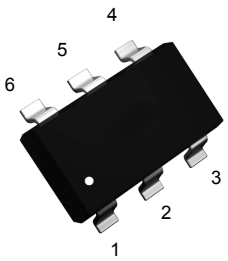
GOOD-ARK SEMICONDUCTOR

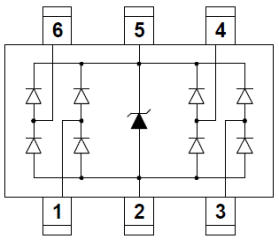
GSER5U030
Low Capacitance ESD TVS Array

Features

- Low capacitance: 1.5pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Low operating voltage: 5.5V
- Low clamping voltage
- Up to 4 lines and one power line protects
- Complies with following standards:
  -IEC 61000-4-2 (ESD) immunity test
  Air discharge: ±30kV
  Contact discharge: ±30kV
  -IEC61000-4-5 (Lightning) 20A (8/20μs)



SOT-23-6L



Schematic Diagram

Applications

- USB 2.0 power and data line
- Monitors and flat panel displays
- Set-top box and digital TV
- Video graphics cards
- Digital visual interface (DVI)
- Notebook computers
- SIM ports
- 10/100 ethernet
- IEEE 1394 firewire ports

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs), V_{CC} Pin to Ground	P_{PK}	560	W
Peak Pulse Power (8/20μs), Any I/O Pin to Ground	P_{PK}	300	W
Peak Pulse Current (8/20μs), V_{CC} Pin to Ground	I_{PP}	28	A
Peak Pulse Current (8/20μs), Any I/O Pin to Ground	I_{PP}	20	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	T_J	-55 to +125	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	-	-	-	5.5	V
Breakdown Voltage	V_{BR}	I_T=1mA, Pin 5 to Pin 2	6	-	-	V
Reverse Leakage Current	I_R	V_{RWM}=5.5V, any I/O pin to ground	-	-	1	μA
Forward Voltage	V_F	I_F=15mA	-	-	1.2	V
Clamping Voltage	V_C	I_{PP}=28A (8 x 20μs pulse), V_{CC} pin to ground	-	-	20	V
		I_{PP}=20A (8 x 20μs pulse), any I/O pin to ground	-	-	15	
Junction Capacitance	C_J	V_R=0V, f=1MHz, between I/O pins	-	1.5	-	pF
		V_R=0V, f=1MHz, any I/O pin to ground	-	3.0	5.0	

Typical Performance Characteristics (T_A=25°C unless otherwise specified)

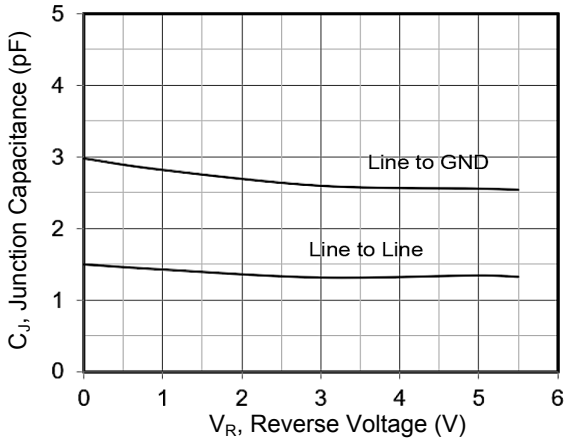


Figure 1. Junction Capacitance vs. Reverse Voltage

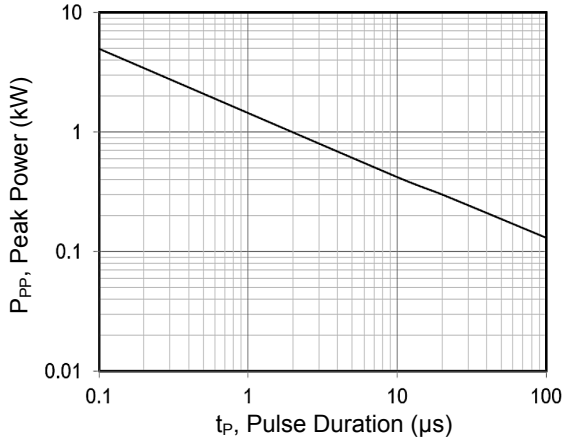


Figure 2. Peak Pulse Power vs. Pulse Time

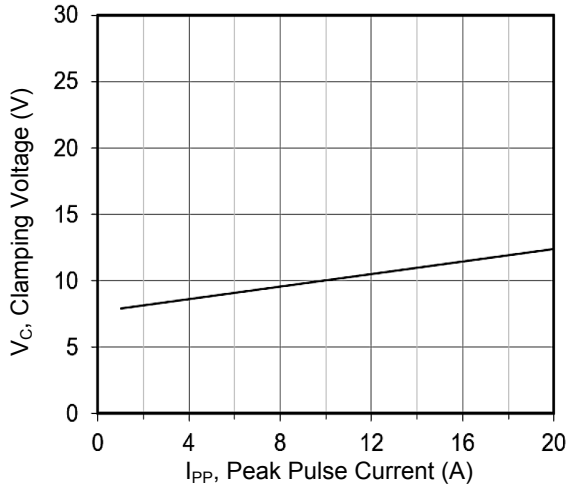


Figure 3. Clamping Voltage vs. Peak Pulse Current

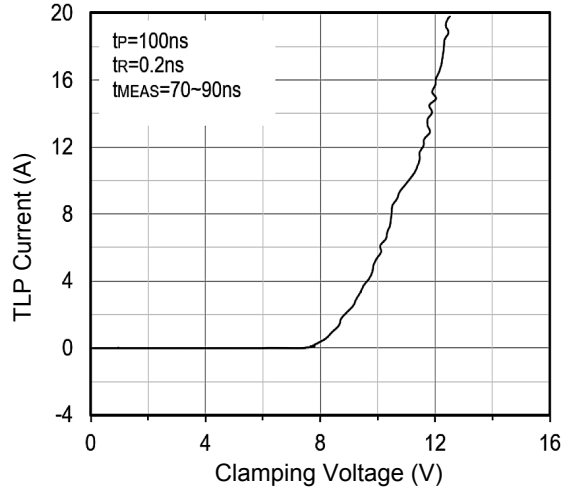


Figure 4. TLP Measurement

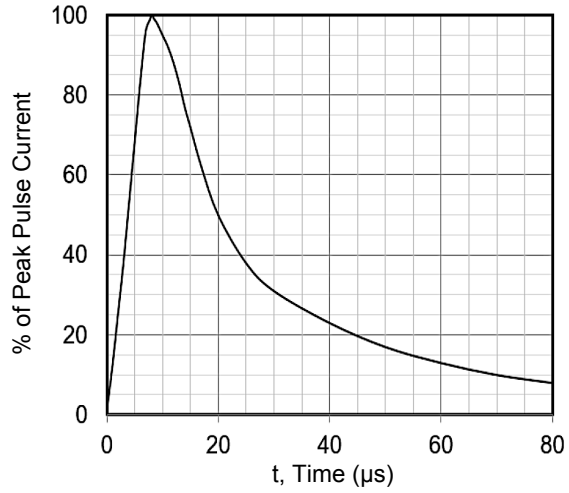


Figure 5. 8 x 20μs Pulse Waveform

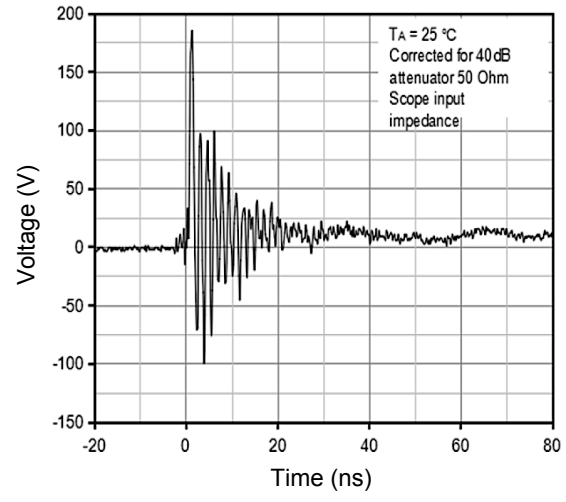
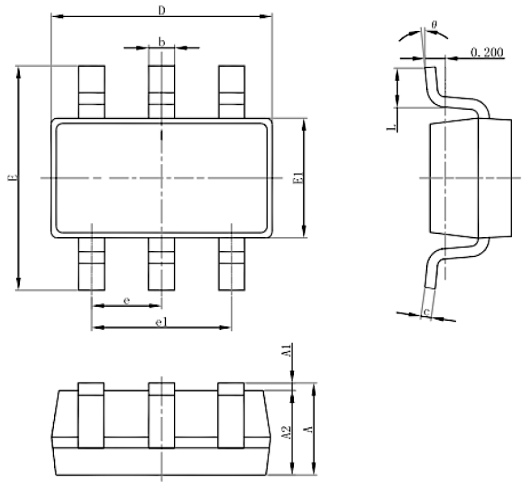


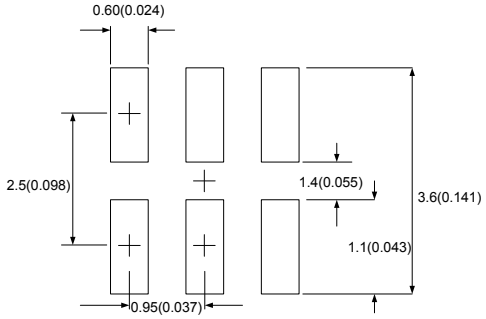
Figure 6. ESD Clamping Voltage
8kV Contact per IEC 61000-4-2

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°

Recommended Pad Layout



Unit: Millimeters (Inches)

Order Information

Device	Package	Marking	Packaging	SPQ
GSER5U030	SOT-23-6L	SRV05	Tape & Reel	3,000 Pcs / Reel