohm, ±25kV, 1000times



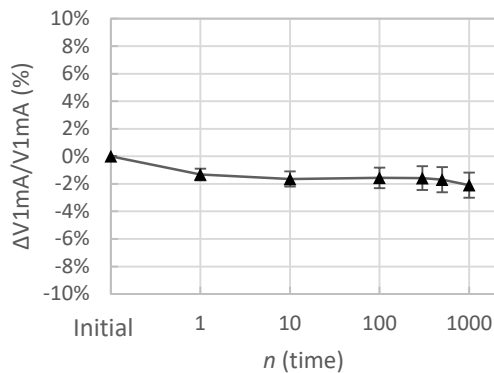
## ESD Discharge

▶ 150pF/330ohm, ~±30kV, 10times



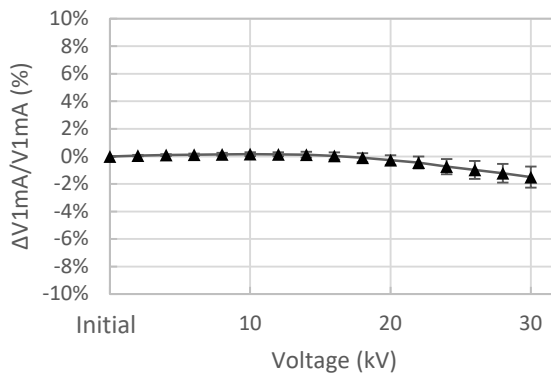
## ESD Discharge

▶ 330pF/2000ohm, ±25kV, 1000times



## ESD Discharge

▶ 330pF/2000ohm, ~±30kV, 10times



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

## Multilayer Chip Varistor : AVRH10C101KT4R7YA8

### **Test results of OPEN Alliance 100BASE-T1**

<i>Single test</i>	<i>Result / Resulting class</i>
S-Parameter	Pass
Damage ESD	Pass
ESD Discharge Current Measurement CMC Saturation class II	±3 kV : class III
	±5 kV : class III
	±6 kV : class III
	±7 kV : class III
	±15 kV : class II
ESD Discharge Current Measurement CMC Saturation class I	±3 kV : class III
	±5 kV : class II
	±6 kV : class II
	±7 kV : class II
	±15 kV : class I
RF clamping	Pass : class III

※Standard be used : IEEE 100BASE-T1 EMC Test Specification for ESD suppression devices,  
Version 2.0, October 30, 2020