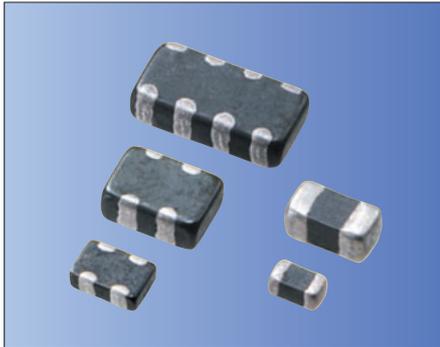


Multilayer Ceramic Transient Voltage Suppressors USB Series



Ph Free

RoHS Compliant

USB Series are designed to protect the high speed data lines against ESD transients. They have very low capacitance and fast turn on times that makes this series ideal for data and transmission lines with high data rates. The unique design enables these devices to meet the rigorous testing criteria of the IEC61000-4 standards.

Features

- Bi-directional device, similar to back-to-back Zener diodes plus an EMC capacitor in parallel.
- Low capacitance for high speed datalines.
- Protects against ESD to meet IEC61000-4-2 15kV (air) and 8kV (Contact).
- Available in EIA 0402/ 0603 (Single), 0405 (Dual), 0508 (Triple) and 0612 (Quad) cases.

Applications

- USB BUS Lines/ Firewire Data BUS Lines
- I/ O BUS Lines
- 10/ 100/ 1000 Ethernet Transmission Lines
- Video Card Data Lines

How to Order

USB 0001 R P
① ② ③ ④

① Series

② Type

0001	1608 (Single)	0002	1014 (Dual)
0003	1220 (Triple)	0004	1632 (Quad)
0005	1005 (Single, 3pF)	0006	1005 (Single, 6pF)

③ Packaging Quantity (pcs.)

Size	1005	1608 1014 1220	1632
R	—	4000	2000
W	10000	—	—

* 7" Reel

④ Termination

P	Plated Sn
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Part Number	V _w (DC)	V _w (AC)	V _B	I _L	E _T	I _P	Cap	Case Size	Elements
	V	V _{rms}	V	μA	J	A	pF		
USB0005	≤18V	≤14	300	2	0.015	4	3	1005	1
USB0006	≤18V	≤14	65	2	0.015	4	6	1005	1
USB0001	≤18V	≤14	120	2	0.015	4	10	1608	1
USB0002	≤18V	≤14	70	2	0.015	4	10	1014	2
USB0003	≤18V	≤14	180	2	0.015	4	10	1220	3
USB0004	≤18V	≤14	100	2	0.015	4	10	1632	4

V_w (DC) : DC Working Voltage

V_w (AC) : AC Working Voltage

V_B : Typical Breakdown Voltage (1mA_{DC})

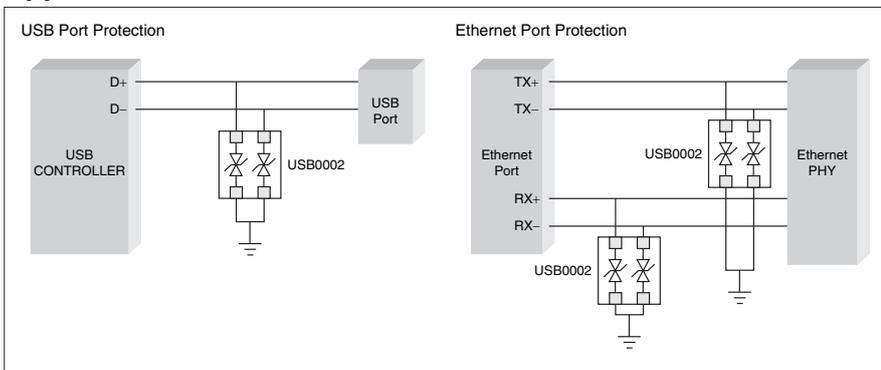
I_L : Maximum leakage current at the working voltage

E_T : Transient Energy Rating (10×1000μS)

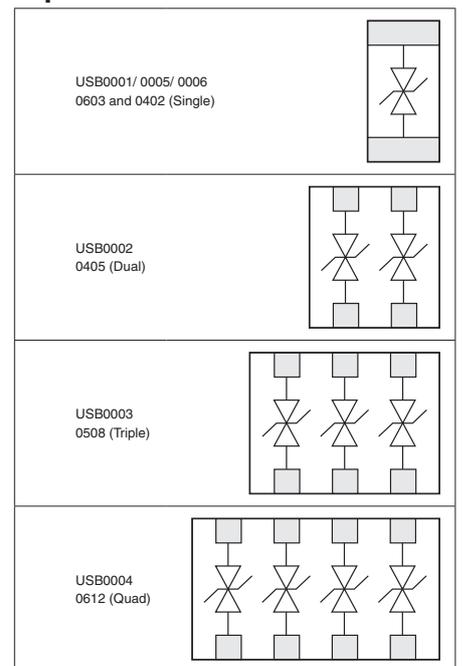
I_P : Peak Current Rating (8×20μS)

Cap : Typical capacitance (1MHz, 0.5V_{rms})

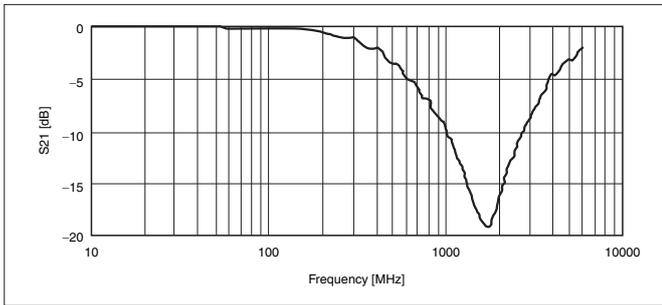
Applications



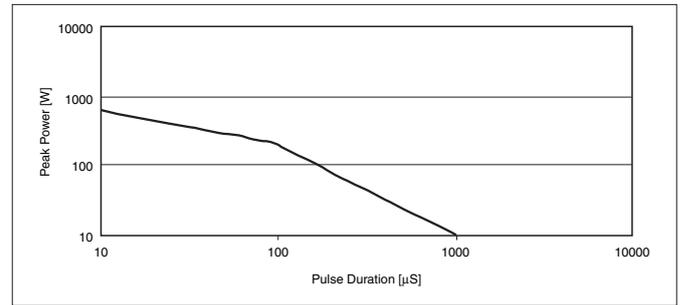
Equivalent Circuit



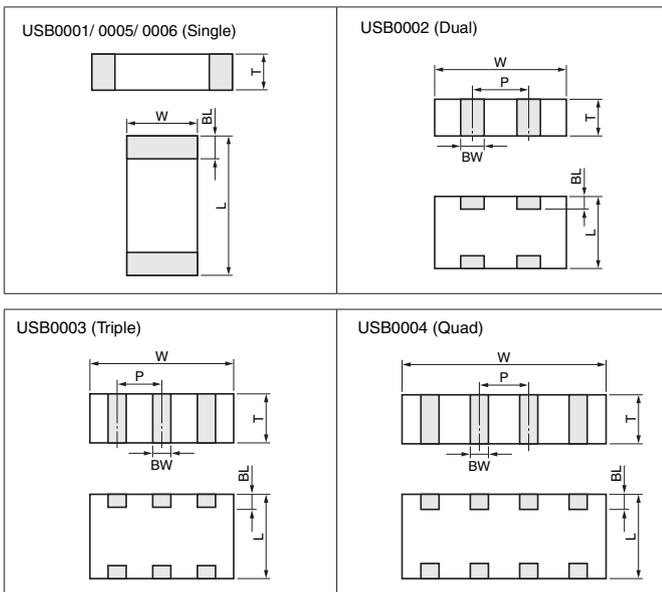
S21 Characteristics



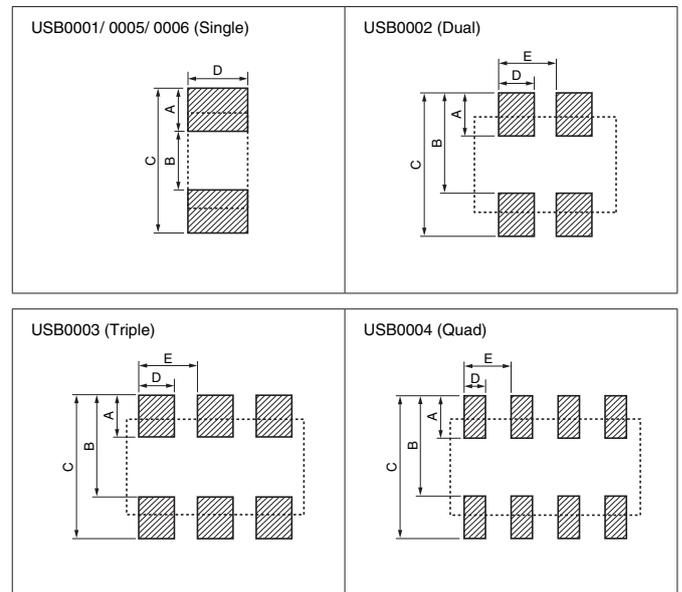
Pulse Rating



Dimensions



Recommended Land Pattern



Dimensions

(Unit: mm)

Type	L	W	T	BW	BL	P
USB0001	1.60±0.15	0.80±0.15	0.90 max.	—	0.35±0.15	—
USB0002	1.00±0.15	1.37±0.15	0.66 max.	0.36±0.10	0.20±0.10	0.64REF
USB0003	1.27±0.20	2.03±0.20	0.965 max.	0.254±0.100	0.18 ^{+0.25} _{-0.08}	0.64REF
USB0004	1.60±0.20	3.20±0.20	1.22 max.	0.41±0.10	0.18 ^{+0.25} _{-0.08}	0.76REF
USB0005	1.00±0.10	0.50±0.10	0.60 max.	—	0.25±0.15	—
USB0006						

Land Dimensions

(Unit: mm)

Type	A	B	C	D	E
USB0001	0.89	0.76	2.54	0.76	—
USB0002	0.46	0.74	1.20	0.30	0.64
USB0003	0.64	1.27	1.91	0.28	0.51
USB0004	0.89	1.65	2.54	0.46	0.76
USB0005	0.61	0.51	1.70	0.51	—
USB0006					