ESD56101DXX

http//:www.sh-willsemi.com

1-Line, Uni-directional, Transient Voltage Suppressor

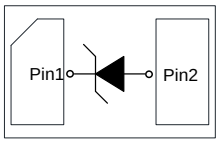
Descriptions

The ESD56101DXX is a transient voltage suppressor designed to protect power interfaces. It is suitable to replace multiple discrete components in portable electronics.

The ESD56101DXX is specifically designed to protect power lines.

The ESD56101DXX is available in DFN1610-2L package. Standard products are Pb-free and Halogen-free.

DFN1610-2L (Bottom View)



Circuit diagram

Features

- Reverse stand-off voltage: 5V ~ 15V
- Surge protection according to IEC61000-4-5 see Table 4
- ESD protection according to IEC61000-4-2 ±30kV (contact and air discharge)
- Low clamping voltage
- Solid-state silicon technology

X = Device code (B C F G)

* = Month code

Marking (Top View)

Applications

- Power supply protection
- Power management

Order information

Table 1.

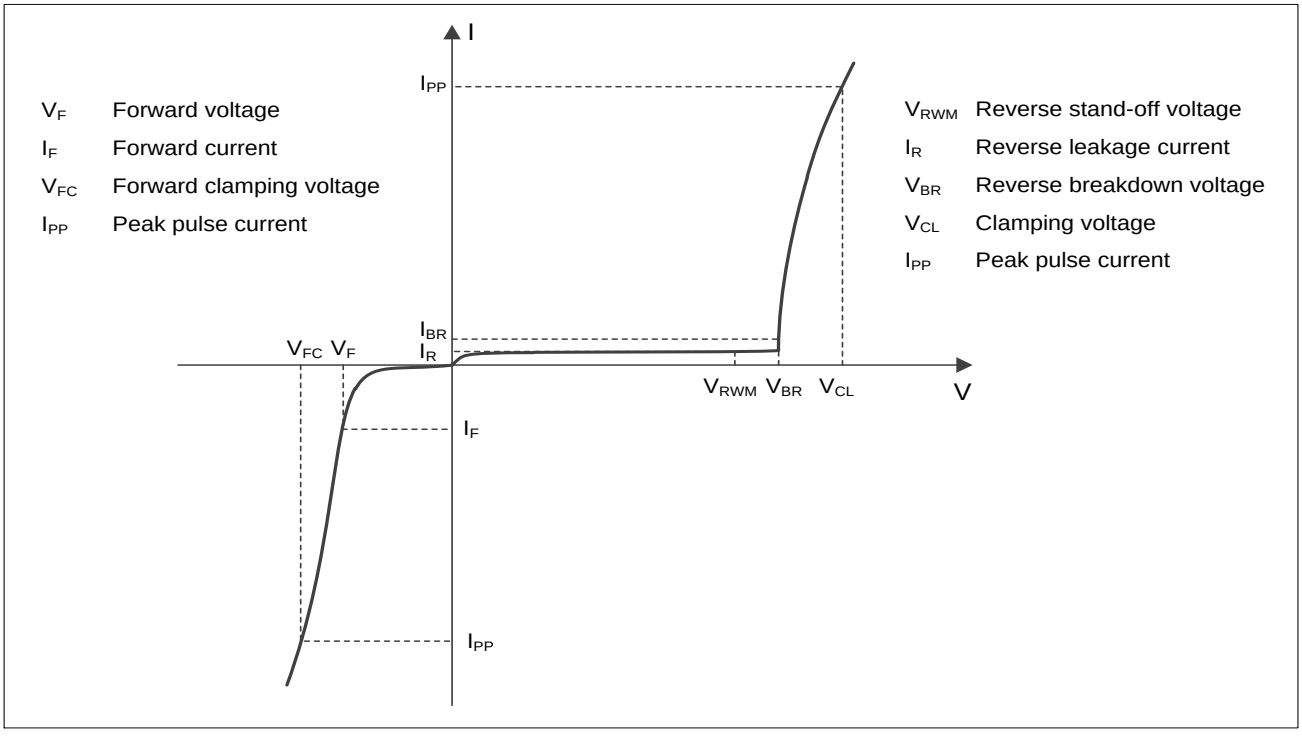
Device	Package	Shipping	Marking
ESD56101D05-2/TR	DFN1610-2L	3000/Tape&Reel	B*
ESD56101D10-2/TR	DFN1610-2L	3000/Tape&Reel	C*
ESD56101D12-2/TR	DFN1610-2L	3000/Tape&Reel	F*
ESD56101D15-2/TR	DFN1610-2L	3000/Tape&Reel	G*

Absolute maximum ratings

Table 2.

Parameter	Symbol	Rating	Unit
Peak pulse power (tp = 8/20μs)	P_{pk}	1250	W
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)



Definitions of electrical characteristics

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

Table 3.

Type number	Reverse Stand-off Voltage V_{RWM} (V)	Breakdown voltage V_{BR}(V) I_{BR} = 1mA			Reverse leakage current I_{RM}(μA) at V_{RWM}		Forward voltage V_F(V) I_F = 20mA		Junction capacitance F = 1MHz, VR=0V (pF)	
	Max	Min	Typ	Max	Typ	Max	Min	Max	Typ	Max
ESD56101D05	5.0	6.5	7.5	8.5	-	1.0	0.45	1.25	800	1200
ESD56101D10	10.0	11.5	13.2	15.0	-	0.1	0.45	1.25	350	500
ESD56101D12	12.0	13.0	15.0	17.0	-	0.1	0.45	1.25	300	440
ESD56101D15	15.0	16.0	18.0	20.0	-	0.1	0.45	1.25	240	350

Table 4.

Type number	Rated peak pulse current I_{PP} (A)[1)3)]	Clamping voltage V_{CL}(V) at I_{PP}(A)[1)3)]	Clamping voltage V_{CL}(V) at I_{PP} = 16A, t_p = 100ns [2)3)]	Clamping voltage V_{CL}(V) at V_{ESD} = 8kV [2)3)]
ESD56101D05	80	15.0	8.0	9.0
ESD56101D10	60	22.0	15.0	16.0
ESD56101D12	50	25.0	17.0	18.0
ESD56101D15	40	31.0	20.0	21.0

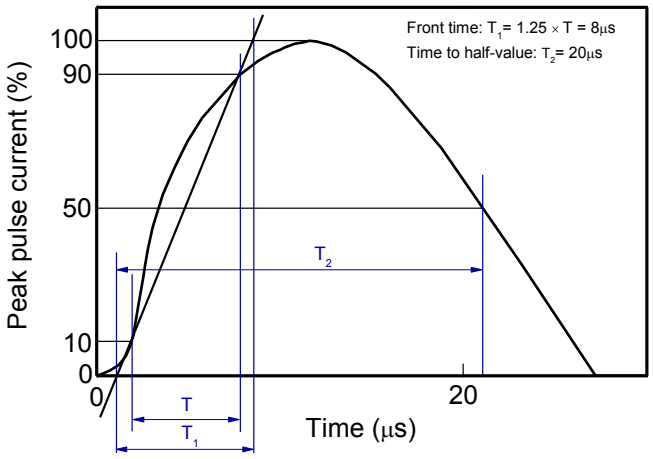
Notes:

1) Non-repetitive current pulse, according to IEC61000-4-5.（8/20μs current waveform）

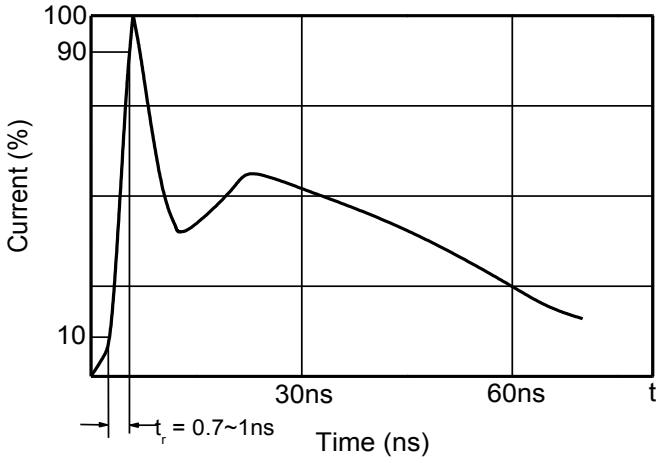
2) Non-repetitive current pulse, according to IEC61000-4-2.

3) Measured from pin 1 to pin 2.

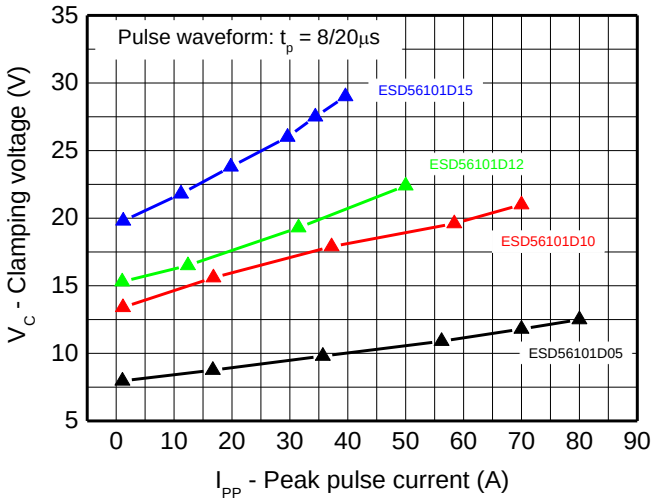
Electrical characteristics (T_A = 25°C, unless otherwise noted)



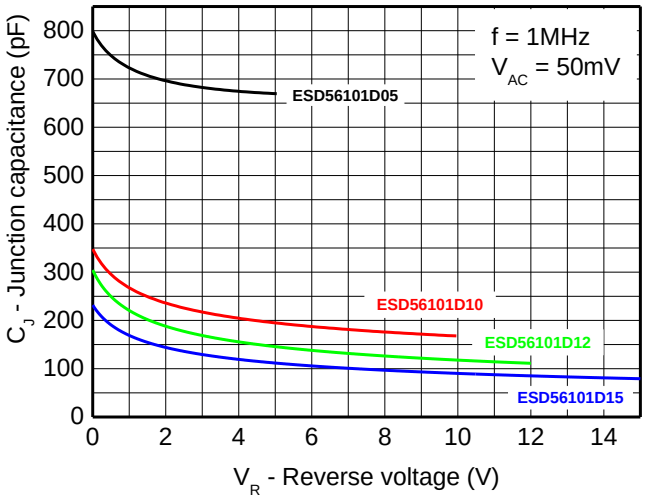
8/20μs waveform per IEC61000-4-5



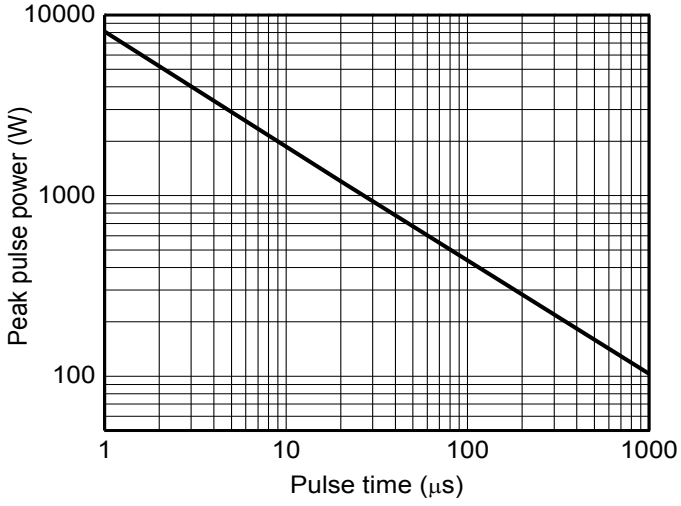
Contact discharge current waveform per IEC61000-4-2



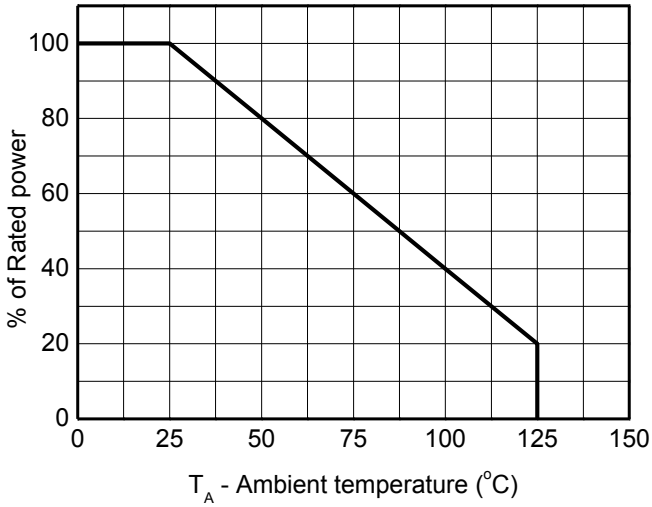
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage



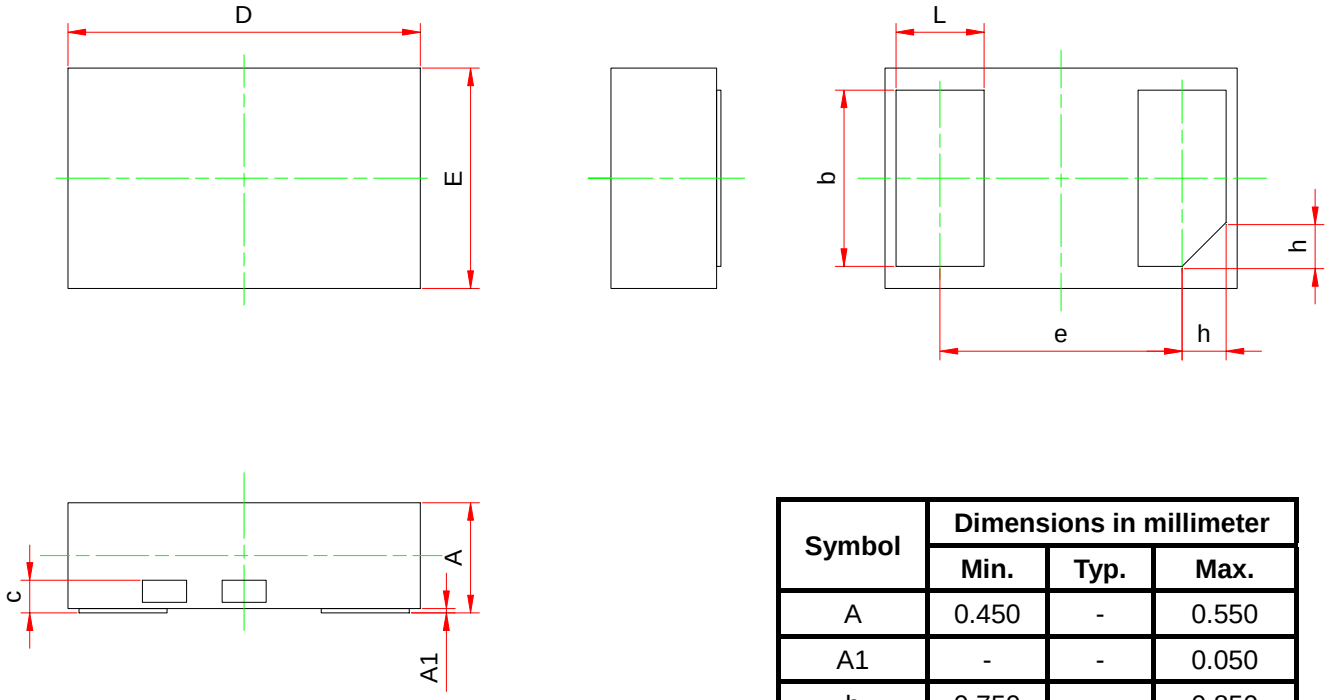
Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature

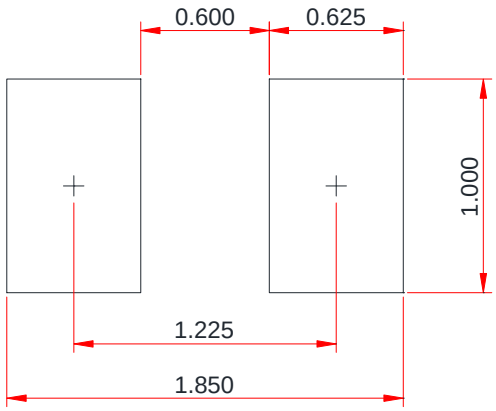
Package outline dimensions

DFN1610-2L



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.450	-	0.550
A1	-	-	0.050
b	0.750	-	0.850
c	0.100	-	0.200
D	1.550	-	1.650
e	1.100 BSC		
E	0.950	-	1.050
L	0.350	-	0.450
h	0.150	-	0.250

Recommended land pattern (Unit: mm)



Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.