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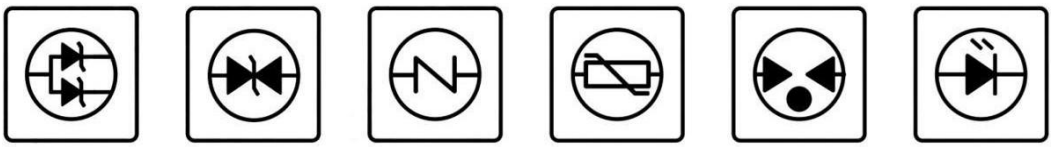
SEMICONDUCTOR



ESD56201DXX-MS

Product specification

1-Line, Uni-directional, Transient Voltage Suppressor

Descriptions

TheESD56201DXX-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

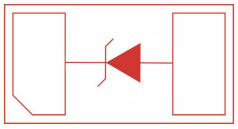
Features

- Reverse stand-offvoltage: 4.85V ~ 20V
- Surge protection according to IEC61000-4-5 see Table 4
- ESD protection according to IEC61000-4-2 ± 30kV (contact and air discharge)
- Lowclamping voltage
- Solid-state silicon technology

Applications

- Power supply protection
- Power management

Order information Table 1.

PACKAGE OUTLINE	Circuit diagram
	
DFN1610-2	

Marking

ESD56201D04-MS	ESD56201D05-MS	ESD56201D10-MS	ESD56201D12-MS
D4*	I*	J*	K*
ESD56201D15-MS	**ESD56201D18-MS**	**ESD56201D20-MS**	
L*	S*	N*	

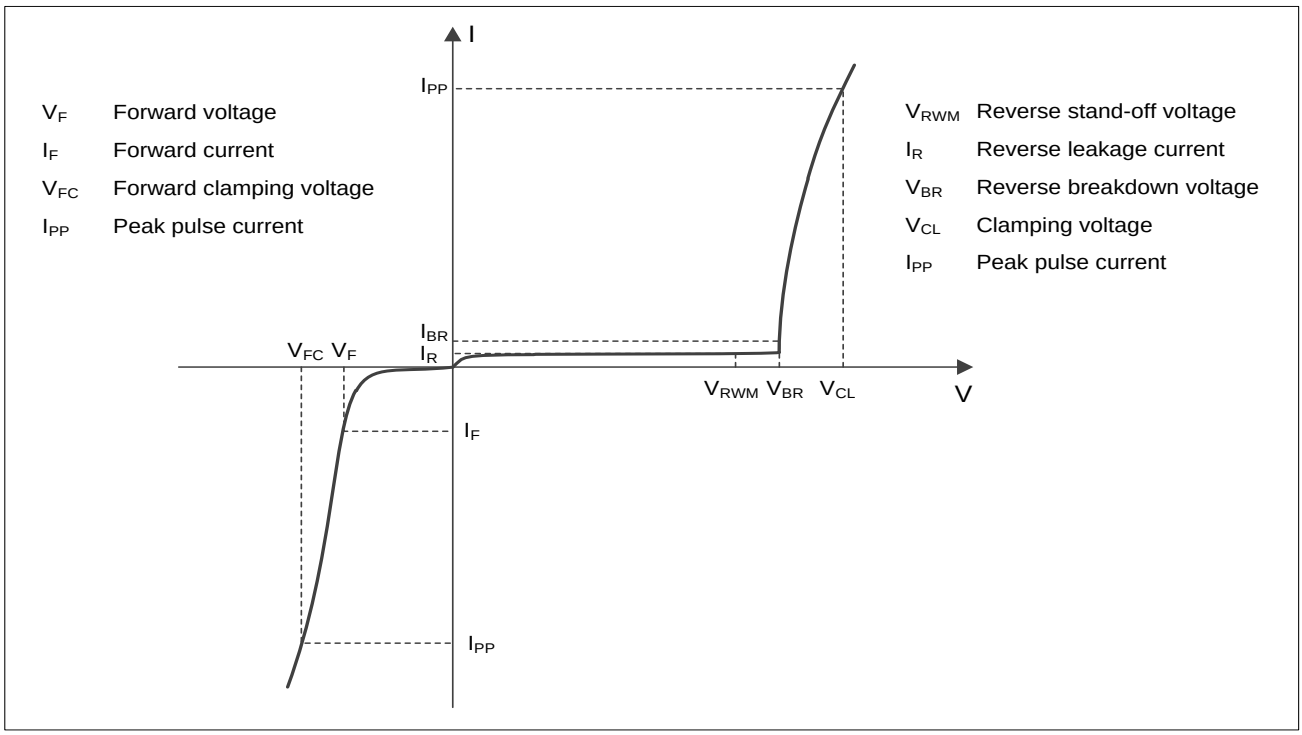
REEL SPECIFICATION

P/N	PKG	QTY
ESD56201D04-MS	DFN1610-2	3000
ESD56201D05-MS		
ESD56201D10-MS		
ESD56201D12-MS		
ESD56201D15-MS		
ESD56201D18-MS		
ESD56201D20-MS		

Table 2.

Parameter	Symbol	Rating	Unit
Peak pulse power (tp = 8/20μs)	P_{pk}	1800	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

Electricalcharacteristics(T_A= 25℃, unless otherwise noted)



Definitions of electrical characteristics

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.	Type.	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

Table 4.

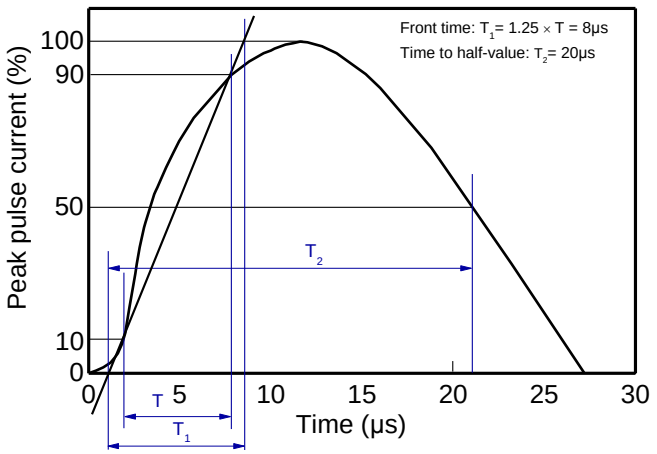
Type number	Rated peak pulse current I_{PP} （A） 1)2)	Clamping voltage V_{CL}(V) at I_{PP} （A） 1)2)	
	Max.	Typ.	Max.
ESD56201D04-MS	120	10.5	12.0
ESD56201D05-MS	100	11.0	13.0
ESD56201D10-MS	86	17.5	20.0
ESD56201D12-MS	75	19.5	22.0
ESD56201D15-MS	60	27.0	30.0
ESD56201D20-MS	50	32.0	35.0
ESD56201D18-MS	45	35.0	38.0

Notes:

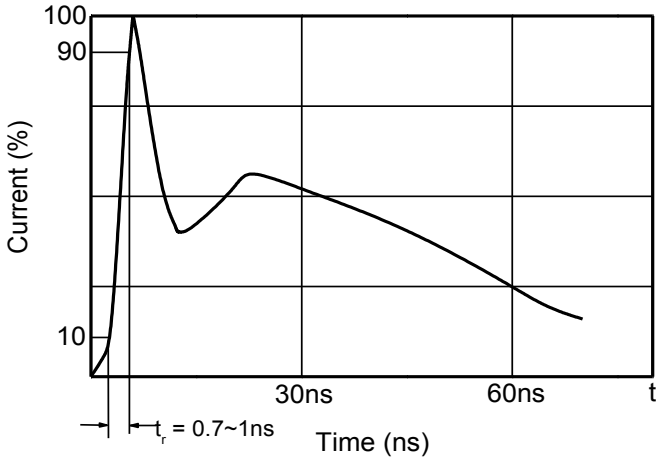
1) Non-repetitive current pulse, according to IEC61000-4-5. (8/20μs current waveform)

2) Measured from pin 1 topin 2.

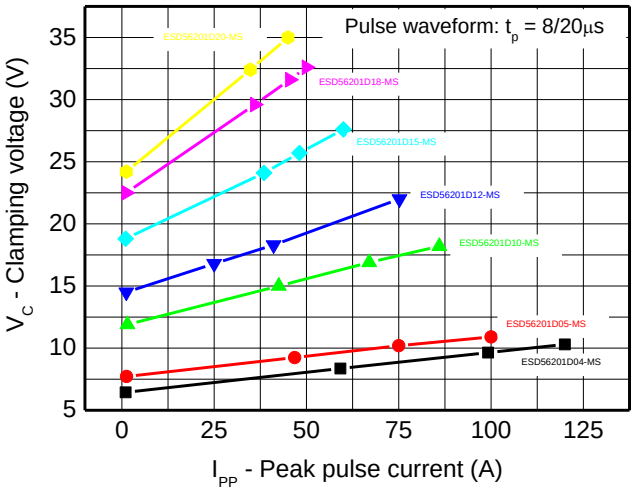
Electrical characteristics (T_A = 25°C, unless otherwise noted)



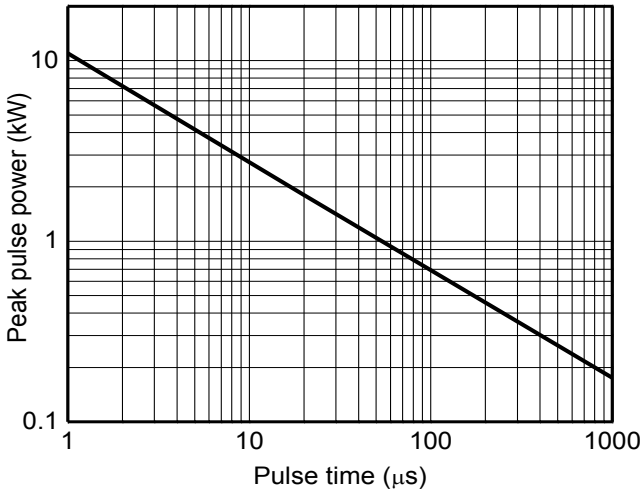
8/20μs waveform per IEC61000-4-5



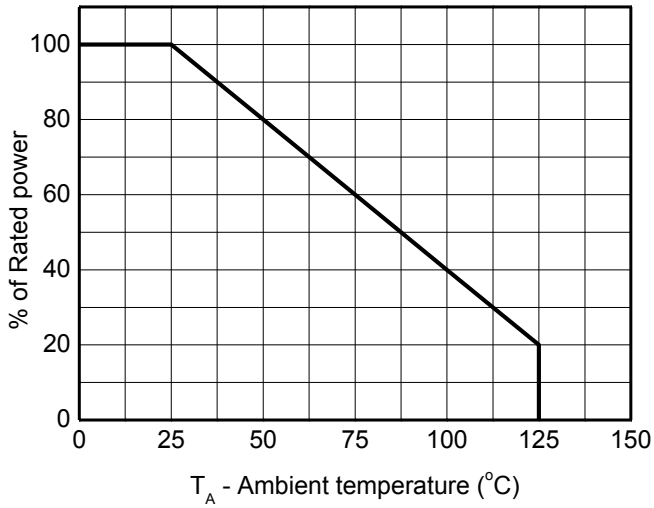
Contact discharge current waveform per IEC61000-4-2



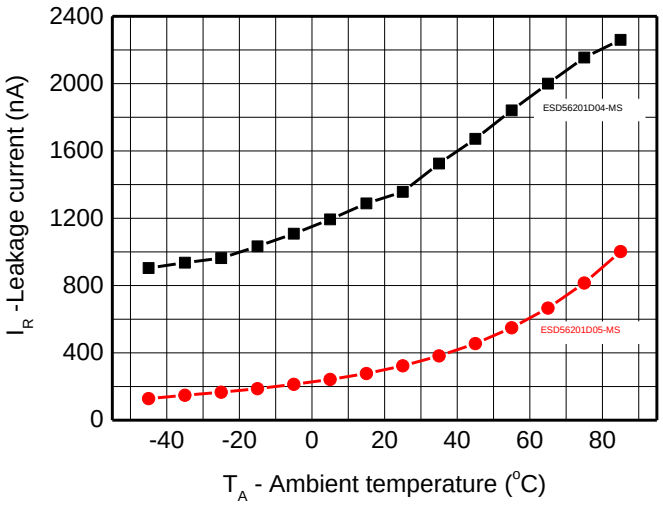
Clamping voltage vs. Peak pulse current



Non-repetitive peak pulse power vs. Pulse time

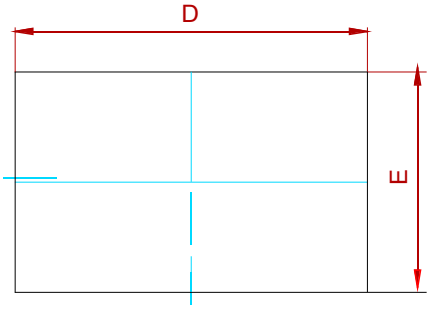


Power derating vs. Ambient temperature

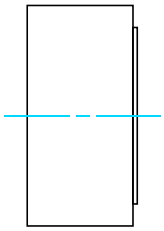


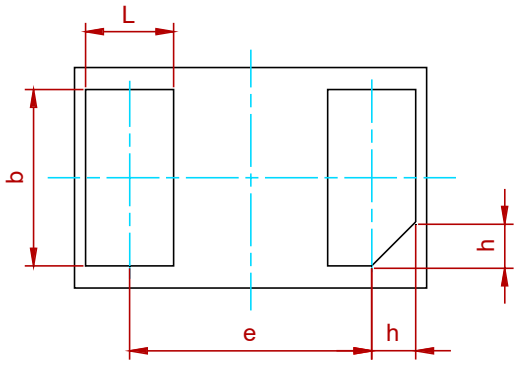
Leakage current vs. Ambient temperature

PACKAGE MECHANICAL DATA

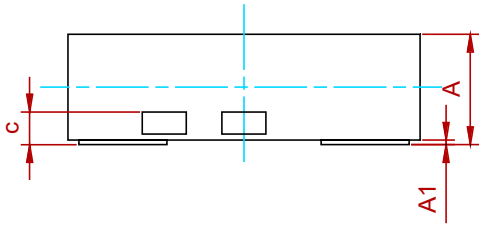


TOP VIEW





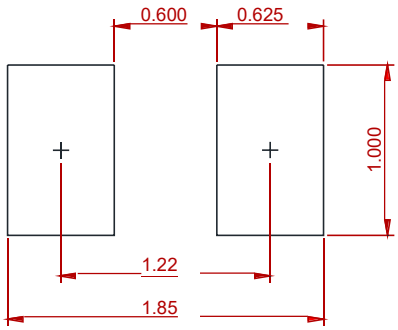
BOTTOM VIEW



SIDE VIEW

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.

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