



PRODUCT SPECIFICATION

DOCUMENT NO. ENS000164010

DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	APPROVED BY
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TVW5VB1C-DFN1006-2LDG Engineering Specification

1. Features

- Bi-directional ESD protection of one line
- IEC 61000-4-2 (ESD) $\pm 12\text{kV}$ (Contact) $\pm 16\text{kV}$ (Air)
- IEC 61000-4-5 (Surge) 5A (8/20 μs)
- For 5V and Below the Operating Voltage
- Low capacitance: 0.6pF(Typical)
- Excellent package:1.0mm \times 0.6mm \times 0.5mm

2. Applications

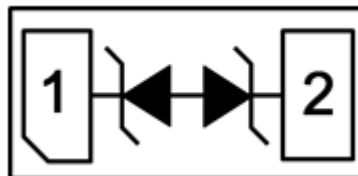
- USB2.0/3.0 interface
- 10/100/1000M Ethernet
- Digital camera
- High-speed data line interface
- Cell phone accessories
- Notebooks(DVI/HDMI)

3. Explanation of Part Number

<u>TV</u>	<u>W</u>	<u>5V</u>	<u>B1</u>	<u>C</u>	<u>-DFN1006</u>	<u>-2L</u>	<u>DG</u>
-1	-2	-3	-4	-5	-6	-7	-8

- (1) Product Type : TV=TVS Diode
- (2) Capacitance Code
- (3) Working Voltage:
- (4) Direction/Channel Code : B=Bi-directional, 1=Channel
- (5) Control Code
- (6) Package Size
- (7) Pin Code : 2L=2 Pin
- (8) Inpaq Control Code

4. Circuit Diagram & Pin Configuration



5. Maximum Ratings (Ta=25°C unless otherwise noted)

Characteristics	Symbol	Ratings	Unit
ESD Per IEC61000-4-2 (Air)	V _{ESD} ⁽¹⁾	±16	kV
ESD Per IEC61000-4-2 (Contact)		±12	kV
Peak pulse Current	I _{PP} ⁽²⁾	5	A
Junction Temperature	T _J	-55 to +85	°C
Storage Temperature Range	T _{STG}	-55 to +85	°C
Lead Soldering Temperature	T _{SOL}	260	°C

(1) Device stressed with ten non-repetitive ESD pulses.

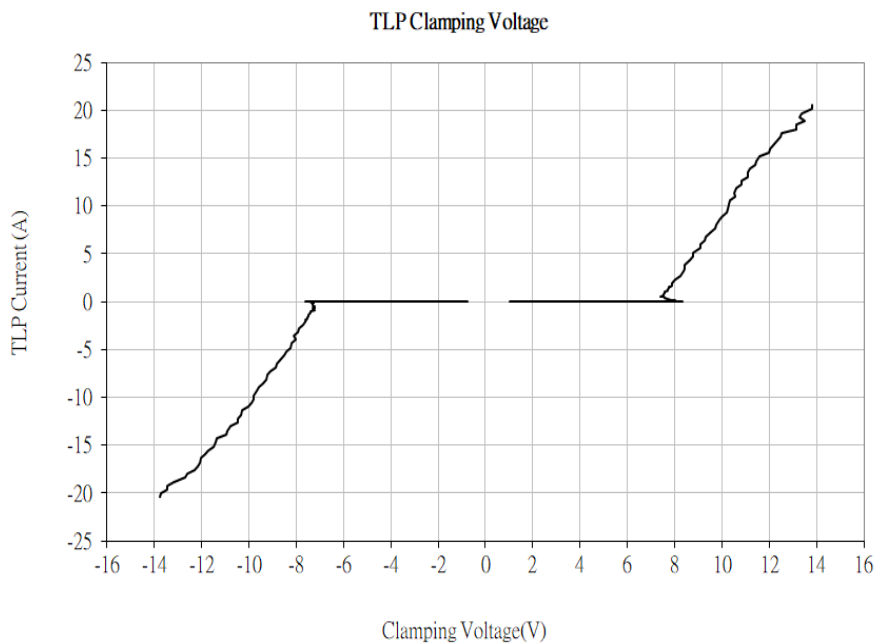
(2) Non-repetitive current pulse 8/20µs exponential decay waveform according to IEC61000-4-5.

6. Electrical Characteristics (T=25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	V _{RWM} ⁽¹⁾	T=25°C, Pin1 to Pin2			5	V
Breakdown Voltage	V _B	I _B =1mA, Pin1 to Pin2	6		9	V
Reverse Leakage Current	I _R	V _{RWM} =5V, Pin1 to Pin2			0.1	µA
Clamping Voltage	V _C	I _{TLP} = 16A, tp=100ns, Pin1 to Pin2		12	18	V
Junction Capacitance	C _J	V _R = 0V, f = 1 MHz, Pin1 to Pin2		0.6	0.8	pF

(1) Guaranteed by design and not subject to production test.

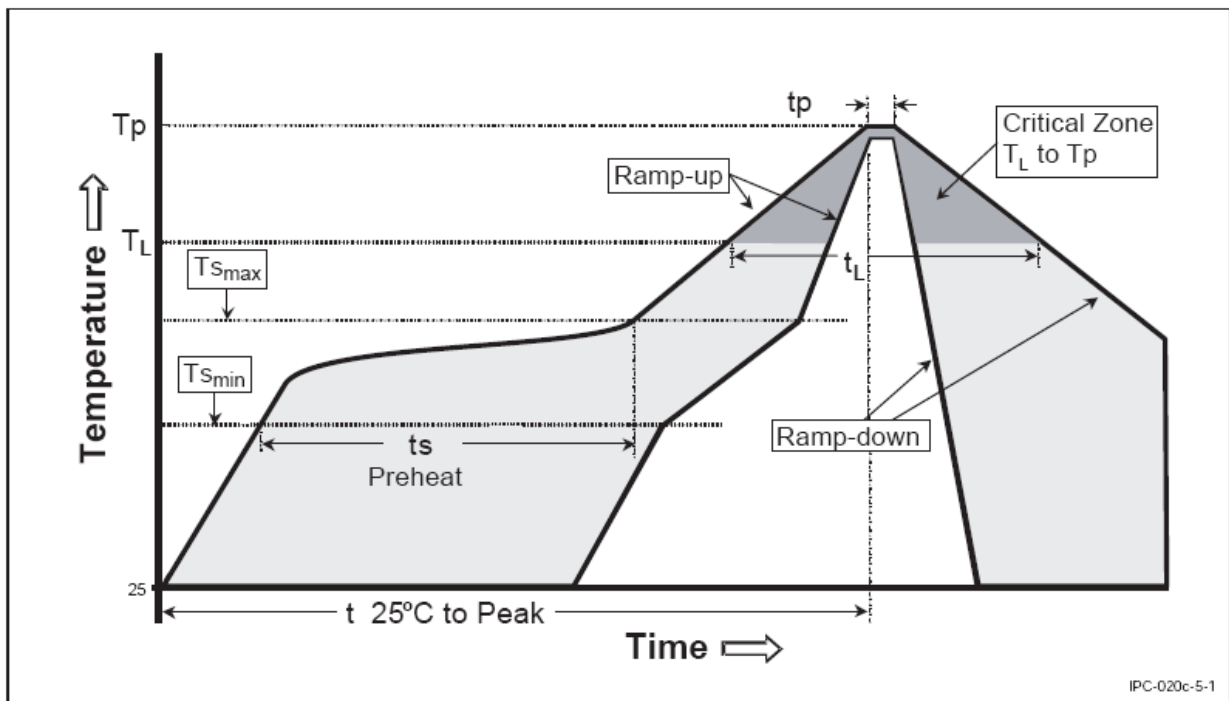
7. Typical Characteristics



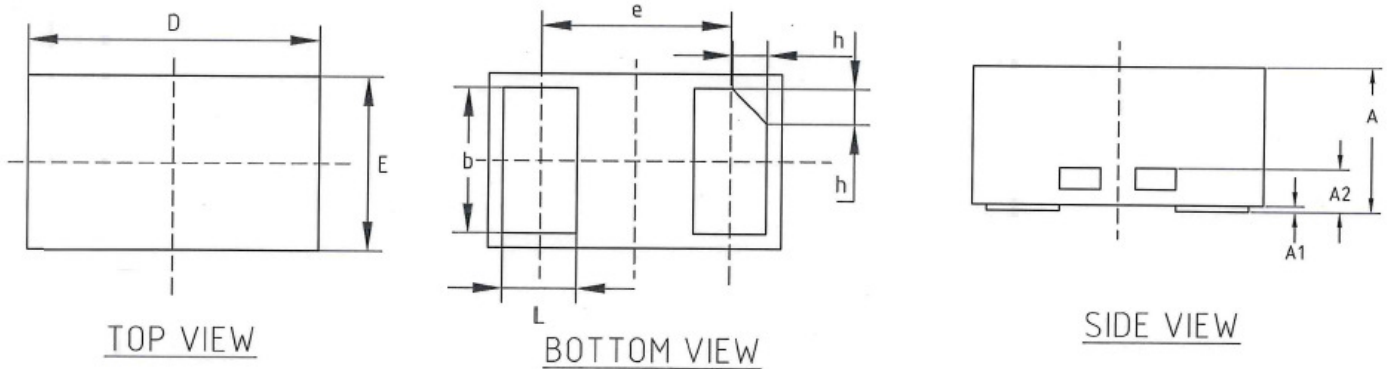
8. Soldering Parameters

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T _{smax} to T _p)	3°C/second max.
Preheat – Temperature Min (T _{smin}) – Temperature Max (T _{smax}) – Time (t _{smin} to t _{smax})	150°C 200°C 60-120 seconds
Time maintained above: – Temperature (T _L) – Time (t _L)	217°C 60-150 seconds
Peak/Classification Temperature (T _p)	260°C
Time within 5°C of actual Peak Temperature (t _p)	30 seconds
Ramp-Down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

Note: Heat Resistance to Reflow Soldering 3 Cycles

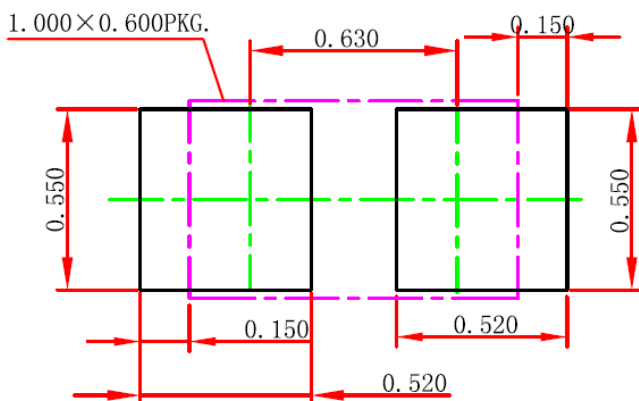


9. Outline Dimensions



MILLIMETER /mm			
SYMBOL	MIN	NOMINAL	MAX
A	0.45	0.50	0.55
A1	0.00	0.02	0.05
A2	0.127 REF		
b	0.45	0.50	0.55
D	0.95	1.00	1.05
e	0.65 BSC		
E	0.55	0.60	0.65
L	0.20	0.25	0.30
h	0.07	0.12	0.17

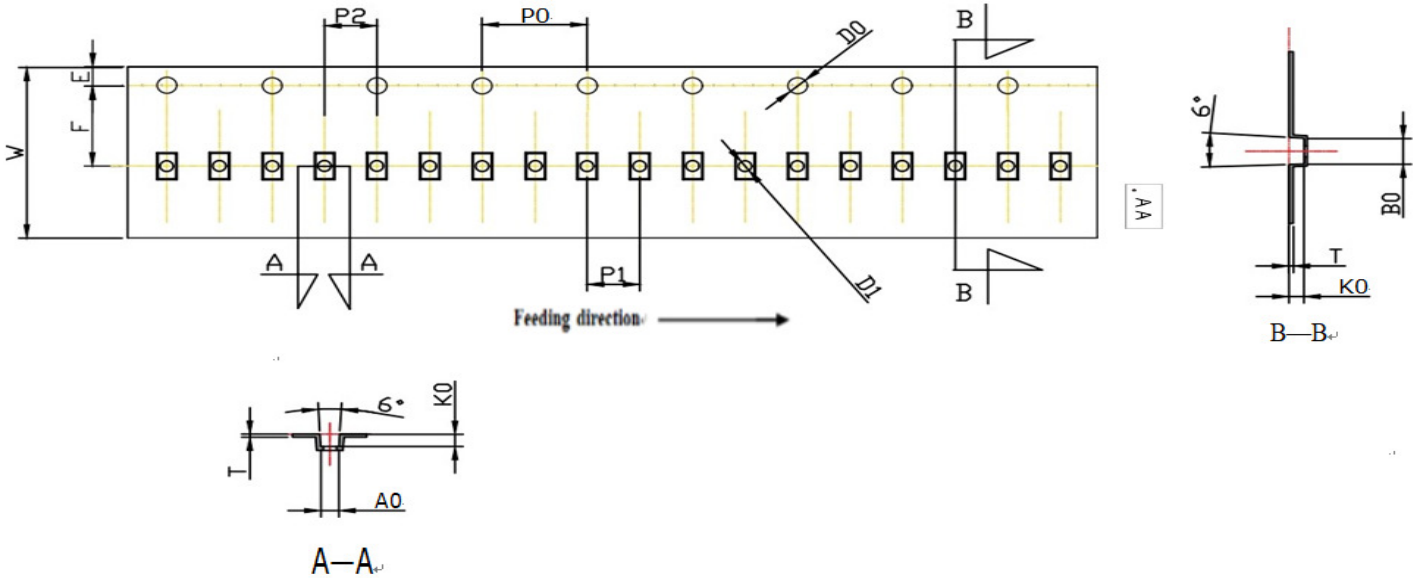
10. Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.050 mm.
3. The pad layout is for reference purposes only.

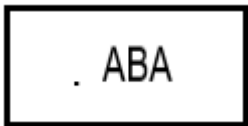
11. Tape Information



Symbol	A0	B0	K0	P0	P1	P2
Unit : mm	0.69±0.05	1.18±0.05	0.58±0.05	4±0.1	2±0.05	2±0.05
Symbol	W	T	E	F	D0	D1
Unit : mm	8±0.1	0.2±0.05	1.75±0.1	3.5±0.05	Φ1.55±0.05	Φ0.5±0.1

12. Order Information:

Marking Code:



ABA = Device code

Part Number	Marking Code	Quantity	Packaging Option
TVW5VB1C-DFN1006-2LDG	.ABA	10,000	Tape & reel- 8mm tape/7"reel

13. MSL Level:

Level 1