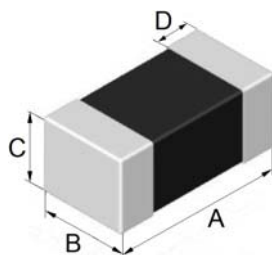


SMD Transient Voltage Suppressors

TVSD0402SHXV-Series

1. Dimension



Series	A (mm)	B (mm)	C (mm)	D (mm)
0402	1.00±0.05	0.60±0.05	0.50±0.05	0.20±0.05

2. Part Numbering

TVSD 0402 SHX V 050 - 300 P □

A B C D E F G H

A: Series	TVS Diode
B: Dimension	
C: Category Code	High Performance Surge Protection
D: Product Grade	Vehicle Grade
E: Voltage Code	050=Reverse Working Voltage 5V
F: Characteristic Code	300=Parasitic Capacitance 30 pF
G: Characteristic Unit Code	P=pF
H: Inner Code	

3. Features

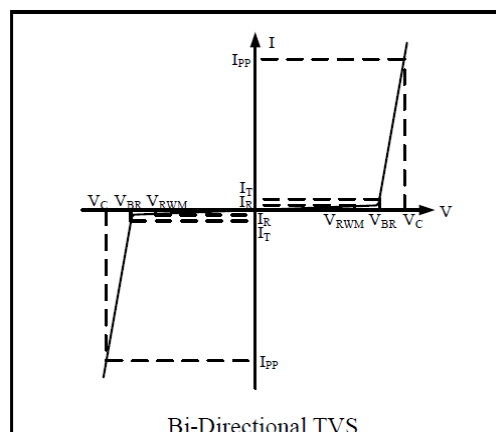
- Transient protection for high-speed data lines.
ISO 10605 (ESD) ±25KV (air)
±25KV (contact)
IEC61000-4-4 (EFT) 40A (5/50ns)
Cable discharge event (CDE).
AEC-Q101 qualified
- Package optimized for high-speed lines.
- Ultra-small package
- Protects one data, controller or power line.
- Low leakage current : 1nA @V_{RWM} (typical)
- Low clamping voltage
- Each I/O pin can withstand over 1000 ESD strikes for ±8KV contact discharge.

4. Absolute Maximum Ratings(Ta=25°C)

TAI-TECH Part Number	Peak pulse power (tp=8/20μs) P _{PK} (W)	Peak pulse current (tp=8/20μs) I _{PP} (A)	ESD per ISO 10605 (air) V _{ESD} (KV)	ESD per ISO 10605 (contact) V _{ESD} (KV)	Operating temperature range T _{OPT} (°C)	Storage temperature range T _{STG} (°C)
TVSD0402SHXV050-300P	200	18	±25	±25	-55~150	-55~150

5. Electrical Characteristics(Ta=25°C)

Symbol	Parameter
V _{RWM}	Nominal Reverse Working Voltage
I _R	Reverse Leakage Current @ V _{RWM}
V _{BR}	Reverse Breakdown Voltage @ I _T
I _T	Test Current for Reverse Breakdown
V _C	Clamping Voltage @ I _{PP}
I _{PP}	Maximum Peak Pulse Current
C _{ESD}	Parasitic Capacitance
V _R	Reverse Voltage
f	Small Signal Frequency



TAI-TECH Part Number	Working peak reverse voltage V _{RWM} (V)	Maximum reverse leakage (@V _{RWM} , 25°C) (between I/O_1 and I/O_2) I _R (μA)	Breakdown voltage (@I _T =1mA) (between I/O_1 and I/O_2) V _{BR} (V)	Clamping voltage (@I _{PP} =16A , t _p =100ns, TLP) V _{CL} (V)	Clamping voltage (@V _{ESD} =8KV) V _{CL} (V)	Maximum clamping voltage (tp=8/20μs) (between I/O_1 and I/O_2) V _C (V)	Parasitic capacitance (@V _R =0V, f=1MHz) (between I/O_1 and I/O_2) C _{ESD} (pF)	ESD dynamic resistance (TLP, tp=100ns, I/O to GND) R _{DYN} (Ω)
TVSD0402SHXV050-300P	5	Typ. 0.001 (Max. 0.1)	Typ. 6.0 (Min. 5.1 Max. 8.0)	Max. 11	Max. 11	Max. 7 (@I _{PP} =1A) Max. 11 (@I _{PP} =18A)	Typ. 32 (Max. 42)	0.1

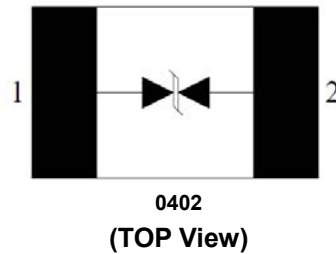
6. Mechanical Characteristics

1. Case : 0402
2. Flammability rating : UL 94V-0
3. Packaging : tape and reel
4. Polarity : bidirectional

Circuit Diagram

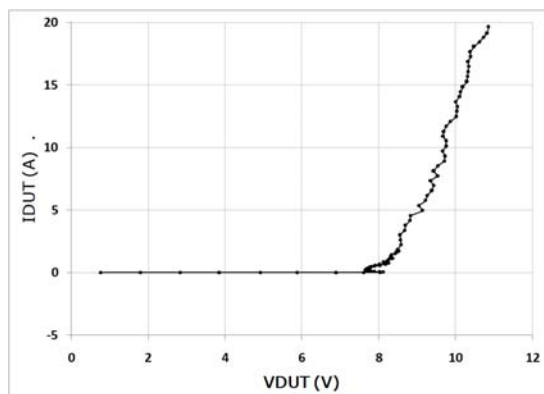


Pin Configuration

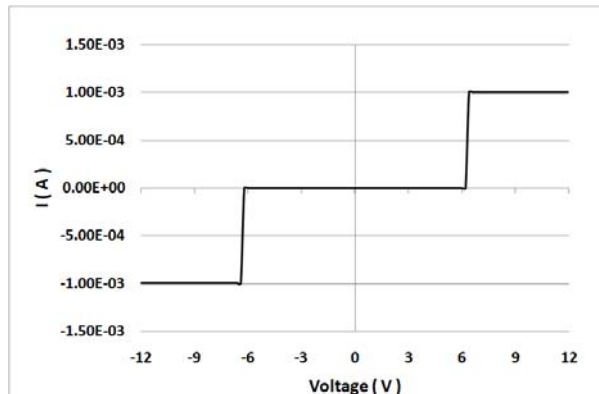


7. Rating and Characteristic Curves

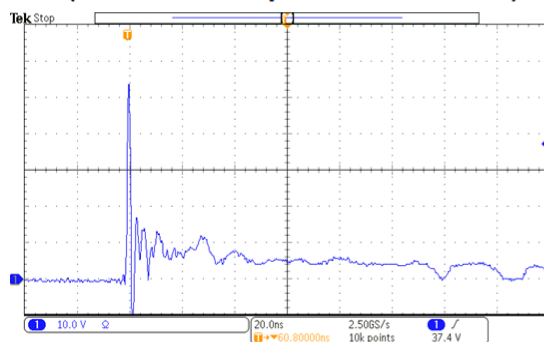
TLP Measurement



Voltage Sweeping of I/O_1 to I/O_2



**ESD Clamping of I/O_1 to I/O_2
(+8kV Contact per IEC 61000-4-2)**



**ESD Clamping of I/O_1 to I/O_2
(-8kV Contact per IEC 61000-4-2)**

