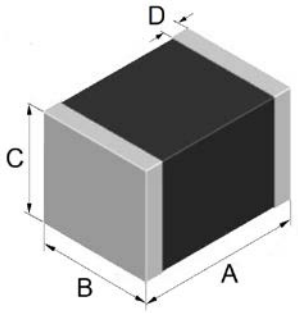
SMD Transient Voltage Suppressors TVSM1210SHXO-Series-V

1. Dimension



Series	A(mm)	B(mm)	C(mm)	D(mm)
1210	3.20+0.60/-0.20	2.50+0.40/-0.20	2.60 max.	0.50±0.25

2. Part Numbering

TVSM 1210 SHX O 470 - 602 V □

A B C D E F G H

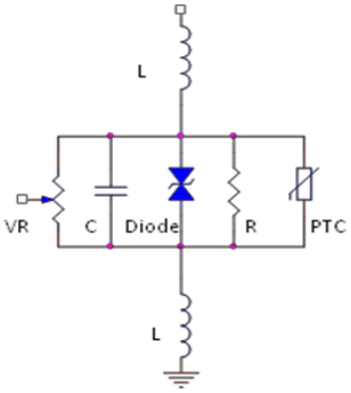
A: Series	Multilayer Varistor
B: Dimension	
C: Category Code	High Performance Surge Protection
D: Product Grade	O =Industrial Grade
E: Voltage Code	470=Breakdown Voltage 47V
F: Characteristic Code	602=Surge Voltage 6KV
G: Characteristic Unit Code	V=Voltage
H: Inner Code	

3. Features

1. RoHS compliant
2. SMD type body size 1210
3. Meet IEC61000-4-5 / K21 standards
4. Bidirectional and symmetrical V/I characteristics
5. Large withstanding surge current capability
6. Excellent low leakage current
7. Operating temperature range : -55~+125℃
8. 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 AC voltage @ 50-60Hz (V)	Maximum allowable continuous DC voltage (V)	Breakdown voltage (V)	Maximum allowable clamping voltage (V)	Maximum peak current (10/700μs) (A)	Maximum surge voltage (10/700μs) (KV)
TVSM1210SHXO470-602V	30	38	47(±10%)	75	150	6

Notes :

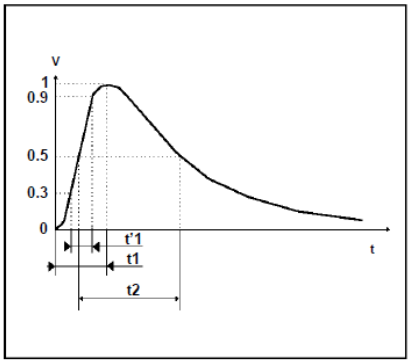
1. The breakdown voltage was measured at 1mA current.
2. The clamping voltage was measured at 8/20μs standard current, 1210(2.5A)
3. The surge current was tested at 10/700μs waveform, Ri=40ohm. Common-mode testing is to test all data lines while the GND.

4-1. Reference Data			
ITEM	Symbol	Unit	Value
Typical capacitance value measured at 1KHz	C	pF	1670
Response time	Trise	ns	< 1
Non-linear coefficient	α		>30
Leakage current at V_B x 80% (at initial state)	I_{VB}	μA	< 10
Leakage current at V_B x 80% (after surge test)	I_{VBA}	μA	< 80
Operation ambient temperature	T_{OPT}	℃	-55~+125
Storage temperature range	T_{STG}	℃	-55~+150
4-2. Other Data			
Body			Nano special ceramic
End termination			Ag/Ni/Sn
Packaging			Reel
Complies with standard			IEC61000-4-5 ITU-T K20, K21
Complies with RoHs standard			Yes
Lead content			< 1000 ppm
Marking			None

Notes :

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

5. Surge Wave Form



10/700μs waveform current

K21 Standard

SEVERITY LEVEL	t1 (=1.67t'1)	t2
1	10μs	700μs