

# ANTREX Electronics

Electronic Components Sourcing Information

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## Product Reference Information

**Part Number:** VGAH181231P650DP  
**Manufacturer:** KYOCERA AVX  
**Package:** 1812 (4532 Metric)  
**Availability:** Please confirm with sales

### Product Page:

<https://antrexco.com/product/details/kyocera-avx/vgah181231p650dp.html>

### Request a Quote:

[Submit RFQ for this part](#)



Scan for product page

## Contact Information

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## Quality & Trust

New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

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# High Temperature +150°C Automotive Series Varistors

## +150°C Glass Encapsulated High Temperature TransGuard®



KYOCERA AVX High Temperature 150°C Multi-Layer Varistors are designed for underhood and other high temperature automotive or industrial applications. Parts are AEC-Q200 qualified.

They offer bi-directional overvoltage protection as well as EMI/RFI attenuation in a single SMT package. This allows designers the ability to combine the circuit protection and EMI/RFI attenuation function into a single highly reliable device. The glass encapsulation provides enhanced resistance against harsh environment or process such as acidic environment, salts or chlorite flux.

Available in 1206 to 3220 case size, 16 - 31Vdc working voltage, energy rating 0.6 -13J, load dump energy 1.5 - 50J, peak current 200 – 1800A and capacitance 700 - 15000pF. Operating temperature range is -55°C to +150°C. Parts offer excellent lead free solderability thanks to Ni Barrier/100% Sn termination.

### GENERAL CHARACTERISTICS

- Operating Temp: -55 to +150°C
- Working Voltage: 16 to 31Vdc
- Case Size: 1206 to 3220

### FEATURES

- AEC-Q200 qualified
- 150°C High Temp
- EMI/RFI attenuation in off state

### APPLICATIONS

- Under hood
- Down Hole Drilling
- Any High Temperature Application

### HOW TO ORDER

**VG**  
Varistor Glass Encapsulation

**AH**  
Automotive High Temp 150°C

**1206**  
Case Size  
1206  
1210  
1812  
2220  
3220

**16**  
Working Voltage  
16 = 16Vdc  
22 = 22Vdc  
26 = 26Vdc  
31 = 31Vdc

**K**  
Energy Rating  
H = 1.2J  
J = 1.5-1.6J  
K = 0.6J  
M = 1.0J  
P = 2.5-3.7J  
R = 1.7J  
S = 1.9-2.0J  
Y = 6.5-12J  
Z = 13J

**390**  
Clamping Voltage  
390 = 40V  
400 = 42V  
490 = 49V  
560 = 60V  
570 = 57V  
650 = 57V

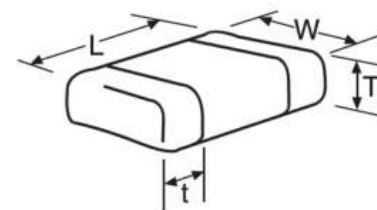
**R**  
Packaging  
D = 7" reel  
R = 7" reel  
T = 13" reel

**P**  
Termination  
P = Ni Barrier/  
100% Sn (matte)



### DIMENSIONS mm (inches)

| Size (EIA) | Length (L)                 | Width (W)                  | Max Thickness (T)         | Land Length (t)           |
|------------|----------------------------|----------------------------|---------------------------|---------------------------|
| 1206       | 3.20±0.20<br>(0.126±0.008) | 1.60±0.20<br>(0.063±0.008) | 1.70 max.<br>(0.067 max.) | 0.94 max.<br>(0.037 max.) |
| 1210       | 3.20±0.20<br>(0.126±0.008) | 2.49±0.20<br>(0.098±0.008) | 1.70 max.<br>(0.067 max.) | 0.14 max.<br>(0.045 max.) |
| 1812       | 4.50±0.30<br>(0.177±0.012) | 3.20±0.30<br>(0.126±0.012) | 2.00 max.<br>(0.079 max.) | 1.00 max.<br>(0.040 max.) |
| 2220       | 5.70±0.40<br>(0.224±0.016) | 5.00±0.40<br>(0.197±0.016) | 2.50 max.<br>(0.098 max.) | 1.00 max.<br>(0.040 max.) |
| 3220       | 8.20±0.40<br>(0.323±0.016) | 5.00±0.40<br>(0.197±0.016) | 2.50 max.<br>(0.098 max.) | 1.30 max.<br>(0.051 max.) |



# High Temperature +150°C Automotive Series Varistors

+150°C Glass Encapsulated High Temperature TransGuard®



## GENERAL DESCRIPTION

| Part Number    | V <sub>w</sub> (DC) | V <sub>w</sub> (AC) | V <sub>B</sub> | V <sub>C</sub> | I <sub>vc</sub> | I <sub>L</sub> | E <sub>T</sub> | E <sub>LD</sub> | I <sub>P</sub> | Cap   | V <sub>Jump</sub> | P <sub>Diss Max.</sub> |
|----------------|---------------------|---------------------|----------------|----------------|-----------------|----------------|----------------|-----------------|----------------|-------|-------------------|------------------------|
|                | Vdc                 | Vac                 | V              | V              | A               | μA             | J              | J               | A              | pF    | V                 | W                      |
| VGAH120616K390 | 16                  | 11                  | 24.5±10%       | 40             | 1.0             | 15             | 0.6            | 1.5             | 200            | 1100  | 27.5              | 0.01                   |
| VGAH121016J400 | 16                  | 13                  | 25.5±10%       | 42             | 5.0             | 15             | 1.6            | 3.0             | 500            | 2300  | 27.5              | 0.03                   |
| VGAH121016S390 | 16                  | 14                  | 24.5±10%       | 40             | 2.5             | 15             | 2.0            | 5.0             | 500            | 3000  | 27.5              | 0.01                   |
| VGAH181216P390 | 16                  | 11                  | 24.5±10%       | 40             | 5.0             | 15             | 2.9            | 10.0            | 1000           | 7000  | 27.5              | 0.07                   |
| VGAH222016Y400 | 16                  | 11                  | 24.5±10%       | 42             | 10.0            | 10             | 7.2            | 25.0            | 1500           | 13000 | 27.5              | 0.1                    |
| VGAH222022Y490 | 22                  | 17                  | 30±10%         | 49             | 10.0            | 15             | 6.8            | 25.0            | 1200           | 12000 | 27.5              | 0.03                   |
| VGAH121026H560 | 26                  | 18                  | 34.5±10%       | 60             | 5.0             | 15             | 1.2            | 3.0             | 300            | 1200  | 27.5              | 0.018                  |
| VGAH181226P570 | 26                  | 23                  | 35±10%         | 57             | 5.0             | 15             | 3.0            | 8.0             | 600            | 3000  | 30.0              | 0.015                  |
| VGAH222026Y570 | 26                  | 23                  | 35±10%         | 57             | 10.0            | 15             | 6.8            | 20.0            | 1100           | 7000  | 30.0              | 0.03                   |
| VGAH322026Z570 | 26                  | 23                  | 35±10%         | 57             | 10.0            | 15             | 13.0           | 50.0            | 1800           | 15000 | 30.0              | 0.04                   |
| VGAH120631M650 | 31                  | 25                  | 39±10%         | 65             | 1.0             | 15             | 1.0            | 2.5             | 200            | 700   | 30.0              | 0.03                   |
| VGAH121031R650 | 31                  | 25                  | 39±10%         | 65             | 2.5             | 15             | 1.7            | 4.5             | 300            | 1200  | 30.0              | 0.05                   |
| VGAH181231P650 | 31                  | 25                  | 39±10%         | 65             | 5.0             | 15             | 3.7            | 8.0             | 800            | 2600  | 30.0              | 0.06                   |
| VGAH222031Y650 | 31                  | 25                  | 39±10%         | 65             | 10.0            | 15             | 9.6            | 23.0            | 1200           | 6100  | 30.0              | 0.03                   |

V<sub>w</sub>(DC) DC Working Voltage [V]  
V<sub>w</sub>(AC) AC Working Voltage [V]  
V<sub>B</sub> Breakdown Voltage [V @ 1mA] ADC  
V<sub>C</sub> Clamping Voltage [V @ IVC]  
I<sub>vc</sub> Clamping Current [A @ IVC]  
I<sub>L</sub> Maximum leakage current at the working voltage [μA]

E<sub>T</sub> Transient Energy Rating [J, 10x1000μs]  
I<sub>P</sub> Peak Current Rating [A, 8x20μs]  
Cap Capacitance [pF] @ 1KHz specified and 0.5V<sub>RMS</sub>  
V<sub>Jump</sub> Jump Start (V)  
P<sub>Diss Max.</sub> Power Dissipation (W)

## POWER DERATING CURVE (CURRENT, ENERGY, POWER)

## OPERATING VOLTAGE DERATING

