

# High Temperature +175°C Automotive Series

## +175°C Rated Varistors



### GENERAL DESCRIPTION

AVX High Temperature 175°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.

Products have been tested, qualified, and specified to 175°C and they do not require any derating over specified operating temperature range.

### GENERAL CHARACTERISTICS

- Operating Temp.: -55 to +175°C
- Working Voltage: 18, 31Vdc
- Case Size: 0603, 0805

### FEATURES

- +175°C rated, with no derating
- High Reliability
- AEC Q200 Qualified
- Bi-Directional protection
- EMI/RFI attenuation
- ESD rated to 25kV (HBM ESD Level 6)

### APPLICATIONS

- Under hood
- Down Hole Drilling
- High temperature Automotive and Industrial Applications

### HOW TO ORDER

<b>VT</b>	<b>A7</b>	<b>0603</b>	<b>18</b>	<b>A</b>	<b>400</b>	<b>R</b>	<b>P</b>
Varistor Temp Rated	Automotive 175°C	Case Size 0603 0805	Working Voltage 18 = 18Vdc 31 = 31Vdc	Energy Rating A=0.1J C=0.3J	Clamping Voltage 400 = 42V 650 = 65V 670 = 67V	Package D = 7" (1,000) R = 7" (4,000) T = 13" (10,000)	Termination P = Ni/Sn plated



### ELECTRICAL CHARACTERISTICS

AVX PN	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
VTA7060318A400	18	13	23±10%	42	1	10	0.1	0.25	30	275	27.5	0.003
VTA7080518C400	18	13	25.5±10%	42	1	10	0.3	1	120	450	27.5	0.007
VTA7060331A670	31	25	39±10%	67	1	10	0.1	0.25	30	90	29	0.005
VTA7080531C650	31	25	39±10%	65	1	10	0.3	1	80	275	29	0.005

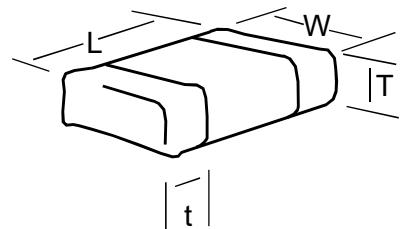
V<sub>W</sub>(DC) DC Working Voltage [V]  
 V<sub>W</sub>(AC) AC Working Voltage [V]  
 V<sub>B</sub> Typical Breakdown Voltage [V @1mA<sub>DC</sub>]  
 V<sub>C</sub> Clamping Voltage [V @I<sub>C</sub>]  
 I<sub>VC</sub> Test Current for V<sub>C</sub>  
 I<sub>L</sub> Maximum leakage current at the working voltage [µA]

E<sub>T</sub> Transient Energy Rating [J, 10x1000µS]  
 E<sub>LD</sub> Load Dump Energy (x10)  
 I<sub>P</sub> Peak Current Rating [A, 8x20µS]  
 Cap Typical capacitance [pF] @frequency specified and 0.5V<sub>RMS</sub>  
 V<sub>Jump</sub> Jump Start (V)  
 P<sub>Diss. Max</sub> Power Dissipation (W)

### DIMENSIONS

mm(inches)

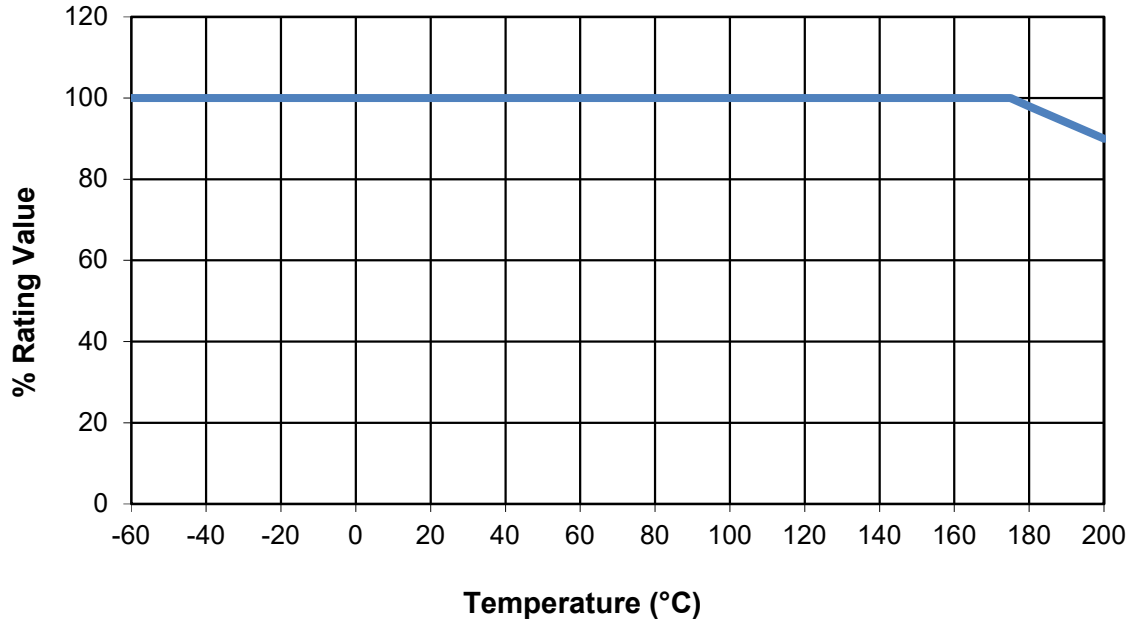
Size (EIA)	Length (L)	Width (W)	Max Thickness (T)	Land Length (t)
0603	1.60±0.15 (0.063±0.006)	0.80±0.15 (0.031±0.006)	0.90 (0.035)	0.35±0.15 (0.014±0.006)
0805	2.01±0.20 (0.079±0.008)	1.25±0.20 (0.049±0.008)	1.02 (0.040)	0.71 max. (0.028 max.)



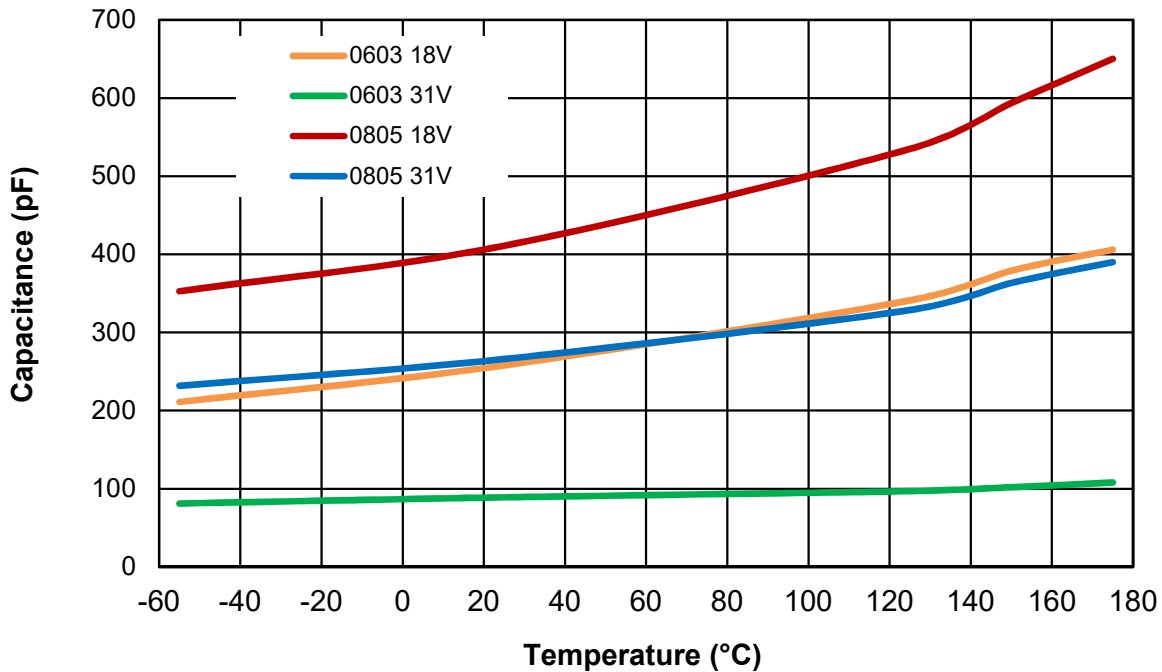
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### POWER DERATING CURVE (CURRENT, ENERGY, POWER)



### CAPACITANCE VS TEMPERATURE

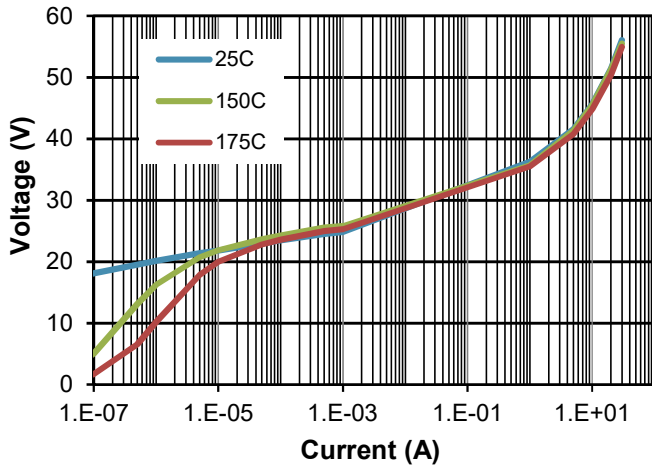


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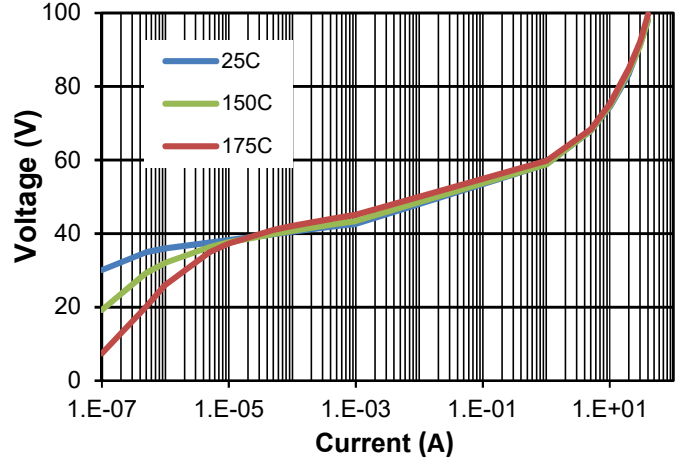
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### V-I CHARACTERISTICS

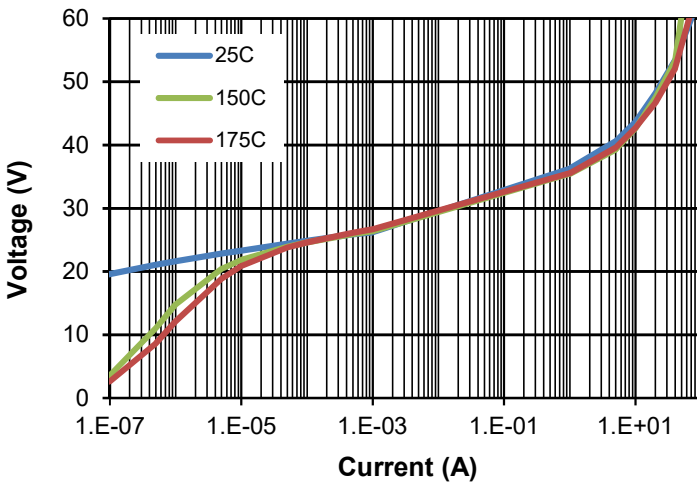
VTA7060318A400



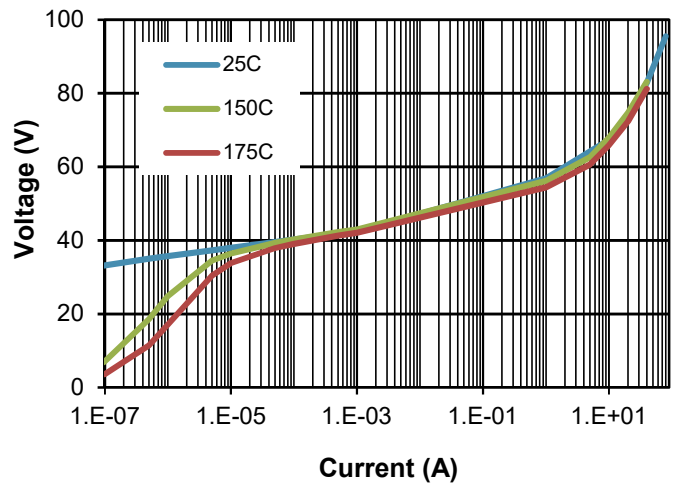
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VTA7080518C400



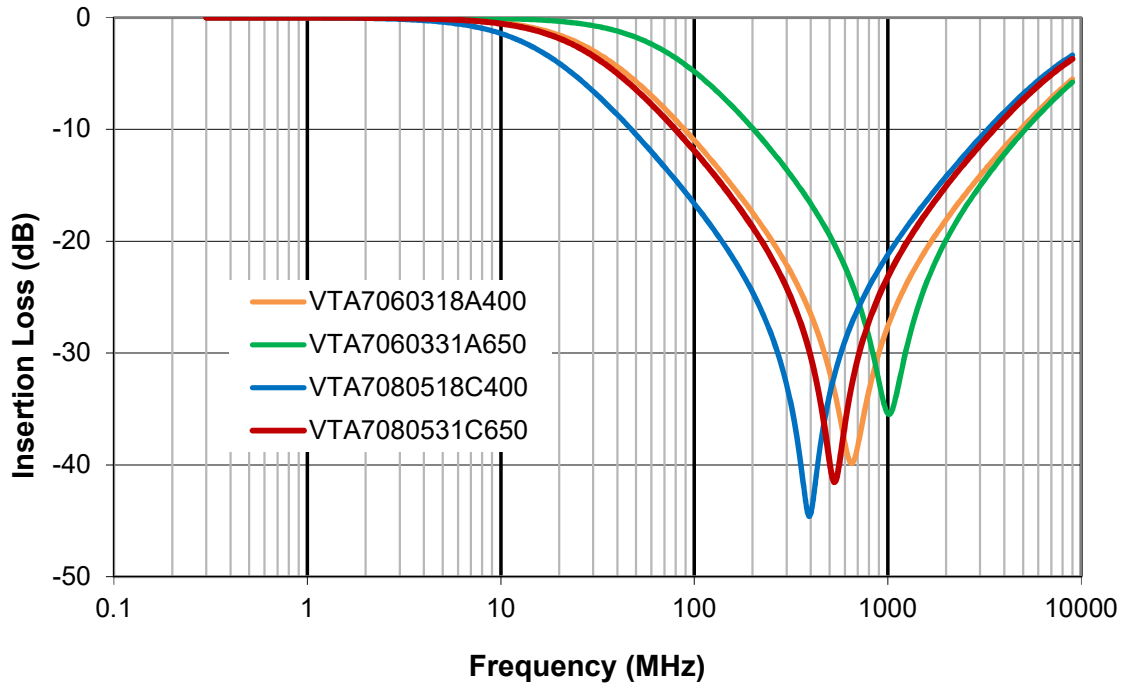
VTA7080531C650



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### FORWARD TRANSMISSION CHARACTERISTICS (S21)



### ESD RATING

AVX PN	IEC 61000-4-2	ISO 10605		AEC-Q200(Lvl.6)
	150 pF / 330 Ω Contact Discharge	330 pF / 330 Ω Contact Discharge	330 pF / 2000 Ω Contact Discharge	150 pF / 2000 Ω Air Discharge
VTA7060318A400	25 kV	30 kV	30 kV	25 kV
VTA7080518C400	30 kV	30 kV	30 kV	25 kV
VTA7060331A670	30 kV	30 kV	30 kV	25 kV
VTA7080531C650	30 kV	30 kV	30 kV	25 kV