Description

HWET03014B is a low- capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 16pF only, HWET03014B is designed to protect parasitic – sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 (±15kV air, ±8kV contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc. HWET03014B uses ultra - small DFN1006 package. Each device can protect one data line. It offers system designers flexibility to protect single data line where space is a premium concern.

Mechanical Characteristics

- DFN1006 package
- Flammability Rating: UL 94V-0
- Marking: Part number, date code

Packaging: Tape and Reel

Features

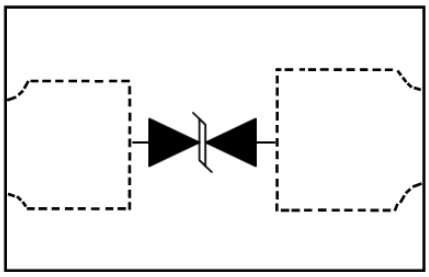
- Transient protection for high-speed data lines IEC 61000-4-2 (ESD) ±30kV (Air)
  ±30kV (Contact)
  IEC 61000-4-4 (EFT) 40A (5/50 ns)
  Cable Discharge Event (CDE)
- Package optimized for high-speed lines
  Ultra-small package (1.0 x 0.6 x 0.55 mm)
- Protects one data, control or power line
- Low capacitance: 16pF (Typical)
- Low leakage current: 0.01μ A @VRWM(Typical)
- Low clamping voltage
- Each I/O pin can withstand over 1000 ESD strikes for ±8kV contact discharge

Applications

- Portable Electronics
- Desktops, Servers and Notebooks
- Cellular Phones
- MP3 Ports
- Digital Camera Ports

Circuit Diagram

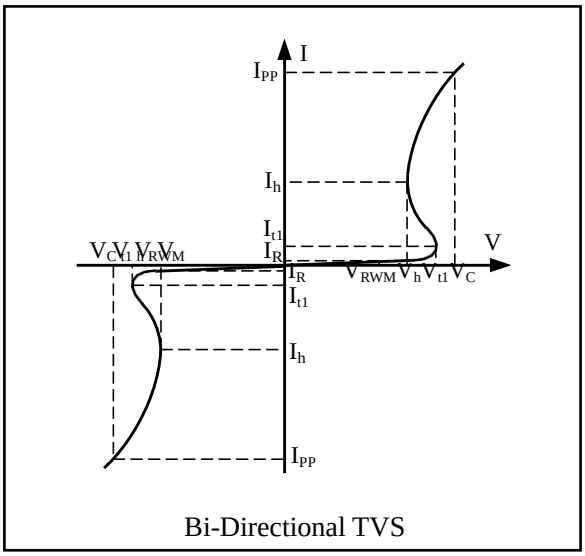
Pin Configuration



DFN1006-2L
(Top View)

■Electrical characteristics (Ta = 25 ℃)

Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{t1}	Trigger Voltage
I_{t1}	Trigger Current @ V_{t1}
V_h	Holding Voltage
I_h	Holding Current @ V_h
V_C	Clamping Voltage @ I_{PP}
V_{CR}	Reverse Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
C_{ESD}	Parasitic Capacitance



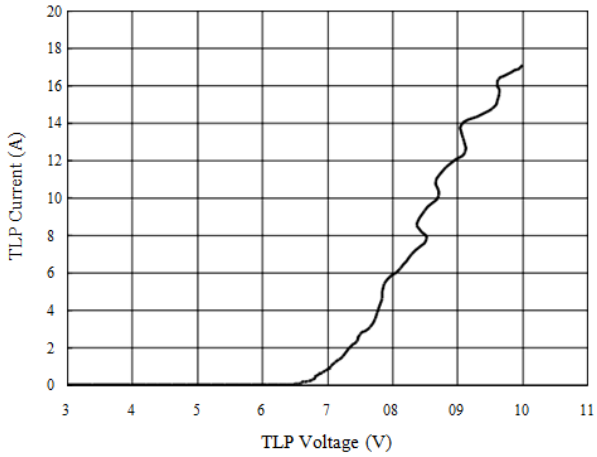
Bi-Directional TVS

Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				3.3	V
I_R	V_{RWM} = 3.3V, T = 25°C		0.01	0.1	μA
V_{t1}	I_{t1} = 1μA	5.2	6.5	7	V
V_h	I_h = 5mA	4.9		6	V
V_C	I_{PP} = 1A, t_p = 8/20μs			7	V
V_C	I_{PP} = 4 A, t_p = 8/20μs			8.5	V
V_{CR}	I_{PP} = 8A, t_p = 8/20μs			10	V
C_{ESD}	V_R = 0V, f = 1MHz		16	20	pF

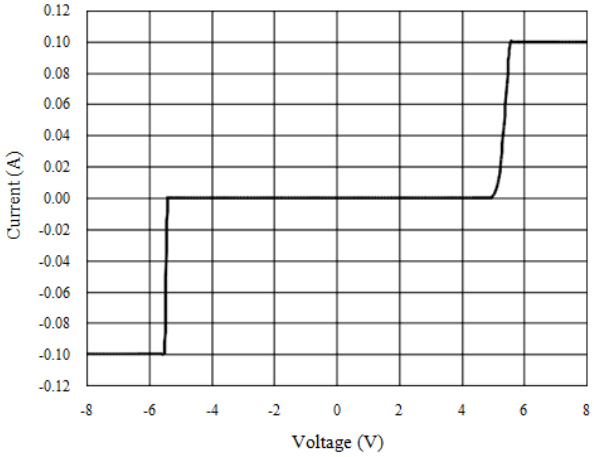
■Absolute Maximum Rating

Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current(tp=8/20us)	10	A
V_{ESD}	ESD per IEC 61000-4-2(Air)	±30	kV
	ESD per IEC 61000-4-2 (Contact)	±30	
T_{OPT}	Operating Temperature	-55/+125	℃
T_{STG}	Storage Temperature	-55/+150	℃

TLP Measurement of I/O_1 to I/O_2

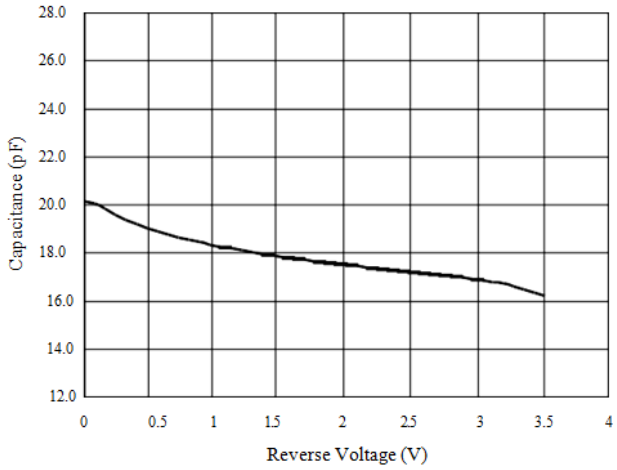


Voltage Sweeping of I/O_1 to I/O_2

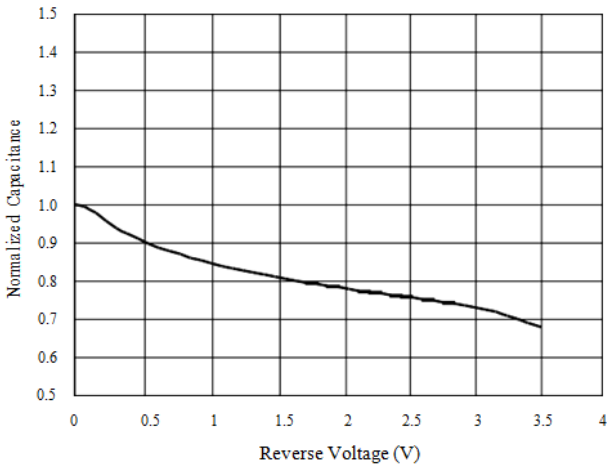


Capacitance vs. Voltage of I/O_1 to I/O_2 (f = 1MHz)

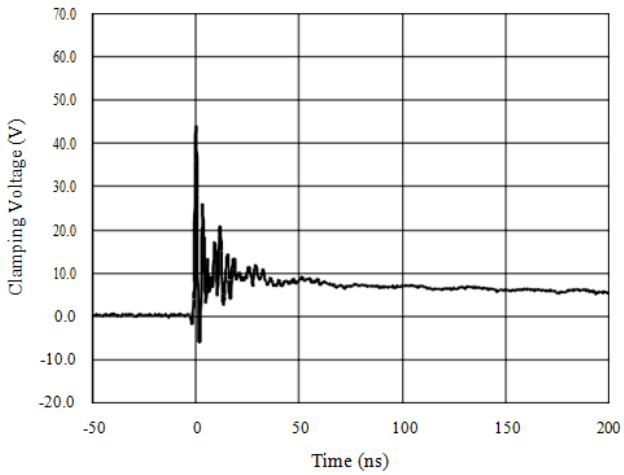
Capacitance *vs.* Reverse Voltage



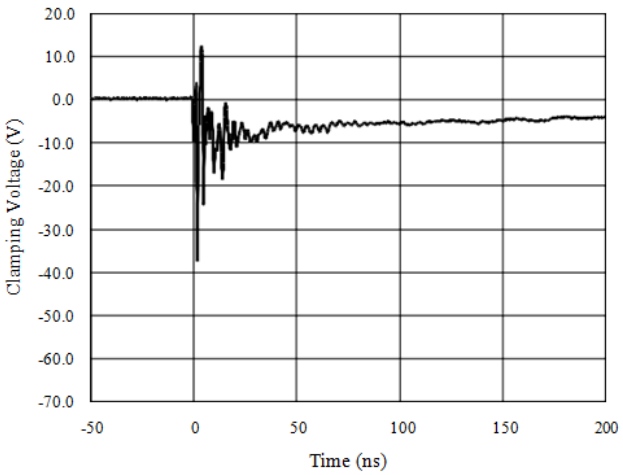
Normalized Capacitance *vs.* Reverse Voltage



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

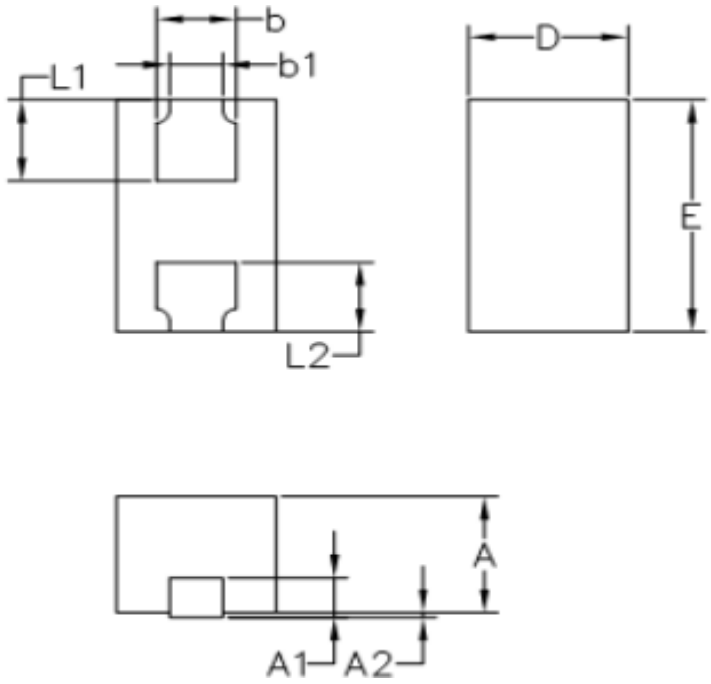


ESD Clamping of I/O_1 to I/O_2 (-8kV Contact per IEC 61000-4-2)



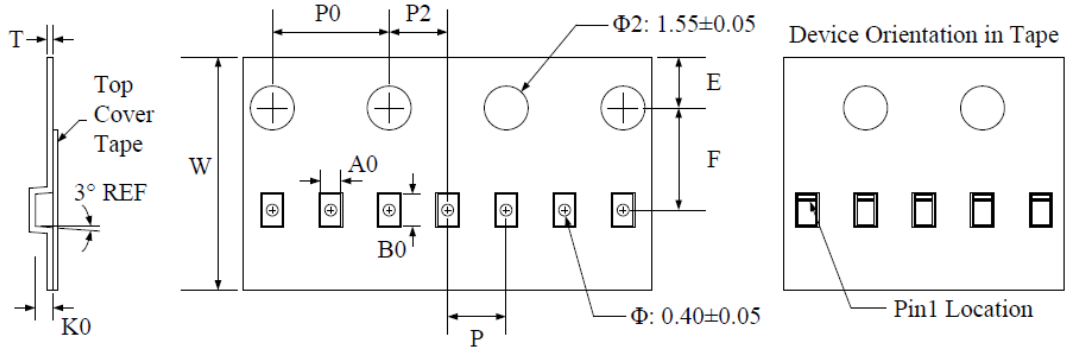
Package Outline

- DFN1006-2L package

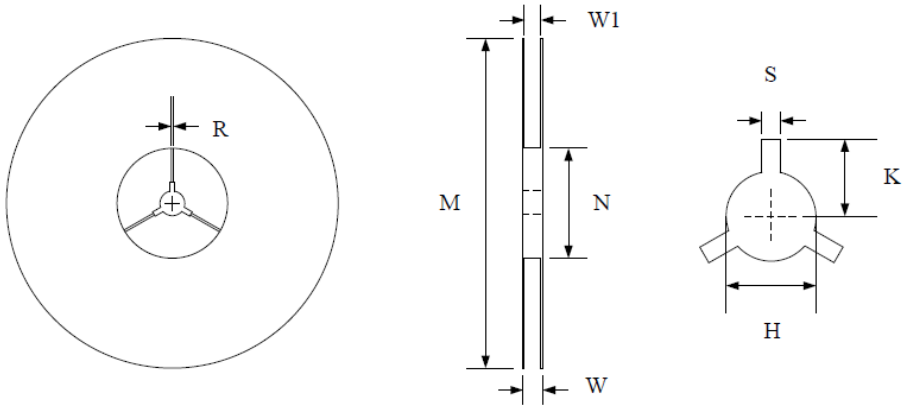


COMMON DIMENSION(MM)			
Package	DFN1006-2L		
REF	Min	Nom	Max
D	0.55	0.60	0.65
E	0.95	1.00	1.05
L1	0.30	0.35	0.40
L2	0.25	0.30	0.35
b	0.25	0.30	0.35
b1	0.15	0.20	0.25
A	0.45	0.50	0.55
A1	0.15REF		
A2	0.00		0.05

Tape and Reel Specification



Symbol	W	A0	B0	K0	E	F	P	P0	P2	T
Dimensions (mm)	8.00±0.1	0.7±0.05	1.15±0.05	0.55±0.05	1.75±0.1	3.5±0.05	2.0±0.1	4.0±0.1	2.0±0.05	0.2±0.05



Symbol	Reel Size	M	N	W	W1	H	S	K	R
Dimensions (mm)	Φ178	178.0±1.0	60.0±1.0	11.5±0.5	9.0±0.5	13.0±0.5	2.0±0.1	11.0±0.2	1.0±0.05