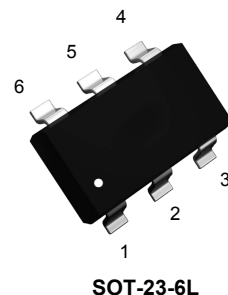


GSER5U002

Low Capacitance ESD Protection Diode

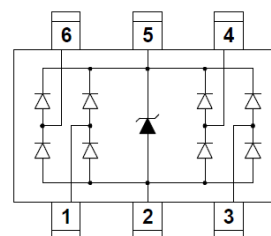
Features

- 80Watts peak pulse power ($t_p = 8/20\mu s$)
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Ultra low capacitance (0.2pF typical I/O to I/O)
- ESD Protection for high-speed data lines to:
 - IEC 61000-4-2 $\pm 15KV$ contact $\pm 15KV$ air
 - IEC 61000-4-4 (EFT) 40A (5/50ns)
 - IEC 61000-4-5 (Lightning) 6A (8/20 μs)



Applications

- USB 3.0, USB 2.0, MHL
- HDMI 2.0, Display Port 1.3, eSATA
- Unified Display Interface (UDI)
- Digital Visual Interface (DVI)
- High speed serial interfaces



Schematic Diagram

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

Parameter	Symbol	Value	Unit
Peak Pulse Power ($T_P = 8/20\mu s$)	P_{PP}	80	W
Peak Pulse Current ($t_P = 8/20\mu s$)	I_{PP}	6	A
Junction Temperature	T_J	-55 to +125	$^\circ C$
Storage temperature	T_{STG}	-55 to +150	$^\circ C$

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse stand-off Voltage	V_{RWM}	-	-	-	5	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1mA$	6	6.8	8.5	V
Reverse Leakage Current	I_R	$V_R = 5V$	-	0.01	1	μA
Clamping Voltage(SURGE)	V_C	$I_{PP} = 6A, T_P = 8/20\mu s$	-	14	16	V
Trigger Voltage(ESD)	V_T	$V_{ESD} = +8kV$	-	90	-	V
Clamping Voltage(ESD)	V_C	$V_{ESD} = +8kV$	-	15	-	V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz, I/O$ to I/O	-	0.2	0.4	pF
	C_J	$V_R = 0V, f = 1MHz, I/O$ to GND	-	0.4	0.8	pF

Typical Characteristic Curves

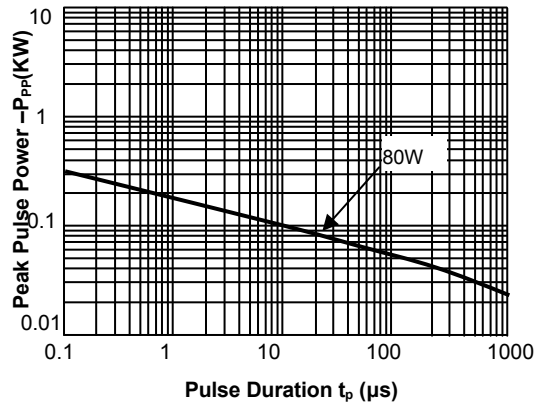


Fig.1 Peak Pulse Power Rating Curve

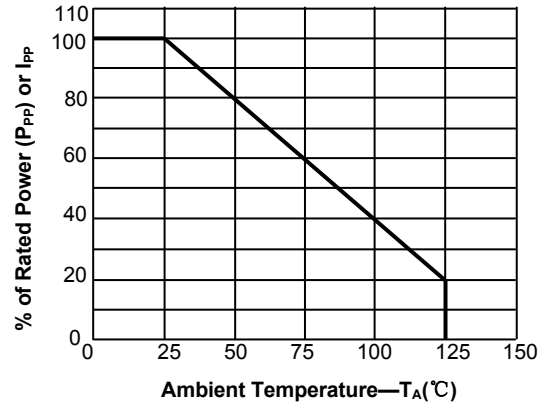


Fig.2 Pulse Derating Curve

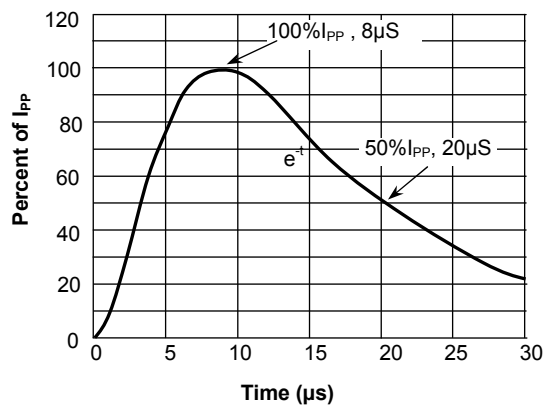


Fig.3 Pulse Waveform-8/20 μ s

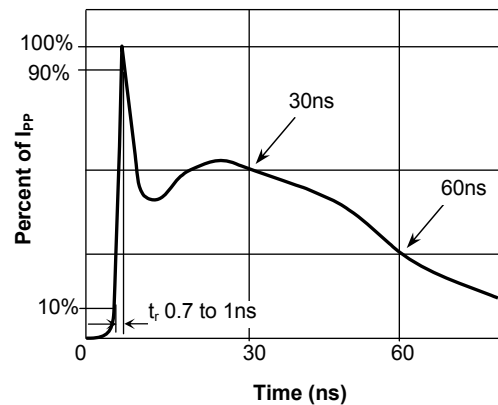


Fig.4 Pulse Waveform-ESD(IEC61000-4-2)

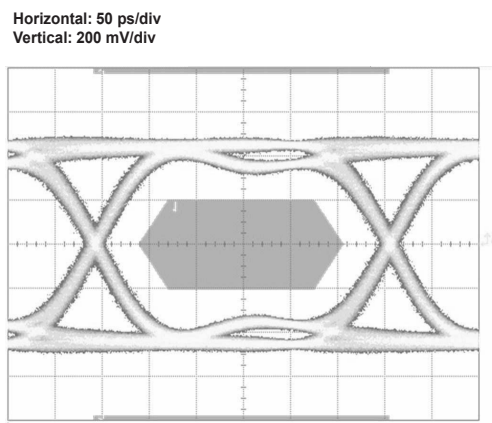


Fig.5 Eye Diagram - HDMI mask at 3.4Gbps per Channel (with GSER5U002)

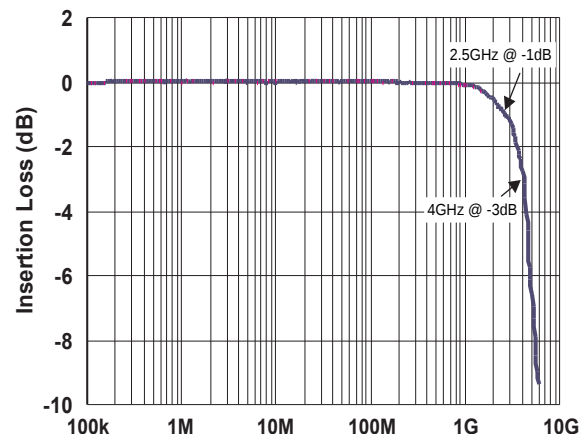
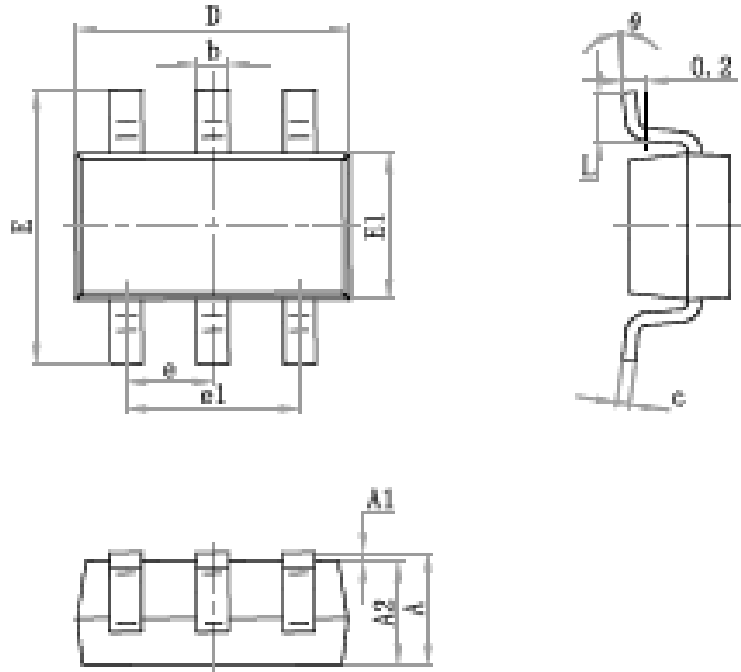


Fig.6 Insertion Loss S21 - I/O to GND

GSER5U002

Low Capacitance ESD Protection Diode

Package Outline Dimensions (SOT-23-6L)



Symbol	Dimensions in millimeters		Dimensions in inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Order Information

MPN	Package	Marking	Quantity	HSF Status
GSER5U002	SOT-23-6L	05L	3000pcs / Reel	RoHS Compliant