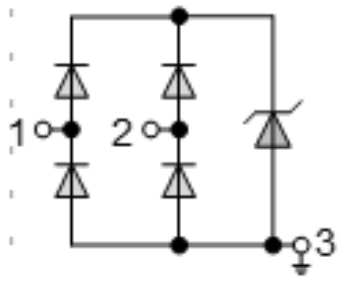
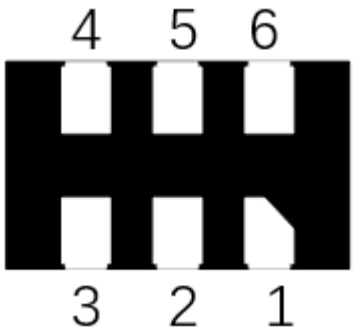
2-Line, Uni-directional, Ultra-low Capacitance, Transient Voltage Suppressor





DFN1210-6L

Features

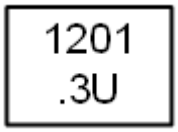
- Stand-off voltage: 3.3V Max.
- Transient protection for each line according to
  - IEC61000-4-2(ESD): ±30kV (contact)
  - IEC61000-4-5(surge): 8A (8/20μs)
- Ultra-low capacitance: C_J = 0.2pF typ.
- Ultra-low leakage current: I_R < 1nA typ.
- Low clamping voltage: V_{CL} = 7.0V typ. @ I_{PP} = 16A (TLP)
- Solid-state silicon technology

Applications

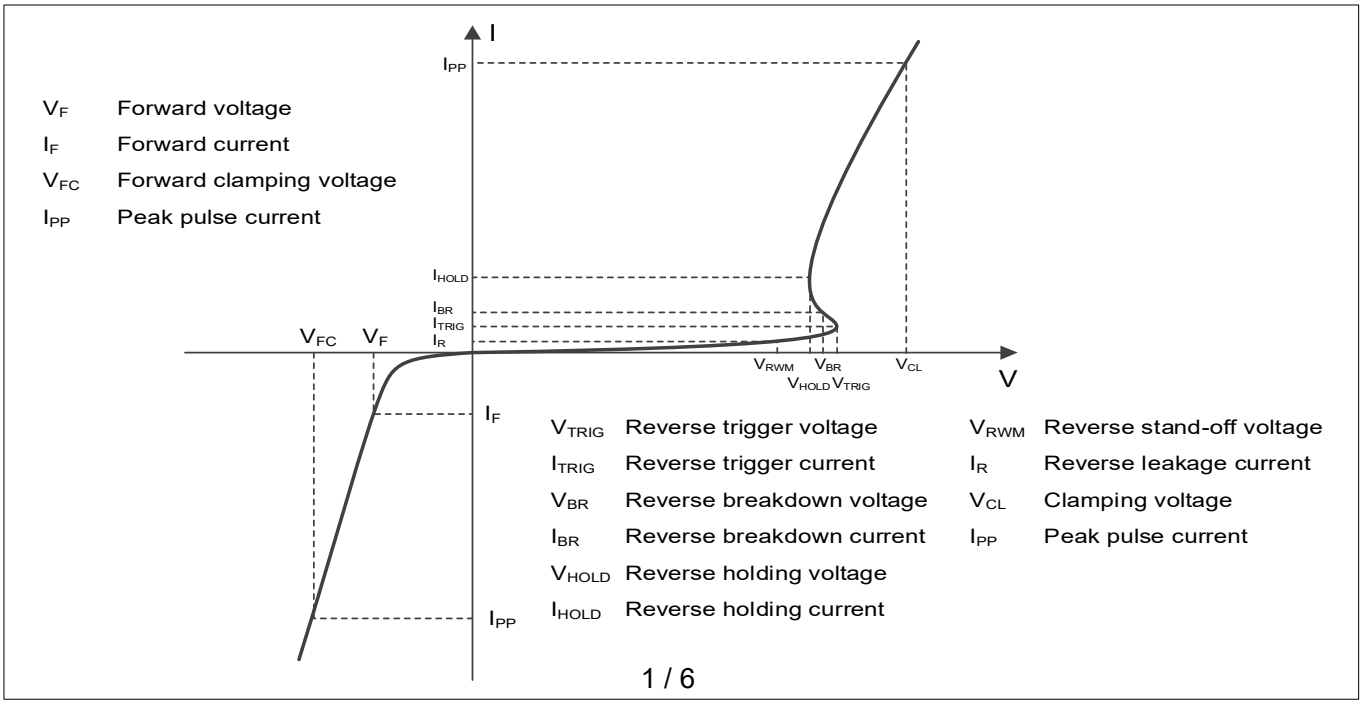
- USB 2.0 , USB 3.0 , USB 3.1 and USB type-C
- HDMI 1.3, HDMI 1.4 and HDMI 2.0
- SATA and eSATA interface
- DVI
- IEEE 1394
- Portable Electronics and Notebooks
- Ethernet port: 10/100/1000 Mb/s
- Desktop and Notebooks PCs

Mechanical Data

- Package: SOT-23-6L
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below



■Definitions of electrical characteristics



■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power (t_p = 8/20μs)	P_{pk}	76	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	8	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	℃
Storage temperature	T_{STG}	-55~150	℃

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V				3.3
Reverse leakage current	I_R	nA	V_{RWM} = 3.3V,			100
Reverse breakdown voltage	$V_{(BR)}$	V	I_T = 1mA,	5		
Forward Voltage	V_F	V	I_F=10mA		0.7	
Clamping voltage [1]	V_{CL}	V	I_{PP} = 16A, t_p = 100ns		9.9	
Clamping voltage[2]	V_{CL}	V	V_{ESD} = +8kV		10	
Dynamic resistance [1]	R_{DYN}	Ω			0.3	
Clamping voltage	V_{CL}	V	I_{PP} = 1A, t_p = 8/20μs			6
		V	I_{PP} = 8A, t_p = 8/20μs			9.5
Junction capacitance	CJ	pF	V_R = 0V, f = 1MHz		0.2	0.27

Notes:

(1). TLP parameter: Z0 = 50Ω, tp = 100ns, tr = 2ns, averaging window from 60ns to 80ns. RDYN is calculated from 4A to 16A.

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

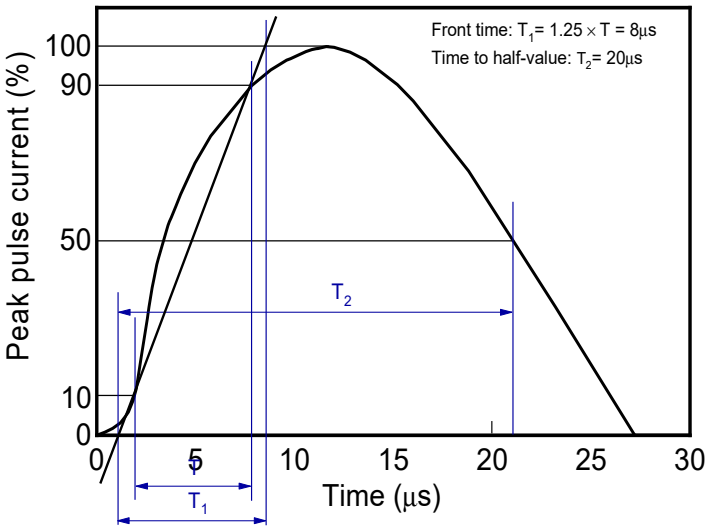
(3). Non-repetitive current pulse, according to IEC61000-4-5

■Ordering Information (Example)

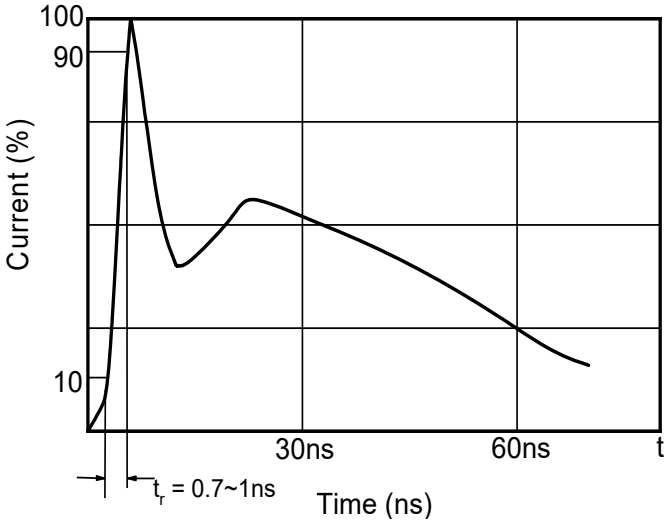
PREFERED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESDULC3302P2	F2	Approximate 16	3000	30000	120000	7 reel

■ Characteristics (Typical)

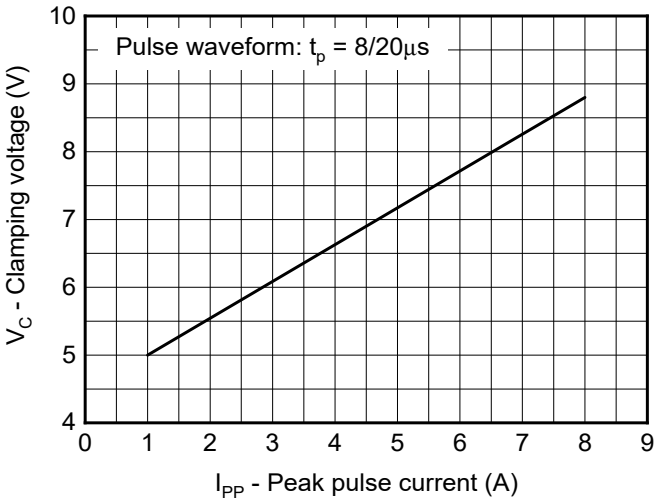
8/20μs waveform per IEC61000-4-5



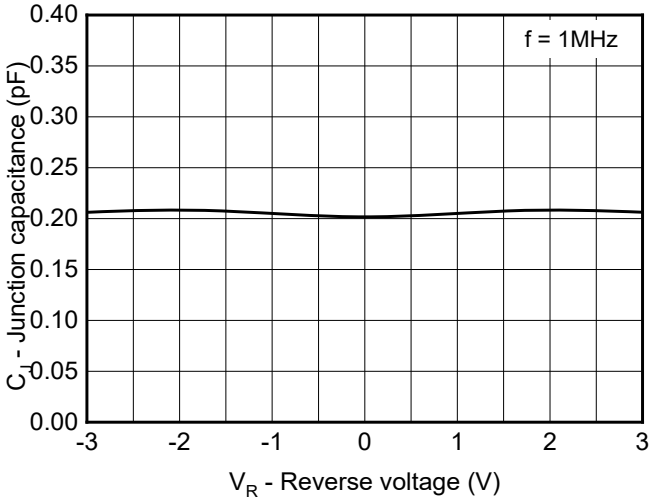
Contact discharge current waveform per IEC61000-4-2



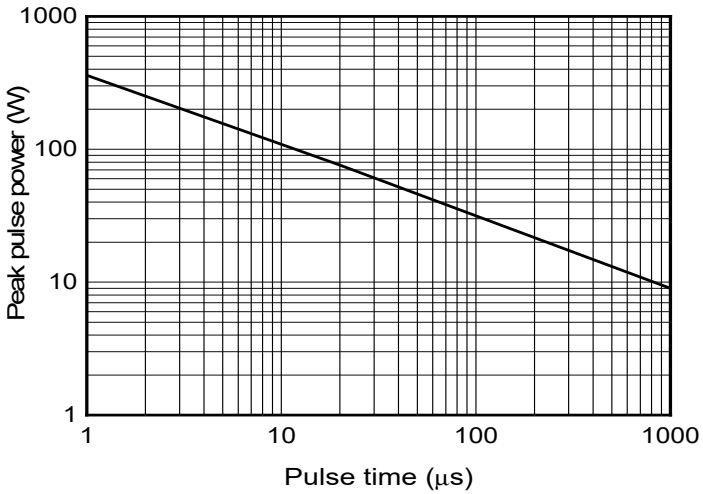
Clamping voltage vs. Peak pulse current



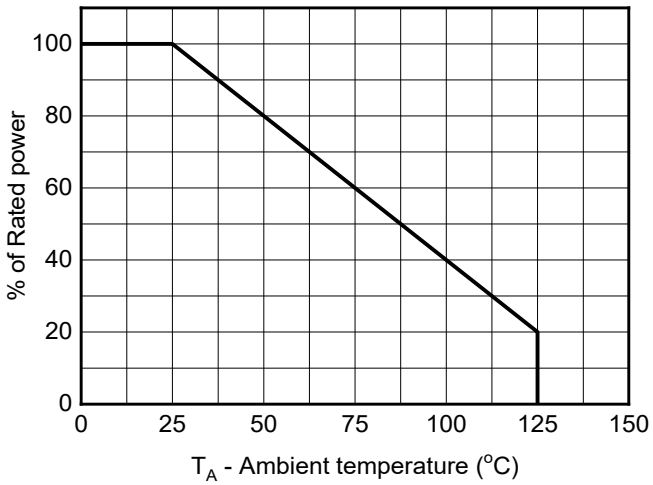
Capacitance vs. Reverse voltage



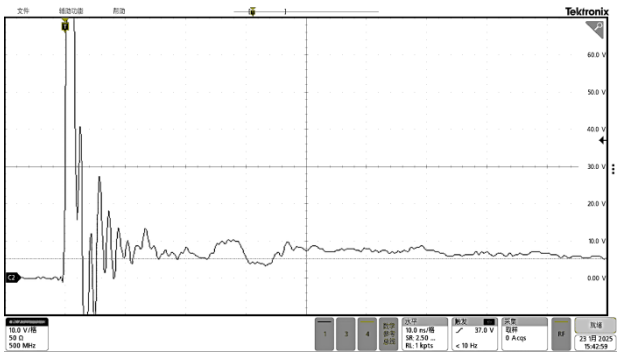
Non-repetitive peak pulse power vs. Pulse time



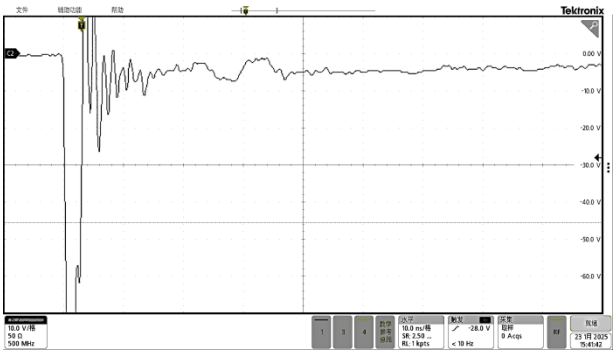
Power derating vs. Ambient temperature



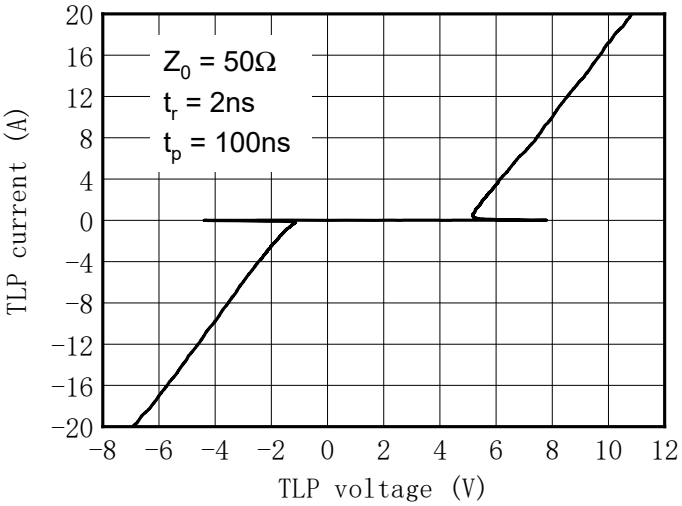
ESD clamping
(+8kV contact discharge per IEC61000-4-2)



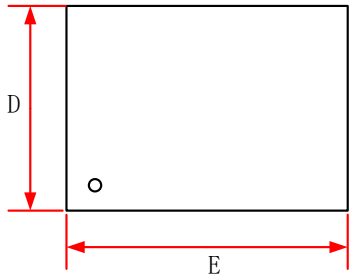
ESD clamping
(-8kV contact discharge per IEC61000-4-2)



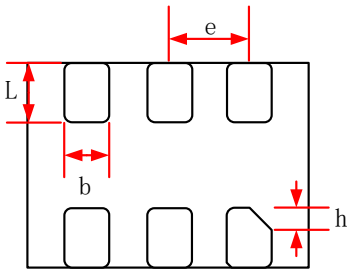
TLP Measurement



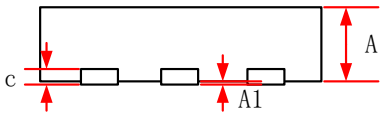
■ Outline Dimensions



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	0.152 Ref.		
D	0.95	1.00	1.05
E	1.15	1.20	1.25
b	0.15	0.20	0.25
L	0.34	0.38	0.42
e	0.40 BSC		

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