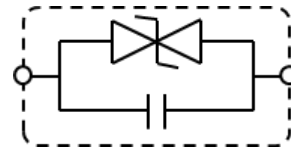


# Multilayer Chip Varistor : AVRH10C390KT150NA8

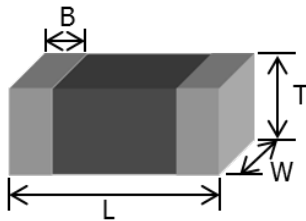
## Features

- 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

## Equivalent Circuit



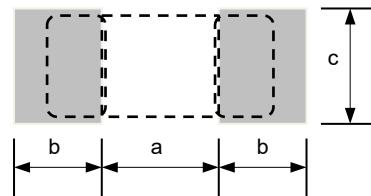
## Shapes & Dimensions



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

Unit / mm

## Recommended PCB Pattern



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

Unit / mm

## Product Identification

|             |           |          |            |          |          |            |          |          |          |
|-------------|-----------|----------|------------|----------|----------|------------|----------|----------|----------|
| <b>AVRH</b> | <b>10</b> | <b>C</b> | <b>390</b> | <b>K</b> | <b>T</b> | <b>150</b> | <b>N</b> | <b>A</b> | <b>8</b> |
| (1)         | (2)       | (3)      | (4)        | (5)      | (6)      | (7)        | (8)      | (9)      | (10)     |

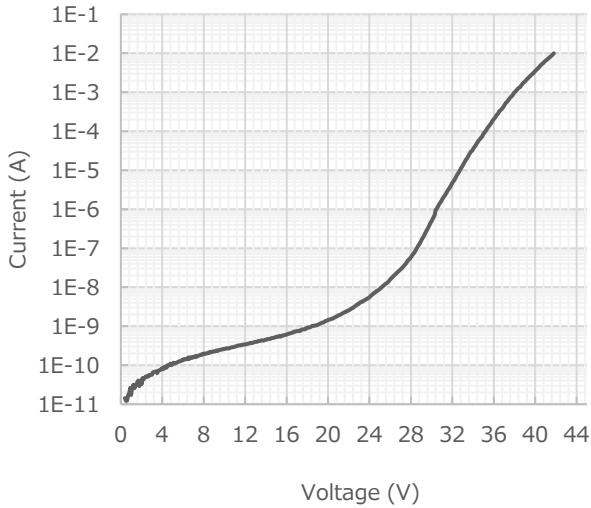
|      |   |
|------|---|
| (1)  | Series name / AVRH                            |
| (2)  | Dimension / 10:1.0x0.5(mm)                    |
| (3)  | Structure                                     |
| (4)  | Varistor voltage / 390:39x10 <sup>0</sup> (V) |
| (5)  | Varistor voltage tolerance / K : ±10(%)       |
| (6)  | Packaging scheme / T : Taping                 |
| (7)  | Capacitance / 150:15x10 <sup>0</sup> (pF)     |
| (8)  | Capacitance tolerance / N : ±30(%)            |
| (9)  | ESD Tolerance (IEC61000-4-2) / A : ±25(kV)    |
| (10) | Operating temperature (Max.) / 8 : 150(°C)    |

## Electrical Characteristics

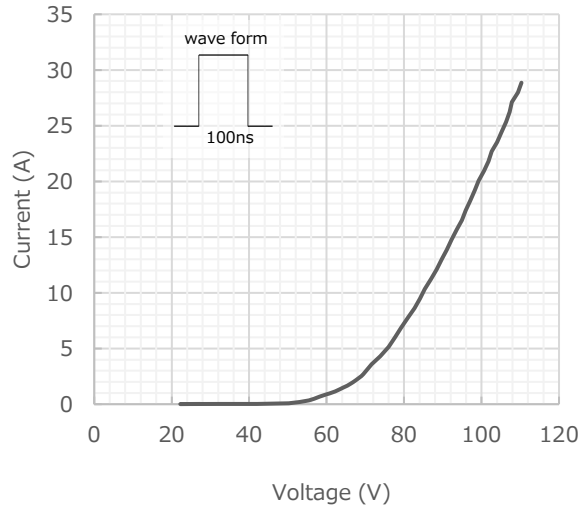
| TDK Product Name   | Varistor voltage<br>(Breakdown voltage) | Rated<br>voltage | Clamping<br>voltage |            | Energy       | Power peak<br>pulse | Peak<br>current | Capacitance   |
|--------------------|---|------------------|---------------------|------------|--------------|---------------------|-----------------|---------------|
|                    | V1mA<br>(V)                             | Vdc<br>(V)       | Vcl<br>(V)          | Icl<br>(A) | E<br>(Joule) | Ppp<br>(W)          | Ip<br>(A)       | C<br>(pF)     |
| AVRH10C390KT150NA8 | 39(35~43)                               | 28               | 80                  | 2          | 0.05         | 22.0                | 5               | 15(10.5~19.5) |

# Multilayer Chip Varistor : AVRH10C390KT150NA8

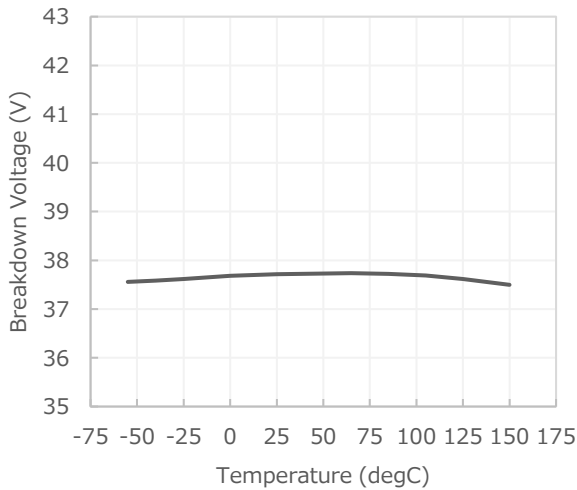
**Current - Voltage**



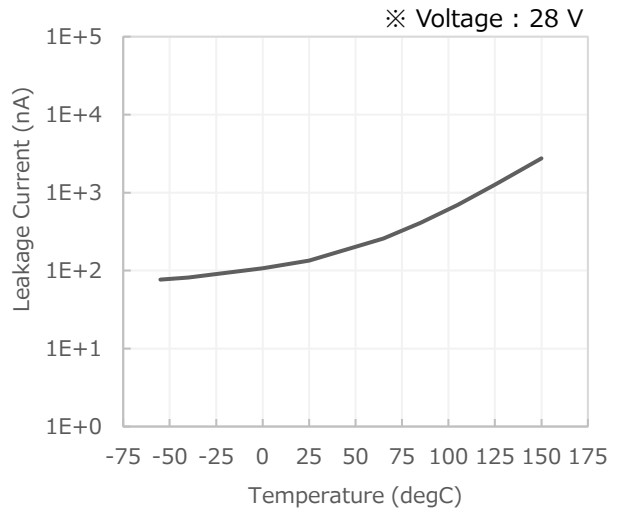
**Current - Voltage (TLP)**



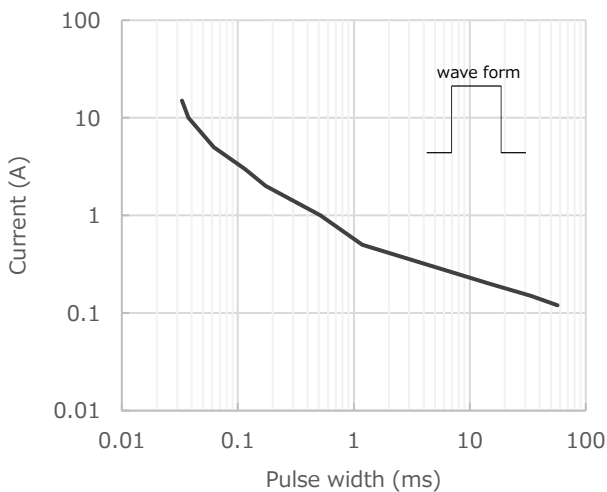
**Breakdown Voltage - Temp.**



**Leakage current - Temp.**

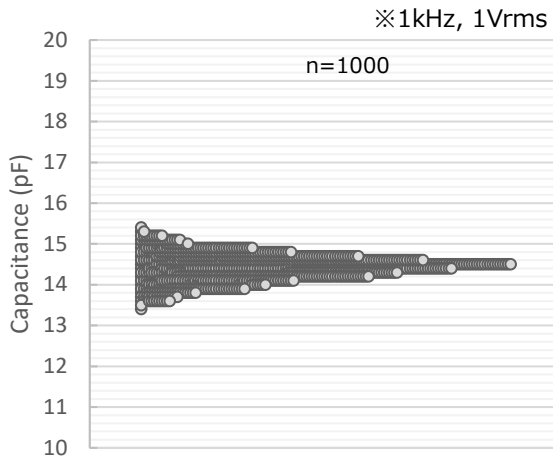


**Durability of Pulse Current (Typ. values)**

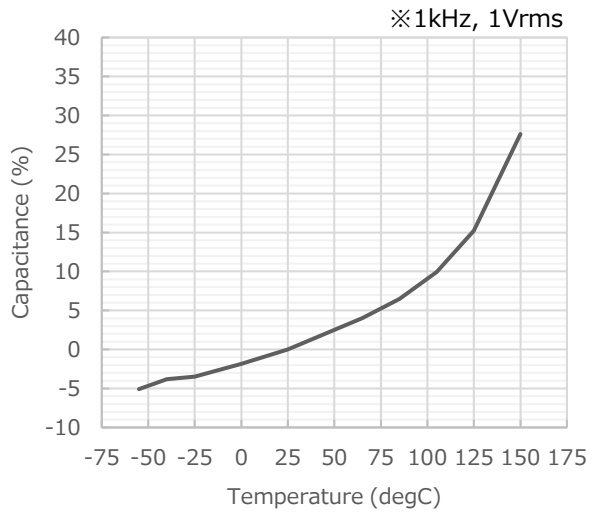


# Multilayer Chip Varistor : AVRH10C390KT150NA8

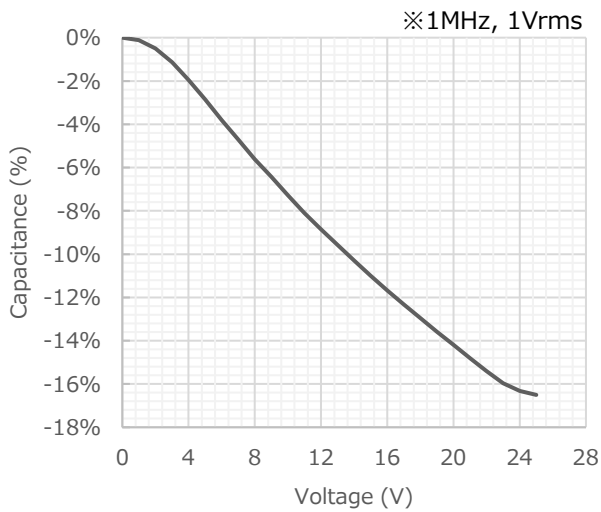
**Capacitance Dispersion**



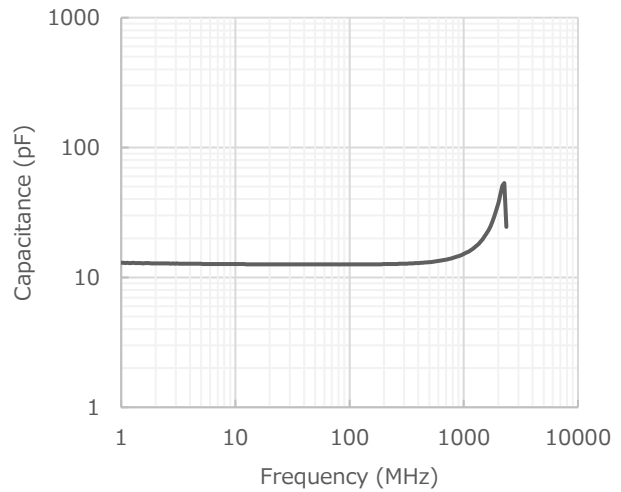
**Capacitance - Temp.**



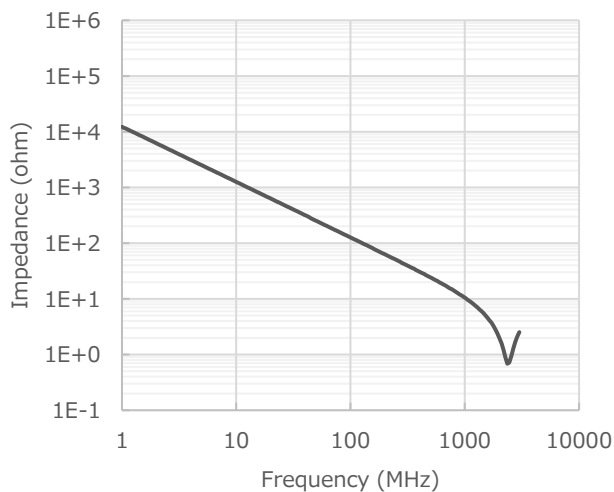
**DC bias**



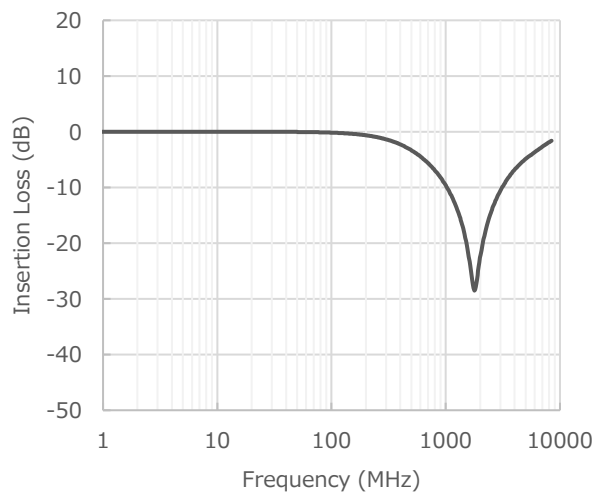
**Capacitance - Freq.**



**Impedance - Freq.**



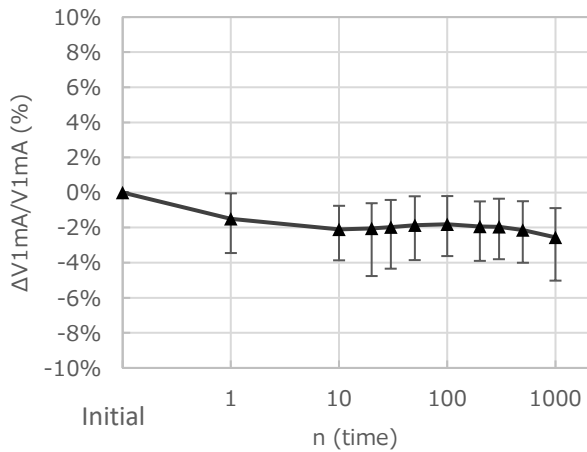
**Insertion Loss**



# Multilayer Chip Varistor : AVRH10C390KT150NA8

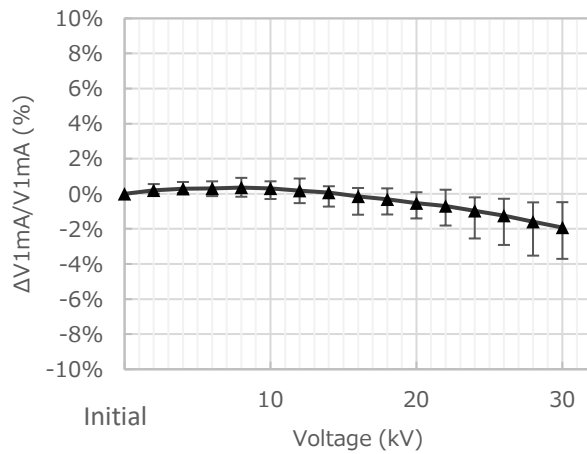
## ESD Discharge

▶ 150pF/330ohm, ±25kV, 1000times



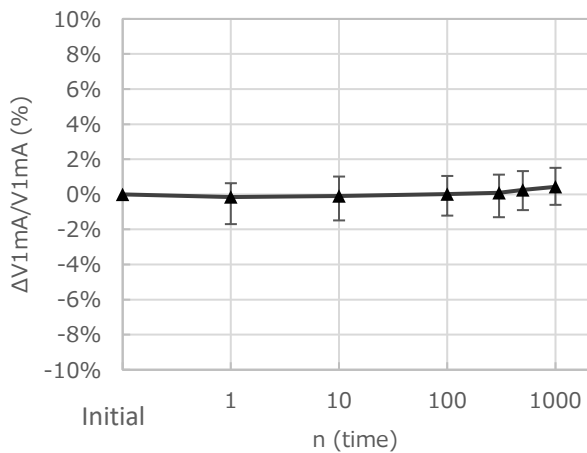
## ESD Discharge

▶ 150pF/330ohm, ~±30kV, 10times



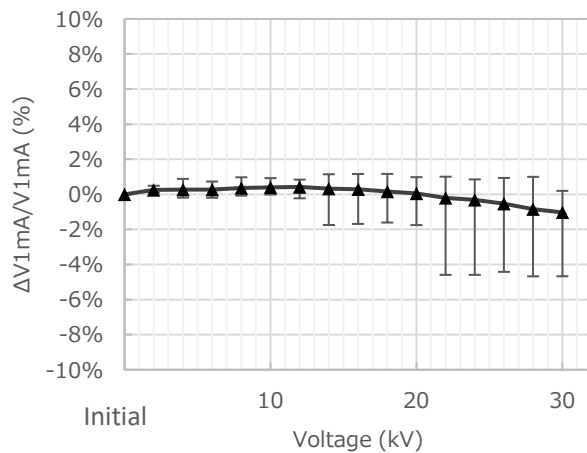
## ESD Discharge

▶ 330pF/2000ohm, ±25kV, 1000times



## ESD Discharge

▶ 330pF/2000ohm, ~±30kV, 10times



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