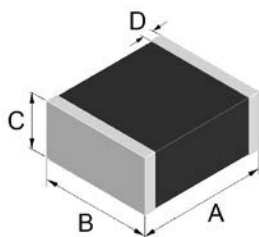


SMD Transient Voltage Suppressors

TVSM2220SHPF-Series

1. Dimension



Series	A(mm)	B(mm)	C(mm)	D(mm)
2220	6.00+0.70/-0.30	5.30+0.50/-0.30	3.60 max	0.50+0.35/-0.10

2. Part Numbering

TVSM 2220 SHPF F 820 - 452 A □

A B C D E F G H

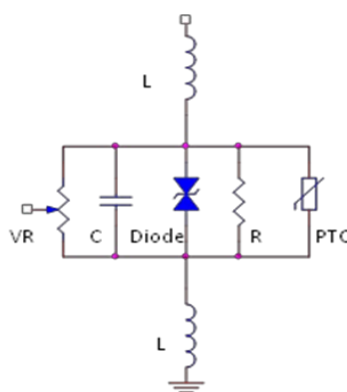
A: Series	Multilayer Varistor
B: Dimension	
C: Category Code	High Performance Surge Protection with PoE
D: Product Grade	General Grade
E: Voltage Code	820=Breakdown Voltage 82V
F: Characteristic Code	452=Peak Current 4500A
G: Characteristic Unit Code	A=Amp
H: Inner Code	

3. Features

1. RoHS compliant
2. SMD type body size 2220
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°C
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_{RMS} (V)	Maximum allowable continuous DC voltage V_{DC} (V)	Breakdown voltage V_B (V)	Maximum allowable clamping voltage V_C (V)	Maximum peak current (8/20 μ s) I_{Peak} (A)
TVSM2220SHPF820-452A	50	65	82($\pm 10\%$)	135	4500

Notes:

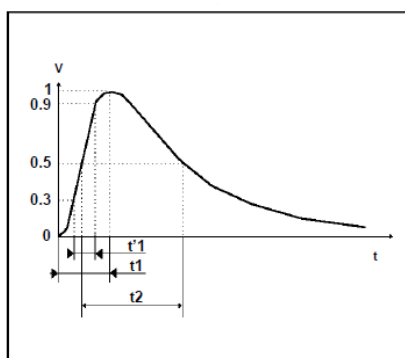
1. The breakdown voltage was measured at 1mA.
2. The clamping voltage was measured at 8/20 μ s standard current, 2220(10A).

4-1. Reference Data			
ITEM	Symbol	Unit	Value
Typical capacitance value measured at 1KHz	C	pF	4800
Response time	T_{RISE}	ns	< 1
Non-linear coefficient	α		>30
Leakage current at $V_B \times 80\%$ (at initial state)	I_{VB}	μ A	< 15
Leakage current at $V_B \times 80\%$ (after surge test)	I_{VBA}	μ A	< 80
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 standards		IEC61000-4-5 ITU-T K20, K21	
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.

5. Surge Wave Form



IEC61000-4-5 Standards

SEVERITY LEVEL	t1 (=1.67t'1)	t2
1	8 μ s	20 μ s
2	10 μ s	1000 μ s

8/20 μ s and 10/1000 μ s waveform current