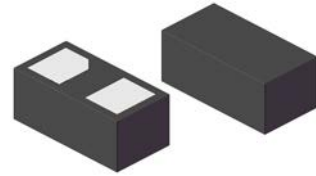
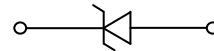


Features

- 30 Watts peak pulse power ($t_p = 8/20 \mu\text{S}$)
- Tiny DFN0603 package
- Unidirectional configurations
- R2R + Zener technology
- Low clamping voltage
- Low leakage current
- Ultra low capacitance ($C_J=0.3\text{pF typ.}$)
- Protection one data/power line to:
 - IEC 61000-4-2 $\pm 10\text{kV}$ contact $\pm 18\text{kV}$ air
 - IEC 61000-4-4 (EFT) 40A (5/50 nS)
 - IEC 61000-4-5 (Lightning) 3A (8/20 μS)
- RoHS compliant



DFN0603-X2



Schematic Diagram

Applications

- USB3.0, Firewire, DVI, HDMI, S-ATA
- Thunderbolt, Display Port
- Mobile HDMI Link, MDDI, MIPI, SWP / NFC

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p=8/20 \mu\text{S}$)	P_{PP}	30	W
ESD Contact/Air Discharge (IEC-61000-4-2)	V_{ESD}	10/18	kV
Peak Pulse Current ($t_p = 8/20 \mu\text{S}$)	I_{PP}	3	A
Junction Temperature	T_J	-55 to +125	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$
Maximum Lead Solder Temperature(10 second duration)	T_L	260	$^\circ\text{C}$

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse Stand-off Voltage	V_{RWM}		-	-	5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	6.0	-	10.5	V
Reverse Leakage Current	I_R	$V_R=5.0\text{V}$	-	<1	100	nA
Clamping Voltage (IEC 61000-4-5)	V_C	$I_{PP}=3\text{A}$	-	10	-	V
Trigger Voltage (IEC 61000-4-2)	V_T	$V_{ESD}=8\text{kV}$	-	135	-	V
Clamping Voltage (IEC 61000-4-2)	V_C	$V_{ESD}=8\text{kV}$	-	20	-	V
Junction Capacitance	C_J	$V_R=0\text{V}, f=1\text{MHz}$	-	0.3	-	pF

Typical Characteristic Curves

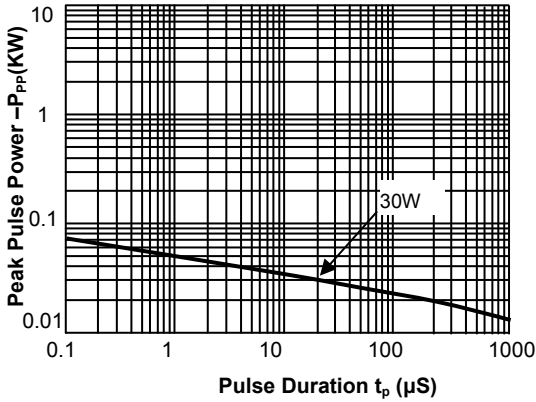


Fig.1 Peak Pulse Power Rating Curve

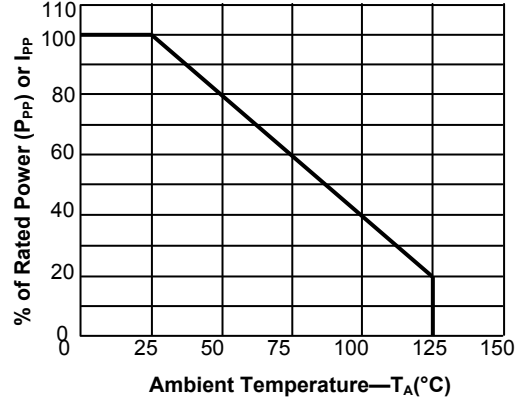


Fig.2 Pulse Derating Curve

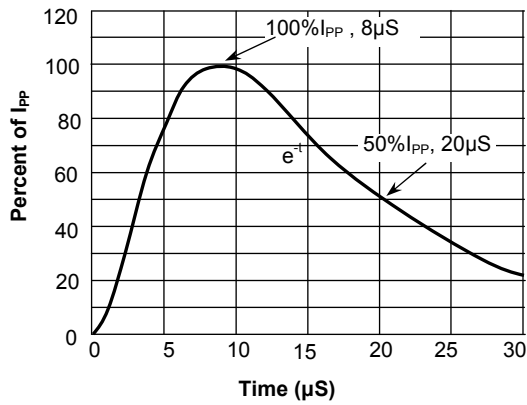


Fig.3 Pulse Waveform-8/20 μS

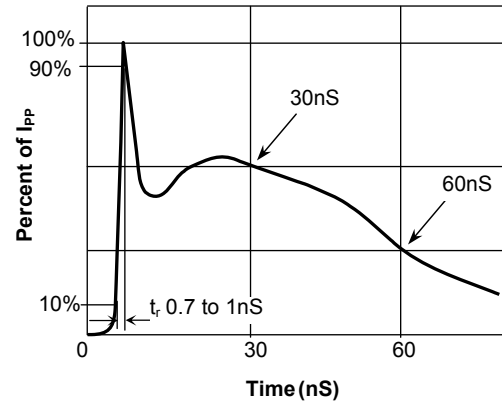


Fig.4 Pulse Waveform-ESD(IEC61000-4-2)

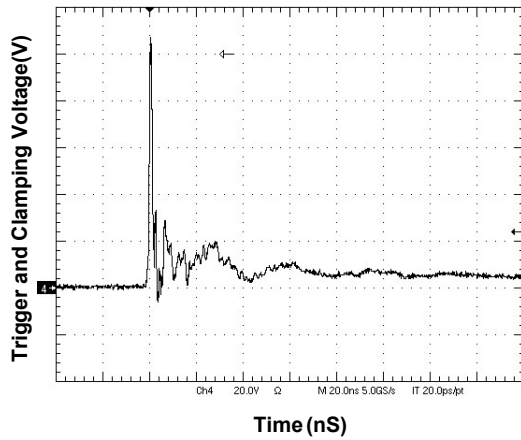


Fig.5 IEC61000-4-2 +8kV Contact Discharge

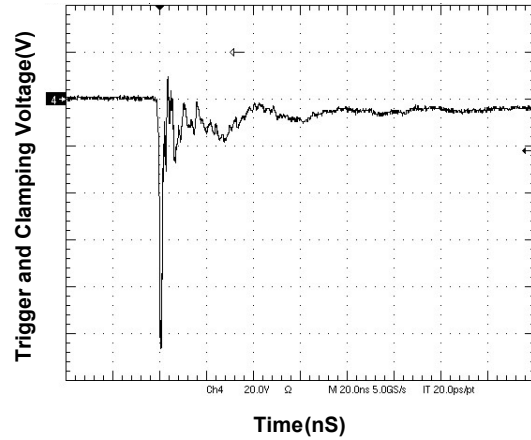


Fig.6 IEC61000-4-2 -8kV Contact Discharge

Typical Characteristic Curves

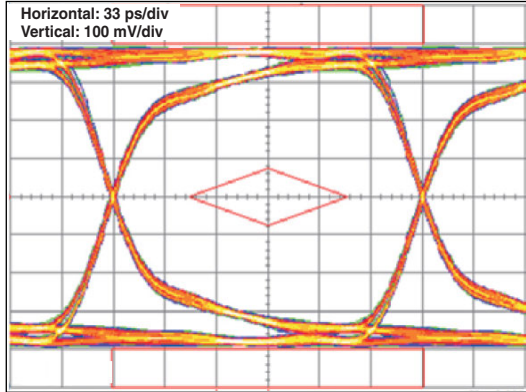


Fig.7 Eye Diagram - USB3.0 mask at 5.0Gbps per channel (with GSESUC5VD0603-2U)

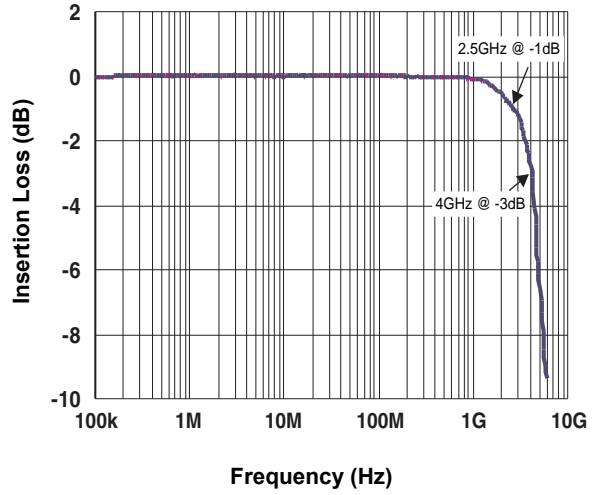
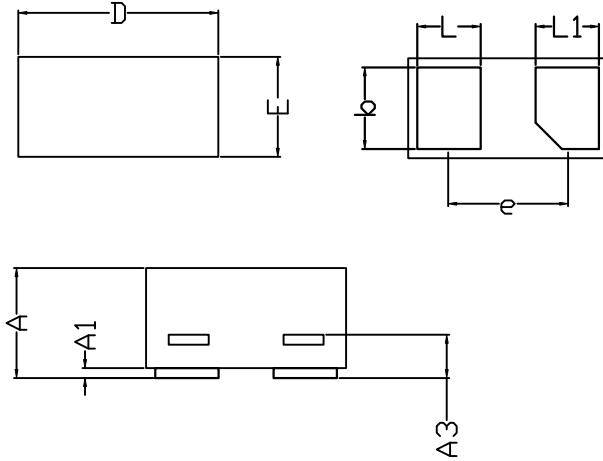


Fig.8 Insertion Loss S21- I/O to GND

Package Outline Dimensions DFN0603-X2



Symbol	Dimensions in millimeters		
	Min	Nom	Max
A	0.23	-	0.33
A1	0.00	-	0.05
A3	0.102 REF		
D	0.55	0.60	0.65
E	0.25	0.30	0.35
b	0.215	0.245	0.275
L	0.160	0.190	0.220
L1	0.160	0.190	0.220
e	0.355 BSC		

Order Information

Device	Package	Marking	Carrier	Quantity	HSF Status
GSEN5U003	DFN0603-X2	U	Tape & Reel	15,000pcs / Reel	RoHS compliant