



Features

- ❑ Transient protection for high-speed data lines
 - IEC 61000-4-2 (ESD) $\pm 17\text{kV}$ (Air)
 $\pm 8\text{kV}$ (Contact)
 - IEC 61000-4-4 (EFT) 40A (5/50 ns)
Cable Discharge Event (CDE)
- ❑ Package optimized for high-speed lines
- ❑ Ultra-small package (0.6mm×0.3mm×0.3mm)
- ❑ Protects one data, control or power line
- ❑ Low capacitance: 0.18 pF (Typical)
- ❑ Low leakage current: $0.1\mu\text{A}$ @ V_{RWM} (Typical)
- ❑ Low clamping voltage
- ❑ Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge

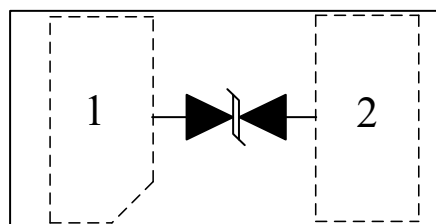
Circuit Diagram



Applications

- D SerialATA
- D PCT Express
- D Desktops, Servers and Notebooks
- D Cellular Phones
- D MDDI Ports
- D USB2.0/3.0/3.1 Power and Data Line Protection
- D Display Ports
- D Digital Visual Interfaces (DVI)
- D HDMI 1.4/2.0

Pin Configuration



DFN0603
(Top View)

Mechanical Characteristics

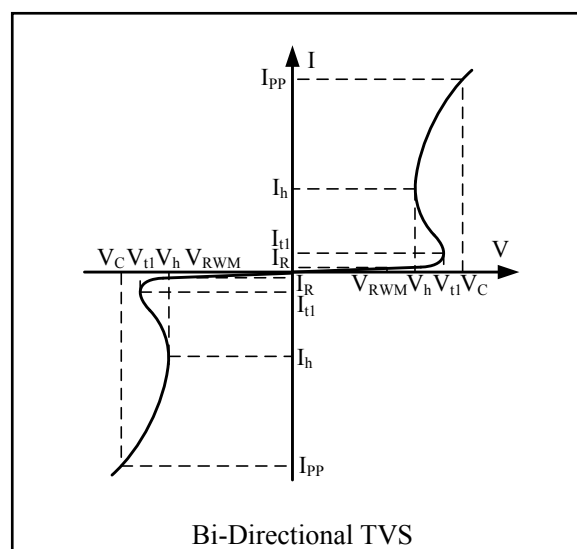
- ❑ DFN0603 (0201 Inch) package
- ❑ Flammability Rating: UL 94V-0
- ❑ GREEN part and RoHS compliant

**Absolute Maximum Rating**

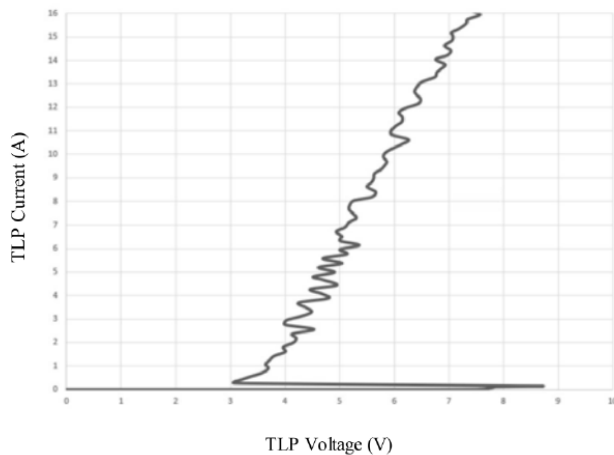
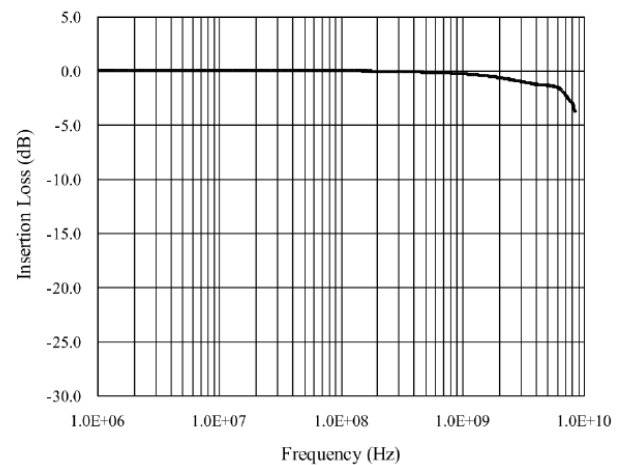
Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current($t_p=8/20\mu s$)	6	A
V_{ESD}	ESD per IEC 61000-4-2(Air) ESD per IEC 61000-4-2 (Contact)	± 17 ± 8	kV
T_{OPT}	Operating Temperature	-55/+125	°C
T_{STG}	Storage Temperature	-55/+150	°C

Electrical Characteristics (T = 25°C)

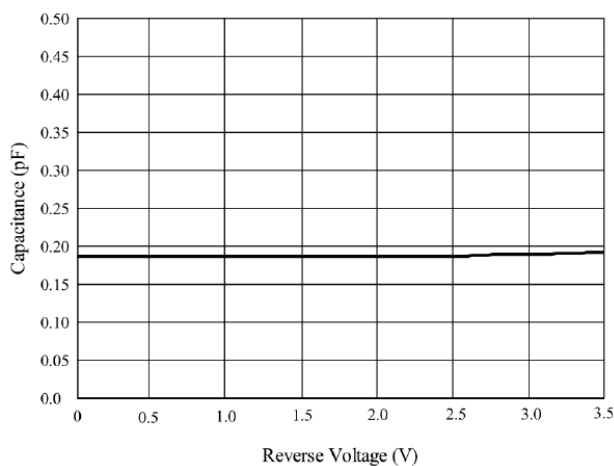
Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{tl}	Trigger Voltage
I_{tl}	Trigger Current @ V_{tl}
V_h	Holding Voltage
I_h	Holding Current @ V_h
V_C	Clamping Voltage @ I_{PP}
V_{CR}	Reverse Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
C_{ESD}	Parasitic Capacitance



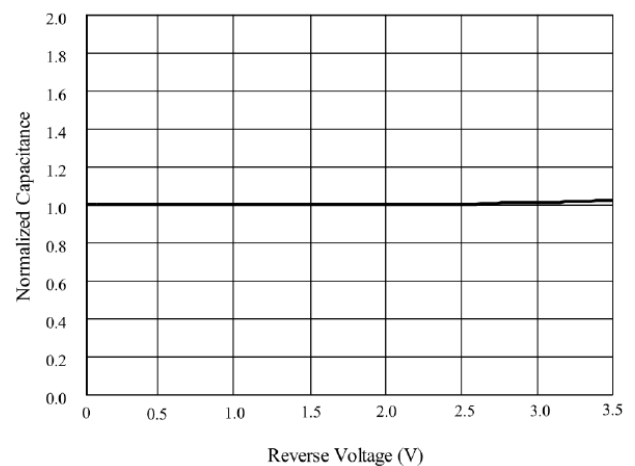
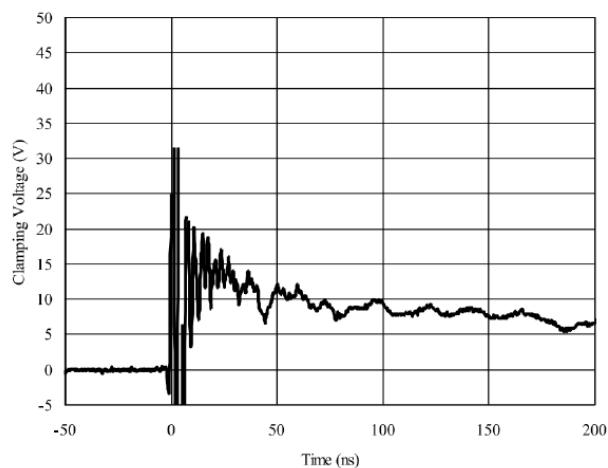
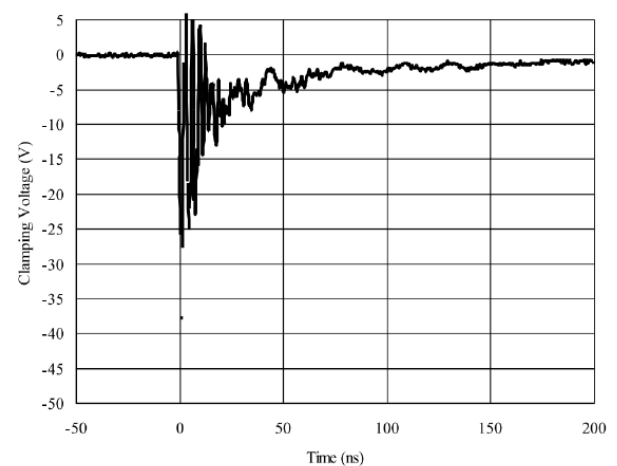
Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				3.3	V
I_R	$V_{RWM} = 3.3V, T = 25^\circ C$		0.1	0.5	μA
V_{tl}	$I_{tl} = 1mA$	6.5		8.5	V
V_h	$I_h = 20mA$		2.4		V
V_C	$I_{PP} = 1A, t_p = 8/20\mu s$			4.0	V
V_C	$I_{PP} = 6A, t_p = 8/20\mu s$			5.5	V
R_{dyn}	IEC61000-4-2 0-8KV, T=25°C		0.27		Ω
V_C	$I_{PP} = 8.0A, t_p = 100ns$		5.3		V
	$I_{PP} = 16.0A, t_p = 100ns$		7.5		V
C_{ESD}	$V_R = 0V, f = 1MHz$		0.18		pF

**TLP Measurement of I/O to I/O****Insertion Loss S21 of I/O to I/O****Capacitance vs. Voltage of I/O to I/O (f = 1MHz)**

Capacitance vs. Reverse Voltage



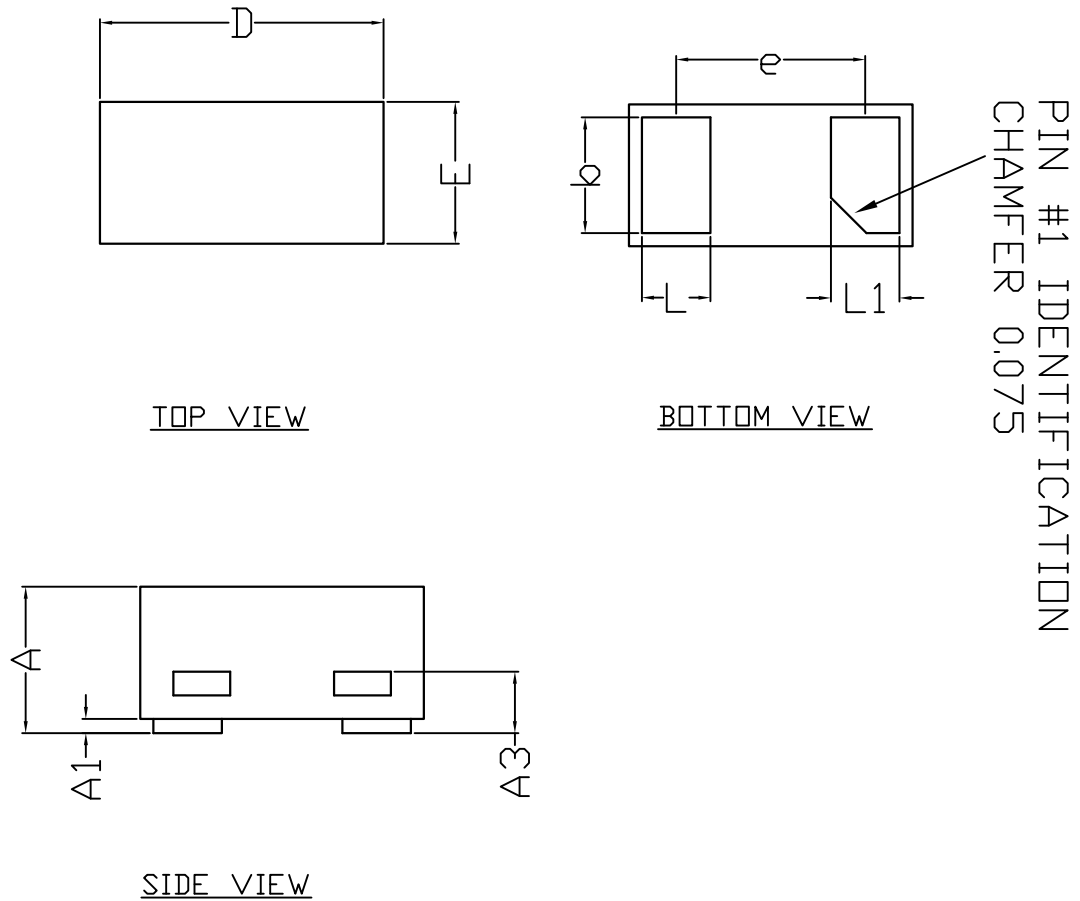
Normalized Capacitance vs. Reverse Voltage

**ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)****ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)**



Package Outline

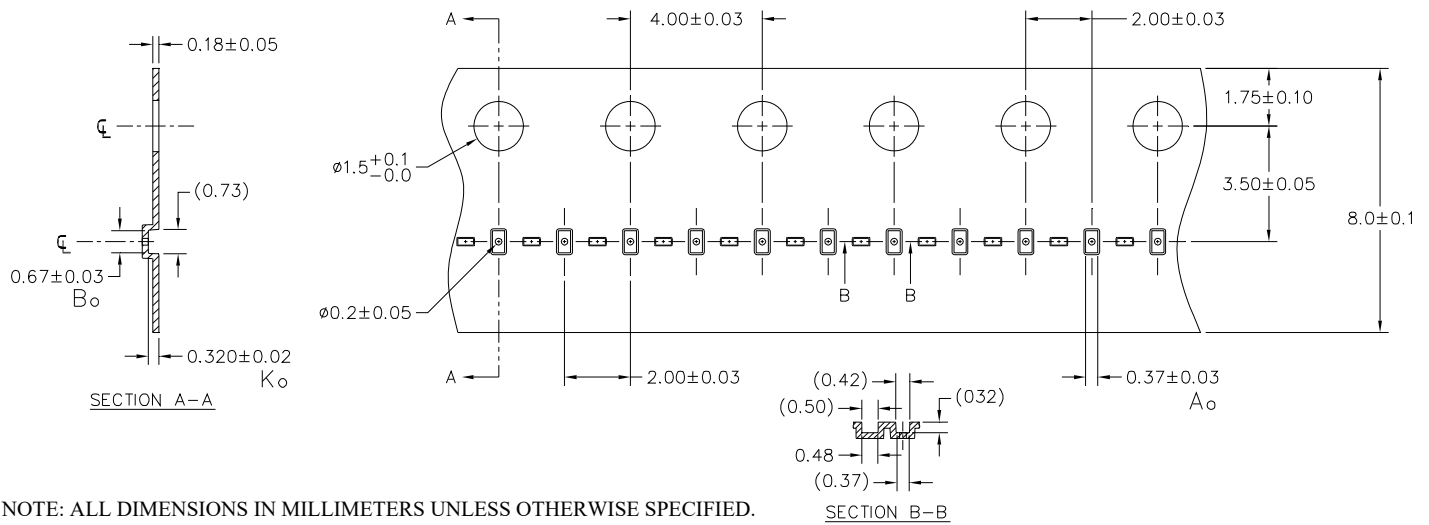
- DFN0603 package
- MSL-1



COMMON DIMENSIONS(MM)			
PKG.	X3:EXTREME THIN		
REF.	MIN.	NOM.	MAX
A	>0.23	-	0.33
A1	0.00	-	0.05
A3	0.102REF.		
D	0.55	0.60	0.65
E	0.25	0.30	0.35
b	0.215	0.245	0.275
L	0.115	0.145	0.175
L1	0.115	0.145	0.175
e	0.40BSC		



Carries Tape Specification

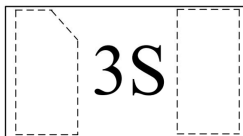


NOTE: ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

A0	B0	K0
0.37 +/-0.03	0.67 +/-0.03	0.32 +/-0.02 mm

Note: All dimensions in mm unless otherwise specified

Marking Codes



Ordering Information

Part Number	Qty per Reel	Reel Size
ESDKR3V3BX-T	10,000	7 inch