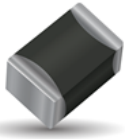


## Glass Encapsulated TransGuard® Automotive Multilayer Varistors

for Automotive applications



AEC-Q200  
Qualified

The Glass Encapsulated TransGuard® Automotive Series multilayer varistors provide bi-directional overvoltage protection as well as EMI/RFI attenuation in a single SMT package. Glass encapsulation extends the range into high energy applications and in addition provides enhanced resistance against harsh environment or process such as acidic environment, salts or chlorite flux.

### Electrical Characteristics

Operating Temperature -55 to +125°C

Case Size	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>	PP	I <sub>P</sub>	Cap	Cap Tol	V <sub>JUMP</sub>
EIA	Vdc	Vac	V	V	A	μA	J	J (10x)	W	A	pF	-	V (5min)
2220	31	25	39±10%	65	10	15	9.6	23	7250	1200	6100	+100/-50%	30

P<sub>DISS</sub>

W

0.03

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>VC</sub>]

I<sub>VC</sub> Test Current for V<sub>C</sub> [A, 8x20μs]

I<sub>L</sub> Maximum leakage current at the working voltage [μA]

E<sub>T</sub> Transient Energy Rating [J, 10x1000μs]

PP Peak Power Rating [W, 10x1000μs]

I<sub>P</sub> Peak Current Rating [A, 8x20μs]

Cap Typical capacitance [pF] @1kHz and 0.5VRMS

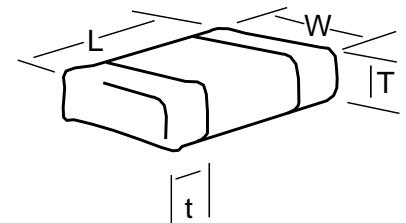
Cap tol Capacitance tolerance from typical value

V<sub>JUMP</sub> Jump start voltage [V, 5min]

P<sub>DISS</sub> Max Power Dissipation [W]

### Dimensions

Size (EIA)	Length (L)	Width (W)	Thickness (T)	mm (inches)
				Terminal (t)
2220	5.70±0.40	5.00±0.40	2.5 max	1.00 max
	(0.224±0.016)	(0.197±0.016)	(0.098 max)	(0.039 max)



### Termination

Ni barrier/100% Sn plated termination for lead free soldering.



RoHS  
COMPLIANT

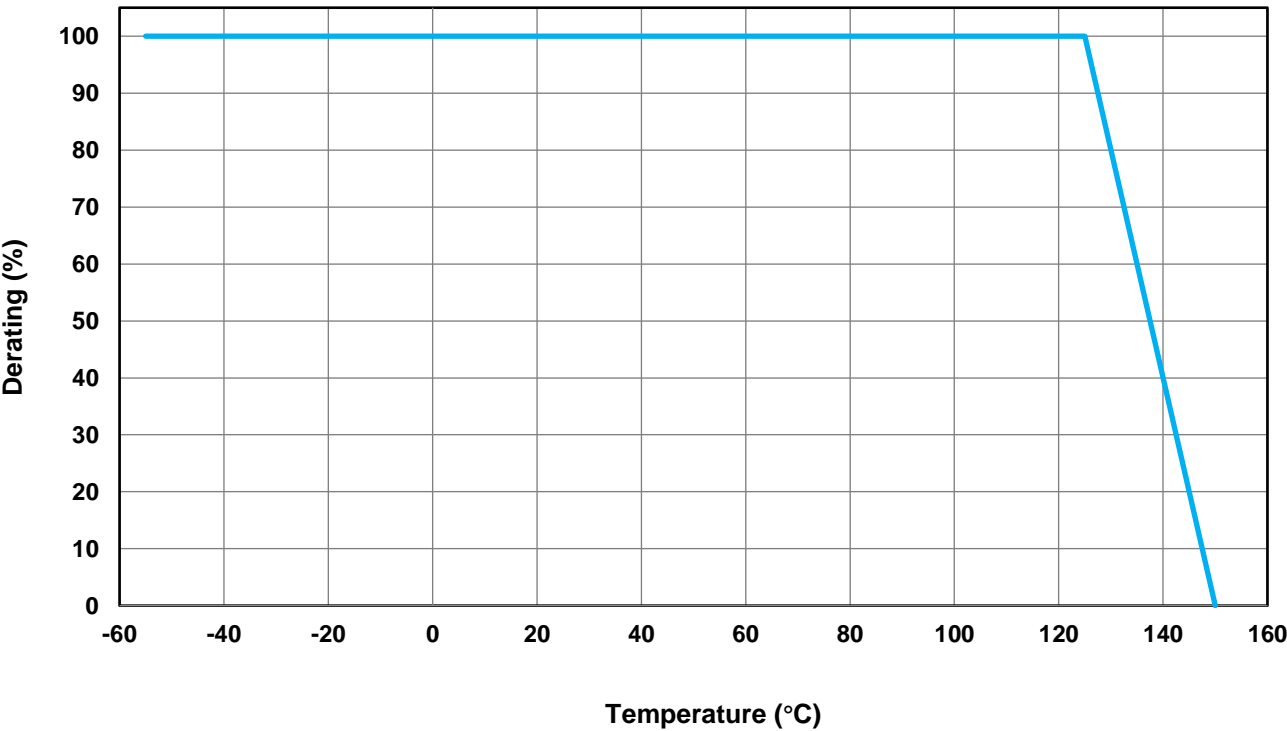
MSL 1

Pb Free 260°C

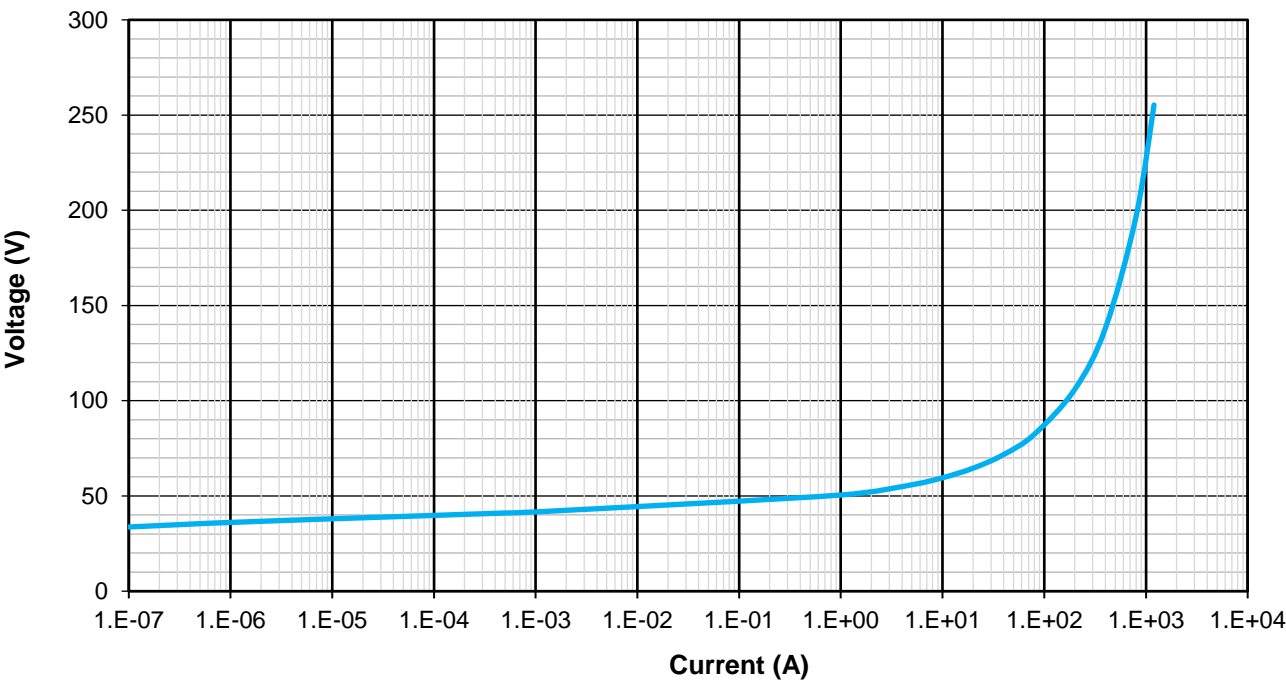
How to order (Packaging options)

VGAS	2220	31	Y	650	D	P
Varistor Glass encaps. Automotive Series	Case Size	Working Voltage	Energy Rating	Clamping Voltage	Packaging	Termination
		31 = 31Vdc	Y = 9.6J	650 = 65V	D = 7" reel (1,000pcs) T = 13" reel (4,000pcs)	P = Ni/Sn

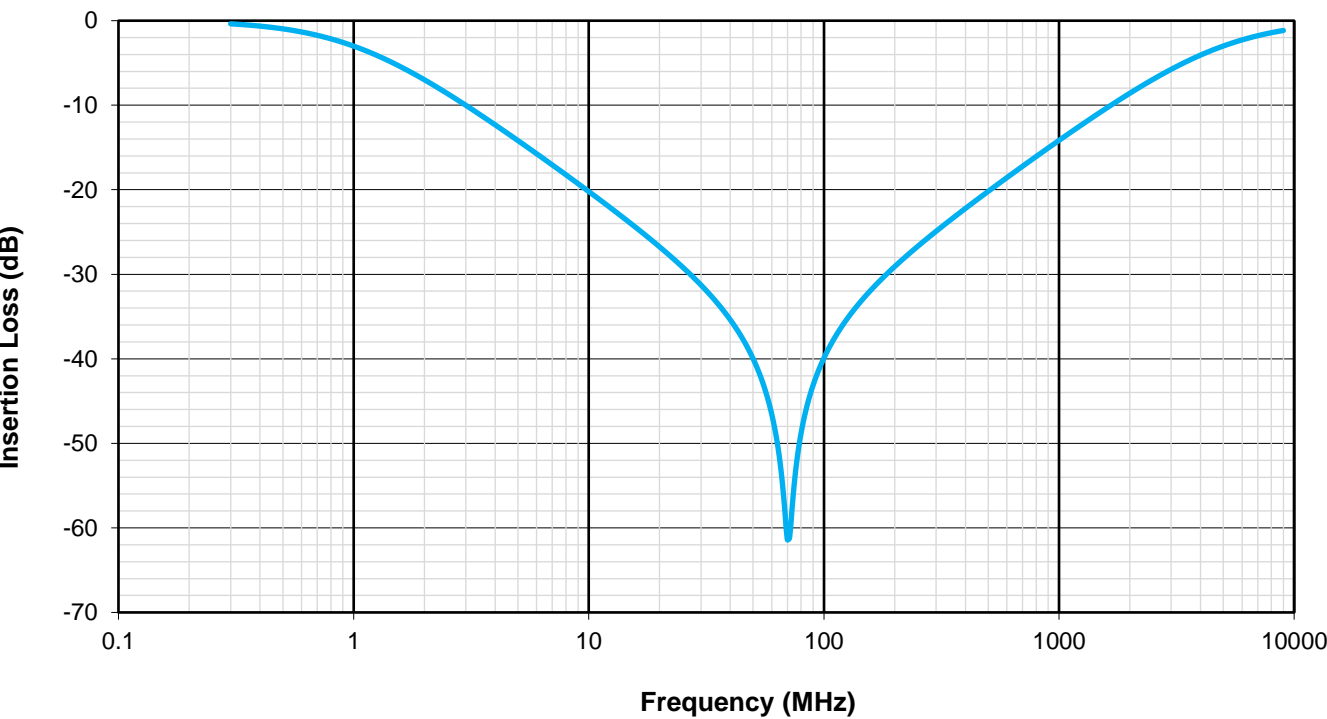
Typical Energy Derating Curve (Transient Energy, Peak Current, Power)



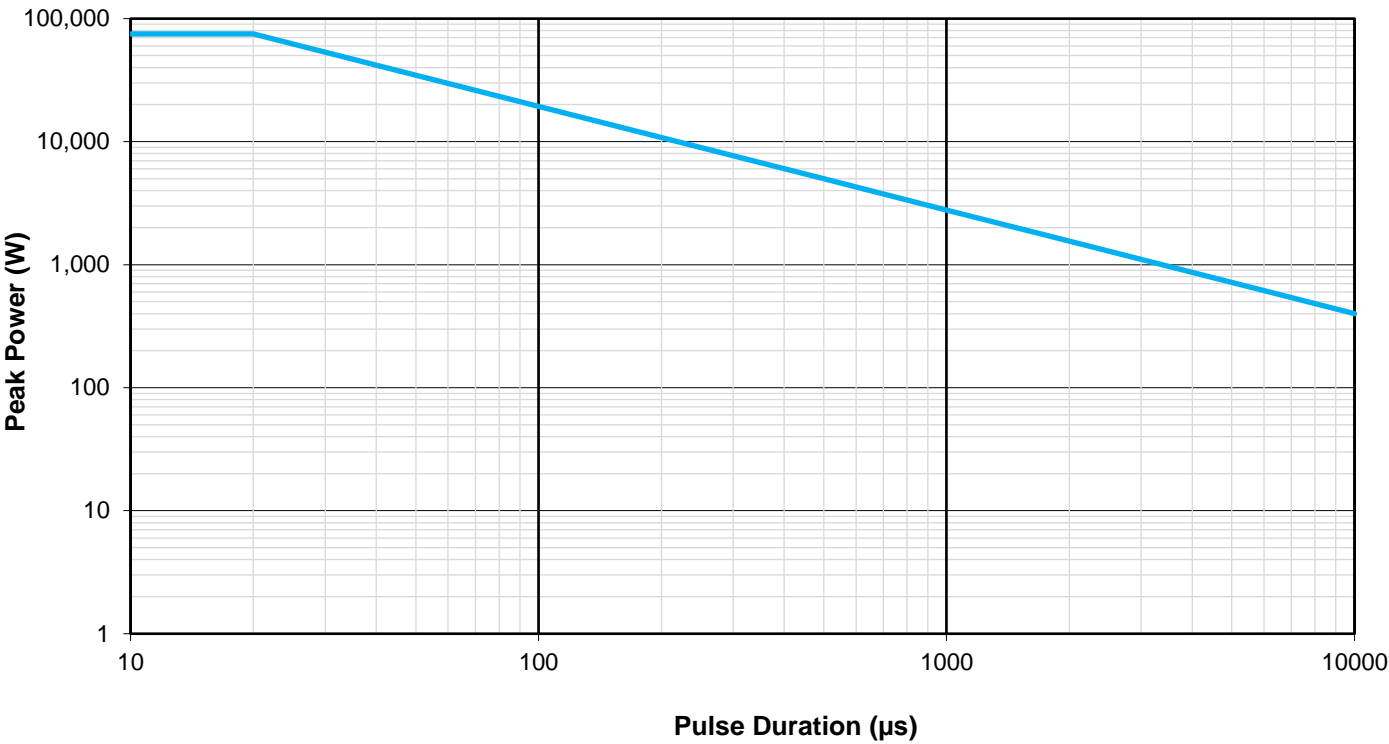
Voltage / Current Characteristics



S21 Characteristics



Power Derating



NOTICE: Specifications are subject to change without notice. All statements, information and data given herein are believed to be accurate and reliable, but are presented without guarantee or responsibility of any kind, expressed or implied. Specifications are typical and may not apply to all applications.