

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT

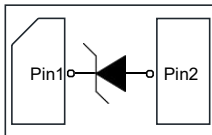


PLED

Product data sheet



**DFN1610-2L**



**Circuit diagram**

## Descriptions

The ESD56201DXX-MS is a transient voltage suppressor designed to protect power interfaces. It is suitable to replace multiple discrete components in portable electronics.

The ESD56201DXX-MS is specifically designed to protect power lines.

The ESD56201DXX-MS is available in DFN1610-2L package. Standard products are Pb-free and Halogen-free.

## Features

- Reverse stand-off voltage: 4.85V ~ 24V
- 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

## Applications

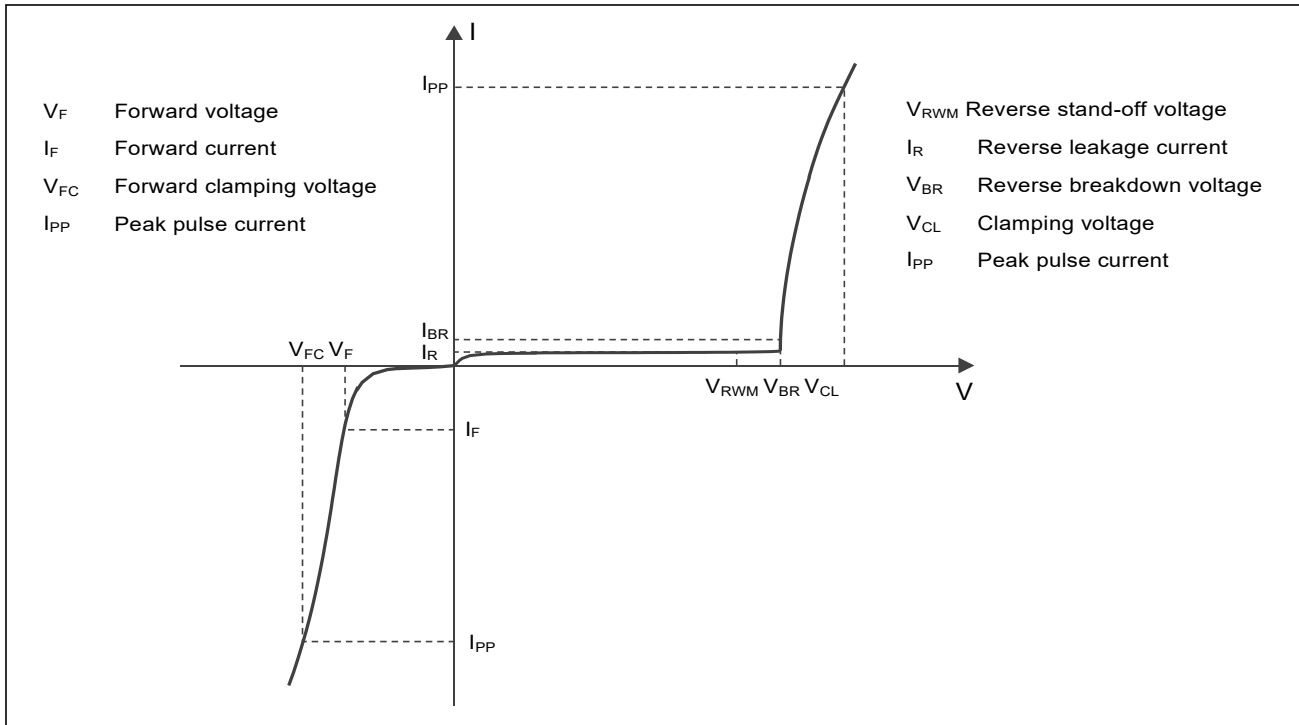
- Power supply protection
- Power management

## Order information

Device	Package	Shipping	Marking
ESD56201D04-MS	DFN1610-2L	3000/Tape&Reel	D4*
ESD56201D05-MS	DFN1610-2L	3000/Tape&Reel	I*
ESD56201D10-MS	DFN1610-2L	3000/Tape&Reel	J*
ESD56201D12-MS	DFN1610-2L	3000/Tape&Reel	K*
ESD56201D15-MS	DFN1610-2L	3000/Tape&Reel	L*
ESD56201D18-MS	DFN1610-2L	3000/Tape&Reel	S*
ESD56201D20-MS	DFN1610-2L	3000/Tape&Reel	N*

Parameter	Symbol	Rating	Unit
Peak pulse power ( $t_p = 8/20\mu s$ )	$P_{pk}$	1800	W
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 30$	kV
ESD according to IEC61000-4-2 contact discharge		$\pm 30$	
Junction temperature	$T_J$	125	$^{\circ}C$
Operating temperature	$T_{OP}$	-40~85	$^{\circ}C$
Lead temperature	$T_L$	260	$^{\circ}C$
Storage temperature	$T_{STG}$	-55~150	$^{\circ}C$

**Electrical characteristics ( $T_A = 25^{\circ}C$ , unless otherwise noted)**



**Definitions of electrical characteristics**

**Electrical characteristics (T<sub>A</sub> = 25°C, unless otherwise noted)**

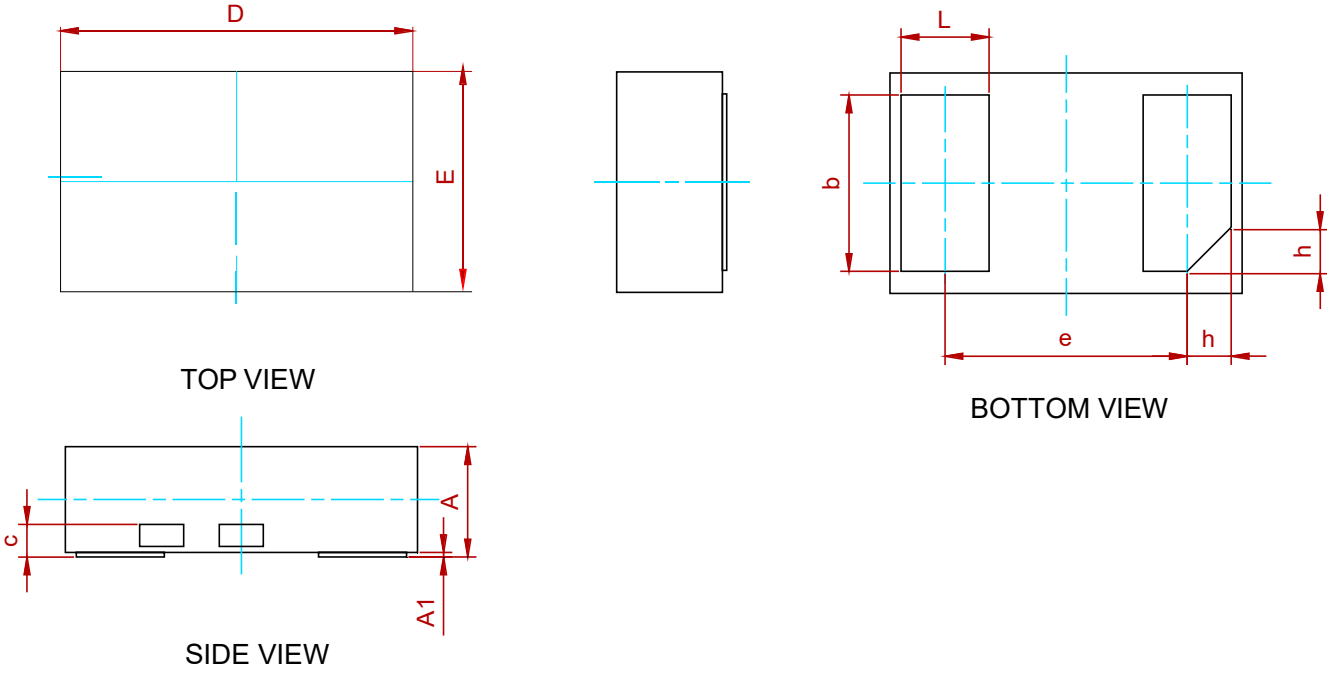
P/N	Reverse Stand-off Voltage V <sub>RWM</sub> (V)	Breakdown voltage V <sub>BR</sub> (V) I <sub>BR</sub> = 1mA			Reverse leakage current I <sub>RM</sub> (μA) at V <sub>RWM</sub>		Forward voltage V <sub>F</sub> (V) I <sub>F</sub> = 20mA		Junction capacitance F = 1MHz, VR=0V (pF)	
	Max	Min	Typ	Max	Typ e	Max	Min	Max	Typ	Max
ESD56201D04-MS	4.85	5.2	5.7	6.2	-	5.0	0.45	1.25	1100	1300
ESD56201D05-MS	5.0	6.6	7.1	7.6	-	2.0	0.45	1.25	1050	1250
ESD56201D10-MS	10.0	10.7	11.3	12.3	-	0.1	0.45	1.25	545	650
ESD56201D12-MS	12.0	12.7	13.7	14.6	-	0.1	0.45	1.25	425	510
ESD56201D15-MS	15.0	16.0	17.5	19.0	-	0.1	0.45	1.25	325	350
ESD56201D18-MS	18.0	19.2	21.1	23.0	-	0.1	0.45	1.25	270	300
ESD56201D20-MS	20.0	21.4	23.2	25.0	-	0.1	0.45	1.25	250	275

P/N	Rated peak pulse current I <sub>PP</sub> (A) <sup>1)2)</sup>	Clamping voltage V <sub>CL</sub> (V) at I <sub>PP</sub> (A) <sup>1)2)</sup>	
	Max.	Typ.	Max.
ESD56201D04-MS	120	10.5	12.0
ESD56201D05-MS	100	11.0	13.0
ESD56201D10-MS	86	17.5	20.0
ESD56201D12-MS	75	19.5	22.0
ESD56201D15-MS	60	27.0	30.0
ESD56201D18-MS	50	32.0	35.0
ESD56201D20-MS	45	35.0	38.0

**Notes:**

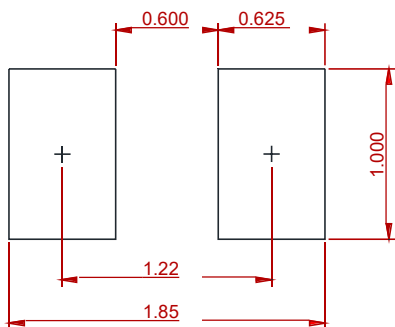
- 1 Non-repetitive current pulse, according to IEC61000-4-5. (8/20μs current waveform)
- 2 Non-repetitive current pulse, according to IEC61000-4-2.
- 3 Measured from pin 1 to pin 2.

**PACKAGE MECHANICAL DATA**



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.45	0.50	0.55
A1	0.00	0.02	0.05
c	0.15 Ref.		
b	0.75	0.80	0.85
L	0.35	0.40	0.45
D	1.55	1.60	1.65
E	0.95	1.00	1.05
e	1.10 BSC		
h	0.20 Ref.		

**Recommend PCB Layout (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.

**REEL SPECIFICATION**

P/N	PKG	QTY
ESD56201DXX-MS	DFN1610-2L	3000

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