银河微电
Galaxy
Microelectronics

1-Line, Bi-directional Transient Voltage Suppressor

ESDSSB3V3X3BL

Features

HF

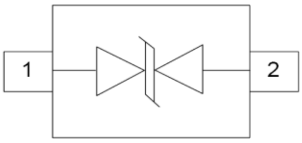
- ESD / transient protection of high speed data lines
    - IEC 61000-4-2 (ESD): ±30kV (air), ±30kV (contact)
- Working voltage: V_{RWM} = 3.3V
- Low leakage current
- Low clamping voltage
- RoHS compliant with Halogen-free

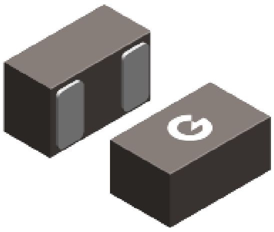
Applications

- USB3.2
- Thunderbolt
- HDMI 1.4 and HDMI 2.1
- Cellular handsets

Mechanical Data

- Case: DFN1006-2
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208





DFN1006-2

Ordering Information

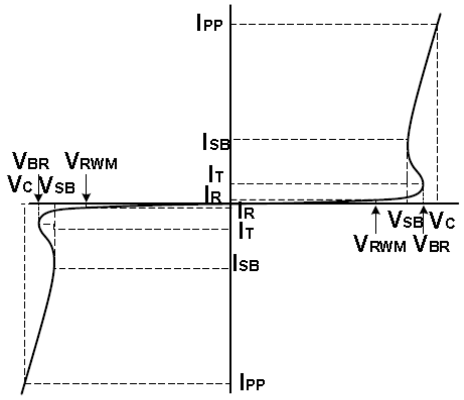
Part Number	Package	Shipping Quantity	Marking Code
ESDSSB3V3X3BL	DFN1006-2	10000 pcs / Tape & Reel	S1S

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
IEC 61000-4-2; ESD (Air)	V_{ESD-A}	±30	kV
IEC 61000-4-2; ESD (Contact)	V_{ESD-C}	±30	kV
Peak Pulse Power (t_p = 8/20μs)	P_{PP}	50	W
Peak Pulse Current (t_p = 8/20μs)	I_{PP}	5	A
Junction Temperature Range	T_J	-55 ~ +125	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Parameters

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
$V_{(BR)}$	Reverse Breakdown Voltage @ I_T
I_T	Test Current
V_{SB}	Snap-Back Voltage @ I_{SB}
I_{SB}	Snap-Back Current



Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}		-	-	3.3	V
Reverse Breakdown Voltage	$V_{(BR)}$	I_T = 1mA	5.5	-	9.0	V
Reverse Leakage Current	I_R	V_{RWM} = 3.3V	-	-	100	nA
Clamping Voltage	V_C	I_{PP} = 1A, t_p = 8/20μs	-	6	7	V
		I_{PP} = 5A, t_p = 8/20μs	-	8	10	V
Dynamic Resistance $^{*1, 2}$	R_{DYN}	TLP = 0.2/100ns	-	0.25	-	Ω
ESD Clamping Voltage ^{*1}	V_C	I_{PP} = 16A, t_p = 0.2/100ns (TLP)	-	9.1	-	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHZ	-	0.2	0.3	pF

Notes:

1. TLP Setting：t_p = 100ns, tr = 1ns, I_{TLP} and V_{TLP} sample window: t_1 = 70ns to t_2 = 90ns
2. Dynamic resistance calculated from I_{PP} = 4A to I_{PP} = 16A using “Best Fit”

Ratings and Characteristic Curves (@ T_A = 25°C unless otherwise specified)

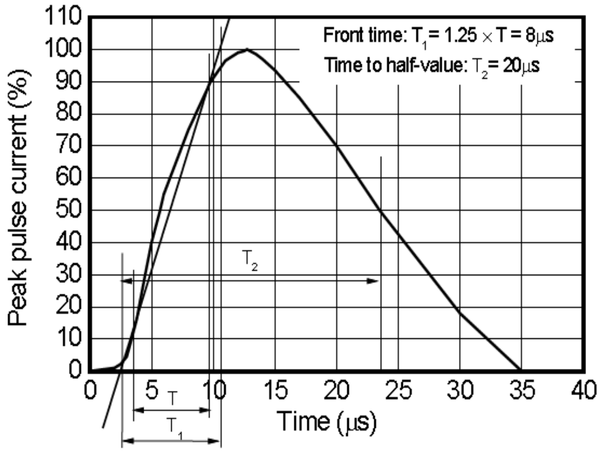


Fig 1 8/2 0μs waveform per IEC61000-4-5

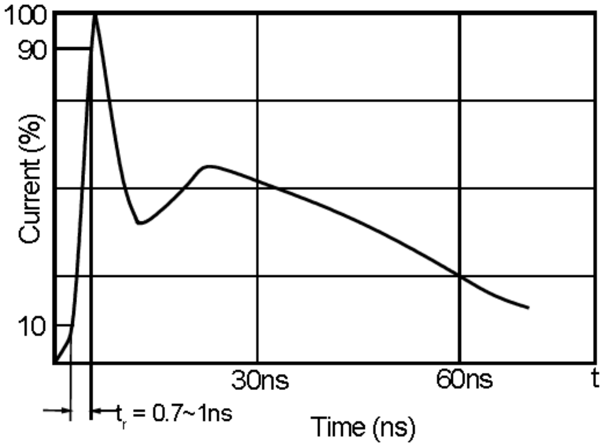


Fig 2 ESD pulse waveform according to IEC61000-4-2

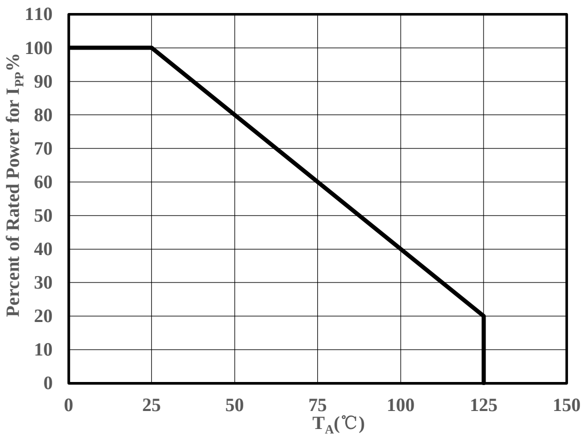


Fig 3 Power Derating Curve

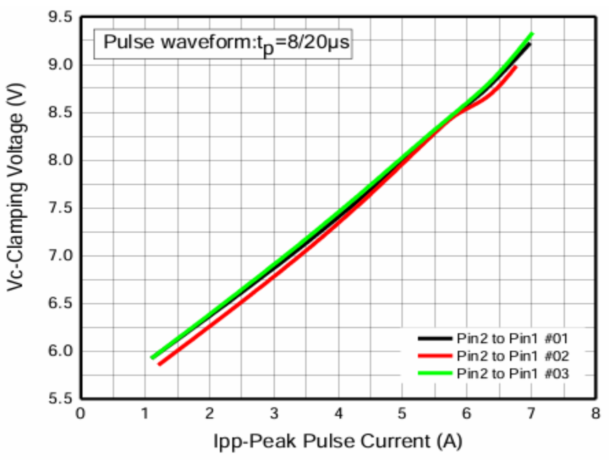


Fig 4 Clamping Voltage vs. Peak Pulse Current

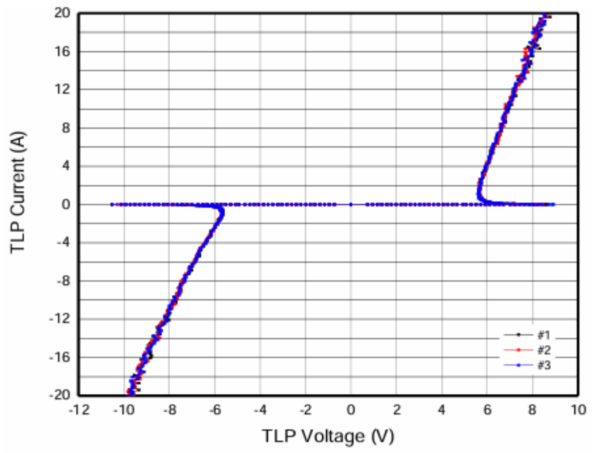
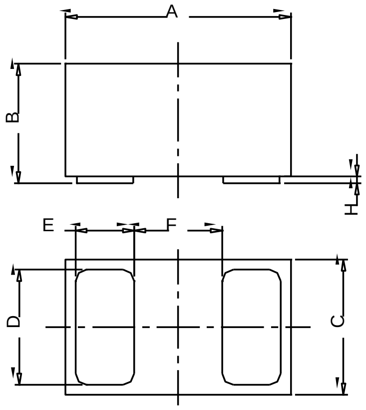


Fig 5 TLP Measurement

Package Outline Dimensions (Unit: mm)



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Dimension	**Min.**	**Typ.**	**Max.**
A	0.95	1.00	1.075
B	0.47	0.50	0.53
C	0.55	0.60	0.675
D	0.45	0.50	0.55
E	0.20	0.25	0.30
F	-	0.40	-
H	0	0.03	0.05

Package Outline Dimensions (Unit: mm)

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