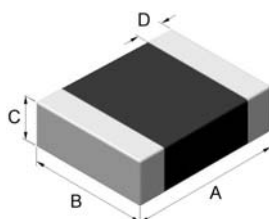


SMD Transient Voltage Suppressors

TVSM4032LHVV-Series

1. Dimension



Series	A(mm)	B(mm)	C(mm)	D(mm)
4032	10.00+0.70/-0.30	8.00+0.60/-0.30	3.70 max	1.00±0.30

2. Part Numbering

TVSM 4032 LHV V 360 - 161 J □

A B C D E F G H

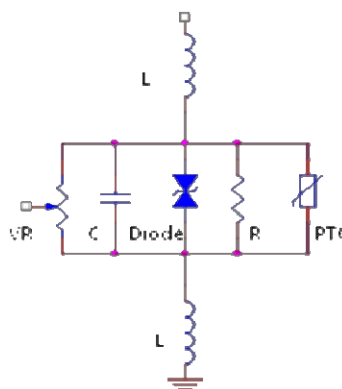
A: Series	Multilayer Varistor
B: Dimension	
C: Category Code	High Performance Load Dump Protection (12/24 V)
D: Product Grade	Vehicle Grade
E: Voltage Code	360=Breakdown Voltage 36V
F: Characteristic Code	161=Load Dump Energy 160J
G: Characteristic Unit Code	J=Joule
H: Inner Code	

3. Features

1. RoHS compliant
2. SMD type
3. Meet ISO7637-2 pulse 5
4. Qualified based on AEC-Q200
5. Bidirectional and symmetrical V/I characteristics
6. Large withstanding surge current capability
7. Large load dump withstanding capability
8. Operating temperature range : -55~+125°C
9. Multi-Layers construction provides higher power dissipation

Equivalent Circuit

L	Body Inductance
C	Device Capacitance
VR	Voltage Variable Resistor
R	Insulation Resistor
Diode	Voltage Clamped
PTC	for Low Leakage Current



4. Technology Data

TAI-TECH Part Number	Maximum allowable continuous DC voltage (V)	Breakdown voltage (V)	Maximum allowable clamping voltage (V)	Maximum peak current (8/20 μ s) (A)	Jump start voltage (5min) (V)	Load dump energy (J)
TVSM4032LHV360-161J	24	36($\pm 10\%$)	55	6000 (for +/- 1 time)	35	160 (for 10 times)

Notes :

1. Maximum allowable clamping voltage at ISO7637 pulse 5A waveform please refer to Figure 1.
2. The breakdown voltage was measured at 1mA.
3. The clamping voltage was measured at standard current, 4032(10A).

4-1. Reference Data			
ITEM	Symbol	Unit	Value
Typical capacitance value @ 1MHz	C	pF	49000
Response time	Trise	ns	< 1
Non-linear coefficient	α		> 15
Leakage current at V_{DC} (at initial state)	I_{LDC}	μA	< 50
Leakage current at V_{DC} (after surge test)	I_{LDCA}	μA	< 200
Operation ambient temperature	T_{OPT}	$^{\circ}C$	-55~+125
Storage temperature range	T_{STG}	$^{\circ}C$	-55~+150
4-2. Other Data			
Body	Nano special ceramic		
End termination	Ag/Ni/Sn		
Packaging	Reel		
Complies with standard	IEC61000-4-5 ISO7637-2		
Complies with RoHs standard	Yes		
Lead content	< 1000 ppm		
Marking	None		

Notes :

1. The capacitance value only for customer reference, it's not formal specification.

4-3. Load Dump Clamping

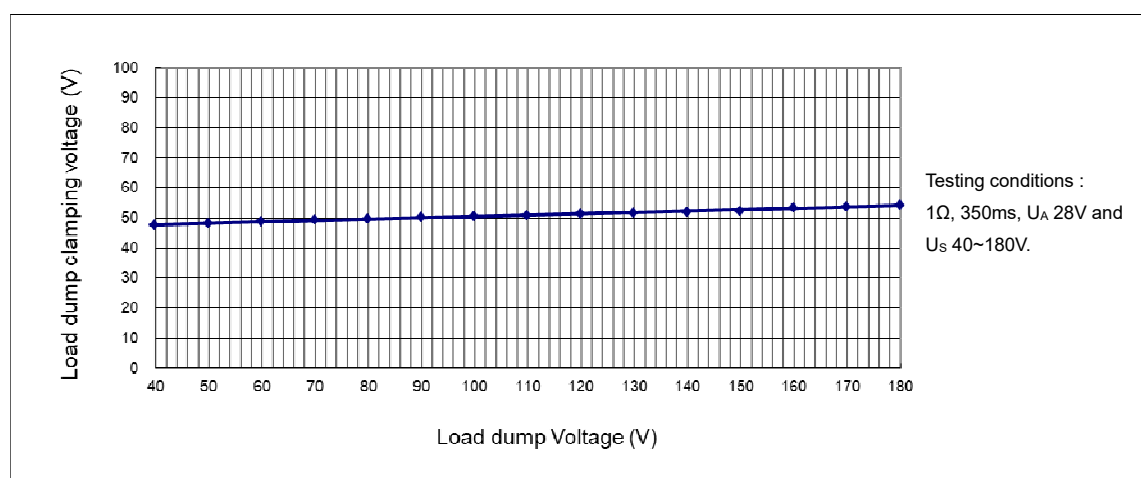
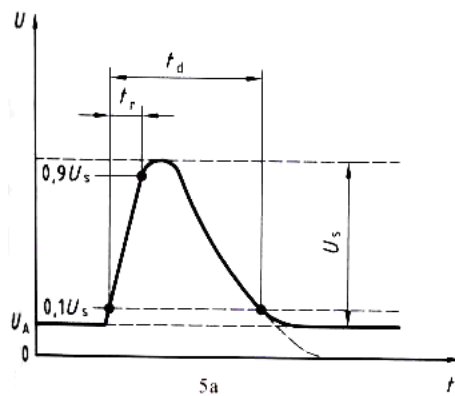
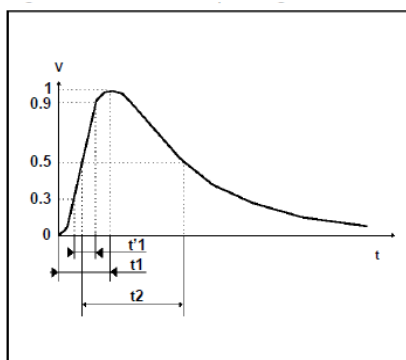


Fig 1 Load dump voltage U_S vs. load dump clamping $V_{C,LD}$

5. Load Dump and Surge Wave Forms



Load dump test waveform



8/20 μ s waveform current

ISO7637-2:2004 pulse 5A

Parameters	12V System	24V System
U_s	65~87V	123~174V
R_i	0.5~4 Ω	1~8 Ω
t_d	40~400ms	100~350ms
t_r	5~10ms	5~10ms

IEC61000-4-5 standard

SEVERITY LEVEL	t_1 (=1.67 t'_1)	t_2
1	8 μ s	20 μ s