

Medium Power MLV (VJ13, 14, 15, 20)



Medium Power Multilayer Chip Varistor

Transient Voltage Suppression, ESD Protection Devices & EMI Devices

AUTOMOTIVE SERIES – VJ13, 14, 15, 20

FEATURES

- Pd/Ag Terminations
- High Energy Ratings (up to 25 Joules with 2220 case size)
- Multiple Strike Capability
- Provides EMC Capacitance
- Well suited to protect against automotive related transients
- Specified with “Load Dump” and “Jump Start” Test Requirements

GENERAL CHARACTERISTICS

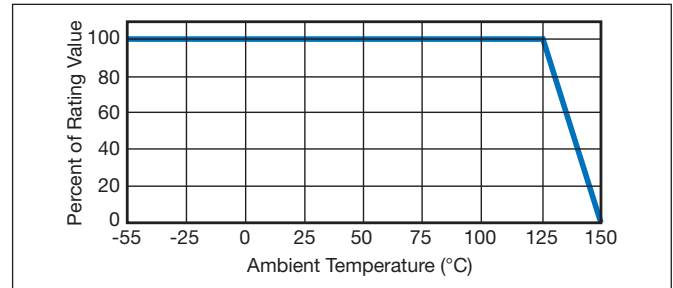
Storage Temperature: -55°C to +125°C
 Operating Temperature: -55°C to +125°C

TARGET APPLICATIONS

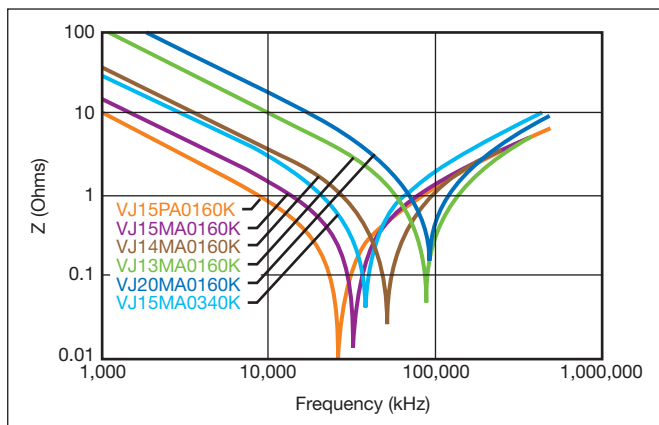
Automotive and other Consumer Products

TEMPERATURE CHARACTERISTICS

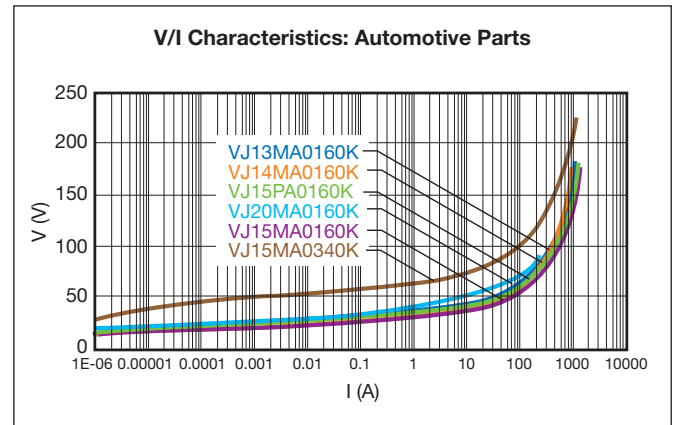
For Current, Energy and Power



IMPEDANCE CHARACTERISTICS



V/I CHARACTERISTICS



PART NUMBERS

| Part Number | Case Size | Operating Voltage | | Vnominal At 1mA DC | | | Vclamp (8x20µs) | | Leakage At Vdc µA | Energy (10x1000µs) J | Load Dump (10x) J | Jump Start 5min Max V | Max.Peak Current (8x20µs) Ip (A) | Mean Power Dissipation W | CAP (1kHz/.5Vrms) pF |
|---------------|-----------|-------------------|-----|--------------------|------|------|-----------------|-------|-------------------|----------------------|-------------------|-----------------------|----------------------------------|--------------------------|----------------------|
| | | Vrms | Vdc | min | Nom | max | Vp | Ip(A) | | | | | | | |
| VJ20MA0160KBA | 1206 | 14 | 16 | 22 | 24.5 | 27 | 40 | 1 | 50 | 0.6 | 1.5 | 24.5 | 200 | 0.008 | 900 |
| VJ13MA0160KBA | 1210 | 14 | 16 | 22 | 24.5 | 27 | 40 | 2.5 | 25 | 1.6 | 3 | 24.5 | 400 | 0.010 | 1800 |
| VJ14MA0160KBA | 1812 | 14 | 16 | 22 | 24.5 | 27 | 40 | 5 | 100 | 2.4 | 6 | 24.5 | 800 | 0.015 | 5000 |
| VJ15MA0160KBA | 2220 | 14 | 16 | 22 | 24.5 | 27 | 40 | 10 | 100 | 5.8 | 12 | 24.5 | 1200 | 0.030 | 11000 |
| VJ15PA0160KBA | 2220 | 14 | 16 | 22 | 24.5 | 27 | 40 | 10 | 100 | 5.8 | 25 | 24.5 | 1200 | 0.030 | 16000 |
| VJ15MA0340KBA | 2220 | 30 | 34 | 42.3 | 47 | 51.7 | 77 | 10 | 100 | 12 | 12 | 50 | 1200 | 0.030 | 4000 |



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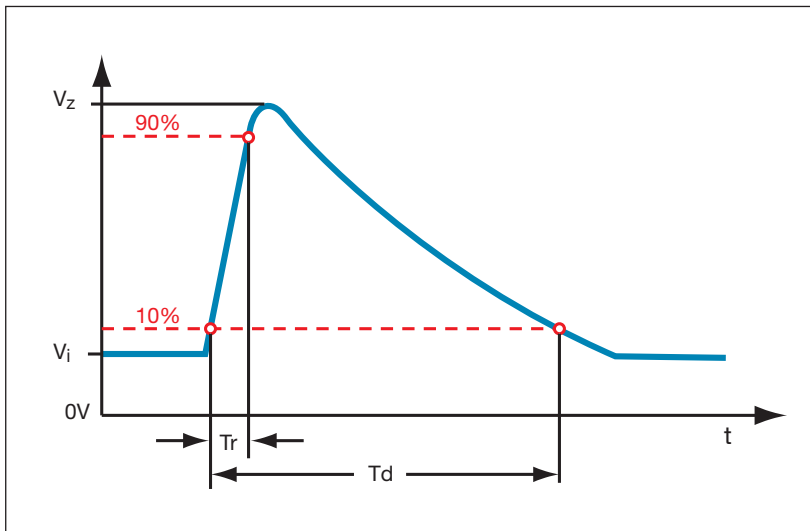
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AUTOMOTIVE LOAD DUMP TEST

(According to ISO DP7637/2 Pulse 5)



When using the test method indicated below, the amount of Energy dissipated by the varistor must not exceed the Load Dump Energy value specified in the product table.

Voltage Pulse applied to the varistor:

12V Network

$V_i = 13.5V$

$T_d = 100$ to $350ms$

$R_i = 2$ Ohms (Internal Resistance)

$V_z = 70$ to $200V$

Number of Pulses = 10 Pulses

Other Load Dump Simulations can be achieved

24V Network

$V_i = 27V$

$T_d = 100$ to $350ms$

$R_i = 2$ Ohms (Internal Resistance)

$V_z = 70$ to $200V$

Number of Pulses = 10 Pulses

PULSE DEGRADATION

