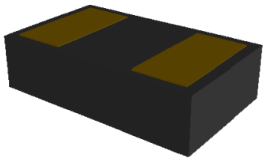
ESD63091CN

http//:www.sh-willsemi.com

1-Line, Bi-directional, Low Capacitance Transient Voltage Suppressor



DWN1006-2L (Bottom View)

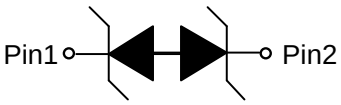
Descriptions

The ESD63091CN is an ultra-low capacitance TVS (Transient Voltage Suppressor) designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge).

The ESD63091CN incorporates one pair of ultra-low capacitance diodes.

The ESD63091CN may be used to provide ESD protection up to ±30kV (contact discharge) according to IEC61000-4-2, and withstand peak pulse current up to 14A (8/20μs) according to IEC61000-4-5.

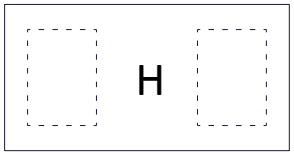
The ESD63091CN is available in DWN1006-2L package. Standard products are Pb-free and Halogen-free.



Circuit diagram

Features

- Stand-off voltage: ±15.0V Max.
- Transient protection for each line according to
  IEC61000-4-2 (ESD): ±30kV (contact discharge)
  : ±30kV (air discharge)
  IEC61000-4-5 (surge): 14A (8/20μs)
- Low capacitance: C_J = 1.1pF typ.
- Low clamping voltage: V_{CL} = 19V typ. @ I_{PP} = 16A (TLP)
- Solid-state silicon technology



H= Device code

Marking (Top View)

Order information

Device	Package	Shipping
ESD63091CN-2/TR	DWN1006-2L	10000/Tape&Reel

Applications

- Cellular handsets
- Tablets
- Laptops
- Other portable devices
- Network communication devices

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse power (t_p = 8/20μs)	P_{pk}	294	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	14	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Junction temperature	T_J	125	°C
Operating temperature	T_{OP}	-40~85	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse maximum working voltage	V_{RWM}				±15.0	V
Reverse leakage current	I_R	V_{RWM} = 15.0V			1	μA
Reverse breakdown voltage	V_{BR}	I_T = 1mA	16	17.5	19	V
Reverse Holding Voltage	V_{HOLD}		12.5			V
Clamping voltage *1)*	V_{CL}	I_{PP} = 16A, t_p = 100ns		19		V
Dynamic resistance *1)*	R_{DYN}			0.27		Ω
Clamping voltage *2)*	V_{CL}	V_{ESD} = 8kV		22		V
Clamping voltage *3)*	V_{CL}	I_{PP} = 1A, t_p = 8/20μs			16	V
		I_{PP} = 14A, t_p = 8/20μs			21	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		1.10	1.30	pF

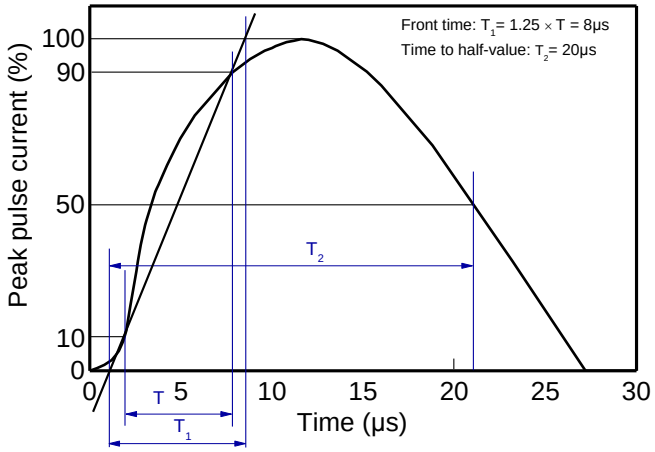
Notes:

1) TLP parameter: Z_0 = 50Ω, t_p = 100ns, t_r = 2ns, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

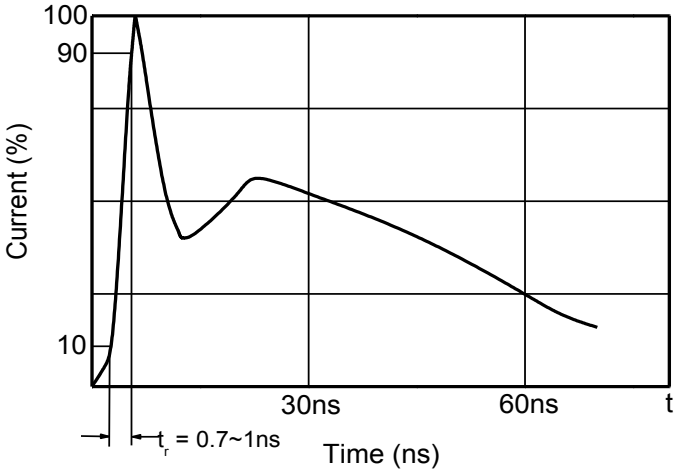
2) Contact discharge mode, according to IEC61000-4-2.

3) Non-repetitive current pulse, according to IEC61000-4-5.

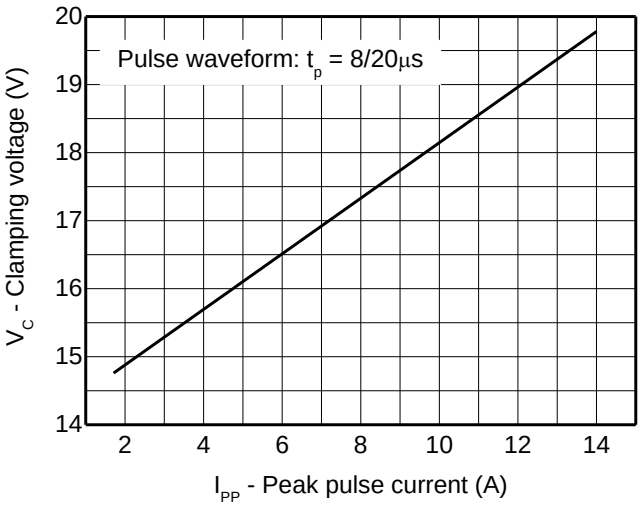
Typical characteristics (T_A=25°C, unless otherwise noted)



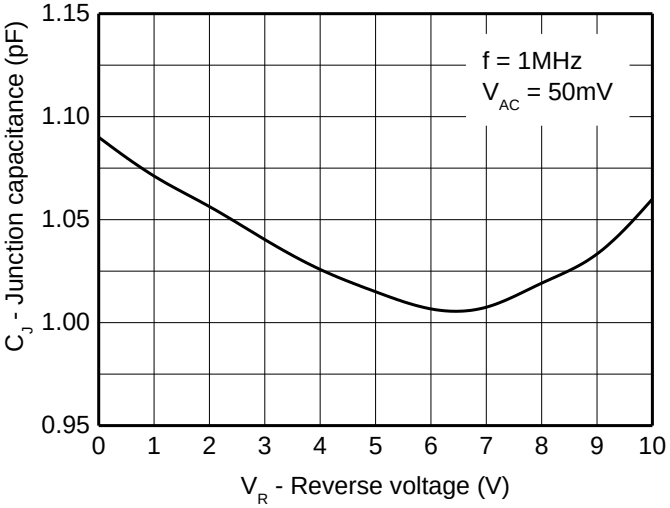
8/20μs waveform per IEC61000-4-5



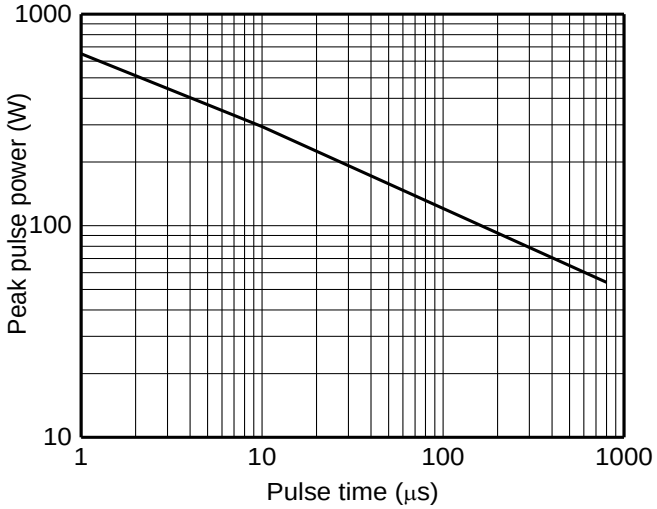
Contact discharge current waveform per IEC61000-4-2



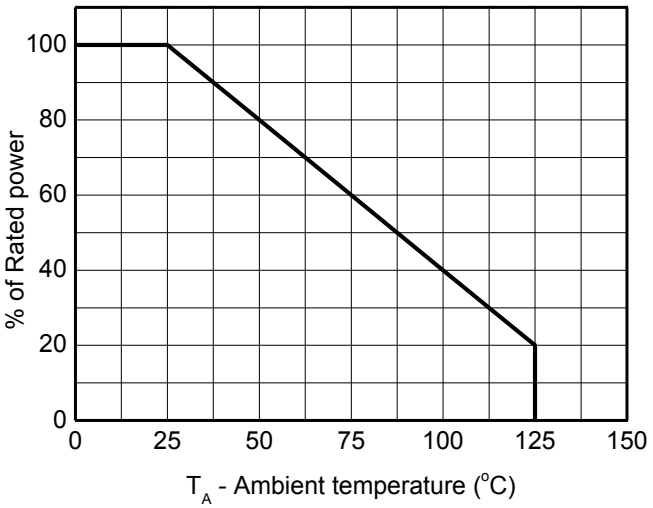
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

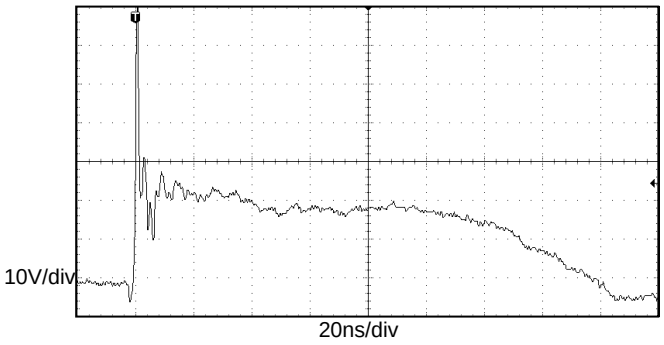


Non-repetitive peak pulse power vs. Pulse time

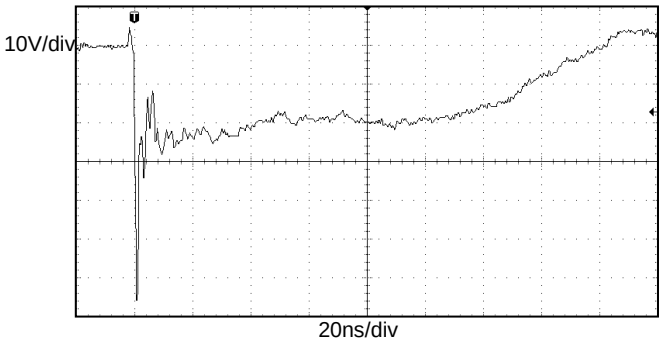


Power derating vs. Ambient temperature

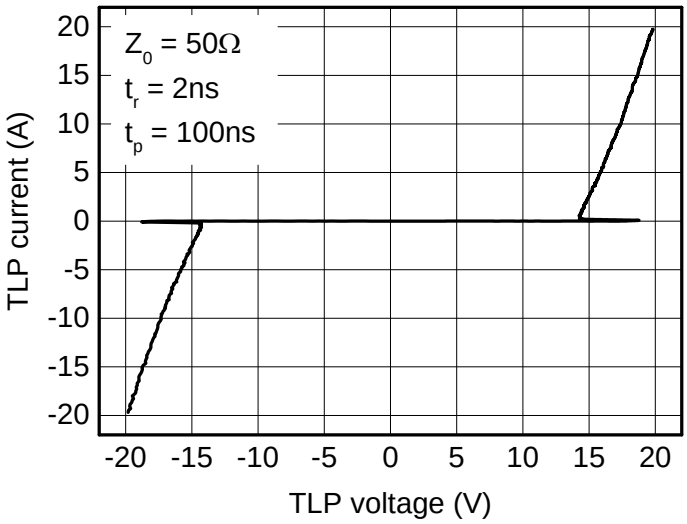
Typical characteristics (T_A = 25 °C, unless otherwise noted)



ESD clamping
(+8kV contact discharge per IEC61000-4-2)



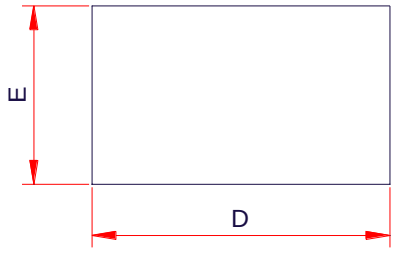
ESD clamping
(-8kV contact discharge per IEC61000



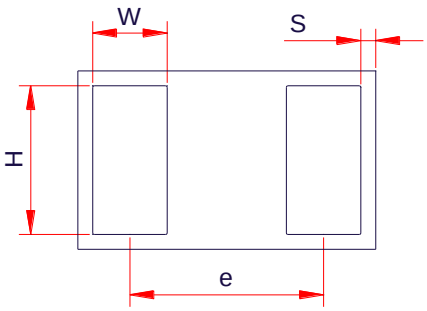
TLP Measurement

PACKAGE OUTLINE DIMENSIONS

DWN1006-2L



TOP VIEW



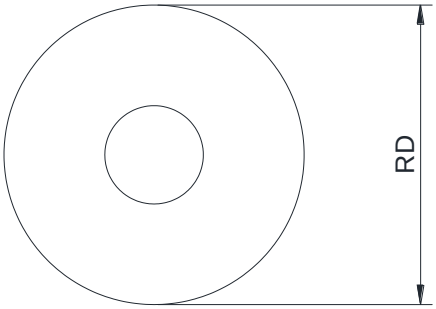
BOTTOM VIEW

SIDE VIEW

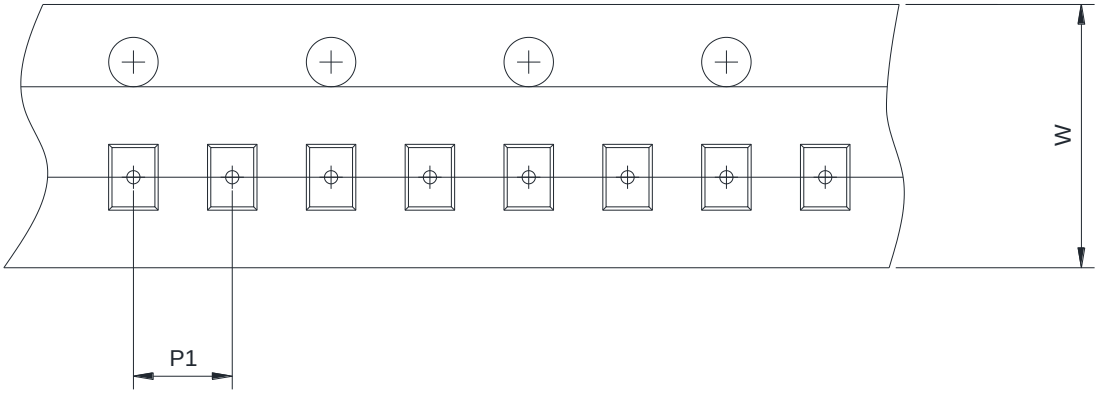
Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.29	-	0.34
D	0.97	1.00	1.03
E	0.57	0.60	0.63
W	0.25 Ref.		
H	0.50 Ref.		
S	0.05 Ref.		
e	0.65 BSC		

TAPE AND REEL INFORMATION

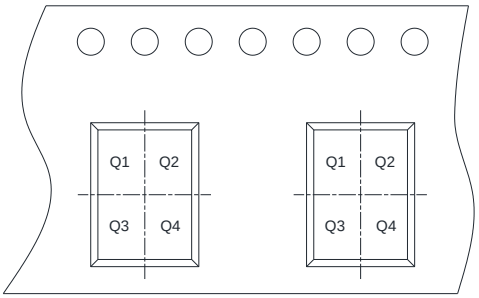
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape



User Direction of Feed

RD	Reel Dimension	☑7inch	☐13inch		
W	Overall width of the carrier tape	☑8mm	☐12mm		
P1	Pitch between successive cavity centers	☑2mm	☐4mm	☐8mm	
Pin1	Pin1 Quadrant	☐Q1	☐Q2	☐Q3	☐Q4