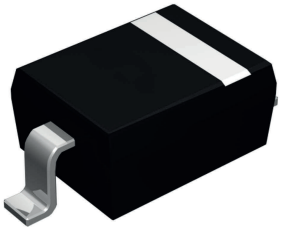
GOOD-ARK
SEMICONDUCTOR

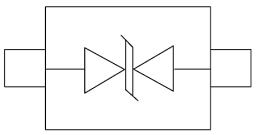
GSEDCxxBxx
ESD Protection Diodes

Features

- 300W peak pulse power (8/20μs)
- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 3.3V, 5V, 8V, 12V, 24V, 36V
- Ultra low clamping voltage
- Complies with following standards:
  -IEC 61000-4-2 (ESD) immunity test
  Air discharge: ±30kV
  Contact discharge: ±30kV



SOD-323



Schematic Diagram

Applications

- Cellular handsets and accessories
- Personal digital assistants
- Notebooks and handhelds
- Portable instrumentation
- Peripherals
- Pagers peripherals
- Desktop and servers

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P_{PK}	300	W
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)

GSEDC3B1000						
Parameter	**Symbol**	**Test Condition**	**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}	-	-	-	3.3	V
Breakdown Voltage	V_{BR}	I_T=1mA	3.8	-	-	V
Reverse Leakage Current	I_R	V_{RWM}=3.3V	-	-	1.0	μA
Clamping Voltage	V_C	I_{PP}=1A (8 x 20μs pulse)	-	-	6	V
		I_{PP}=25A (8 x 20μs pulse)	-	-	12	V
Peak Pulse Current	I_{PP}	t_p=8/20μs	-	-	25	A
Junction Capacitance	C_J	V_R=0V, f=1MHz	-	-	100	pF

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

GSEDC5B800						
Parameter	**Symbol**	**Test Condition**	**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}	-	-	-	5	V
Breakdown Voltage	V_{BR}	I_T=1mA	6	-	-	V
Reverse Leakage Current	I_R	V_{RWM}=5V	-	-	1.0	μA
Clamping Voltage	V_C	I_{PP}=1A (8 x 20μs pulse)	-	-	8	V
		I_{PP}=20A (8 x 20μs pulse)	-	-	15	V
Peak Pulse Current	I_{PP}	t_p=8/20μs	-	-	20	A
Junction Capacitance	C_J	V_R=0V, f=1MHz	-	-	80	pF

GSEDC8B600						
Parameter	**Symbol**	**Test Condition**	**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}	-	-	-	8	V
Breakdown Voltage	V_{BR}	I_T=1mA	8.5	-	-	V
Reverse Leakage Current	I_R	V_{RWM}=8V	-	-	0.5	μA
Clamping Voltage	V_C	I_{PP}=1A (8 x 20μs pulse)	-	-	13	V
		I_{PP}=18A (8 x 20μs pulse)	-	-	17	V
Peak Pulse Current	I_{PP}	t_p=8/20μs	-	-	18	A
Junction Capacitance	C_J	V_R=0V, f=1MHz	-	-	60	pF

GSEDC12B320						
Parameter	**Symbol**	**Test Condition**	**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}	-	-	-	12	V
Breakdown Voltage	V_{BR}	I_T=1mA	13.3	-	-	V
Reverse Leakage Current	I_R	V_{RWM}=12V	-	-	0.5	μA
Clamping Voltage	V_C	I_{PP}=1A (8 x 20μs pulse)	-	-	18	V
		I_{PP}=12A (8 x 20μs pulse)	-	-	25	V
Peak Pulse Current	I_{PP}	t_p=8/20μs	-	-	12	A
Junction Capacitance	C_J	V_R=0V, f=1MHz	-	32	-	pF

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

GSEDC24B150						
Parameter	**Symbol**	**Test Condition**	**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}	-	-	-	24	V
Breakdown Voltage	V_{BR}	I_T=1mA	27	-	-	V
Reverse Leakage Current	I_R	V_{RWM}=24V	-	-	0.2	μA
Clamping Voltage	V_C	I_{PP}=1A (8 x 20μs pulse)	-	-	40	V
		I_{PP}=5A (8 x 20μs pulse)	-	-	60	V
Peak Pulse Current	I_{PP}	t_p=8/20μs	-	-	5	A
Junction Capacitance	C_J	V_R=0V, f=1MHz	-	15	-	pF

GSEDC36B120						
Parameter	**Symbol**	**Test Condition**	**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}	-	-	-	36	V
Breakdown Voltage	V_{BR}	I_T=1mA	38	-	-	V
Reverse Leakage Current	I_R	V_{RWM}=36V	-	-	0.2	μA
Clamping Voltage	V_C	I_{PP}=1A (8 x 20μs pulse)	-	-	50	V
		I_{PP}=4A (8 x 20μs pulse)	-	-	75	V
Peak Pulse Current	I_{PP}	t_p=8/20μs	-	-	4	A
Junction Capacitance	C_J	V_R=0V, f=1MHz	-	12	-	pF

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

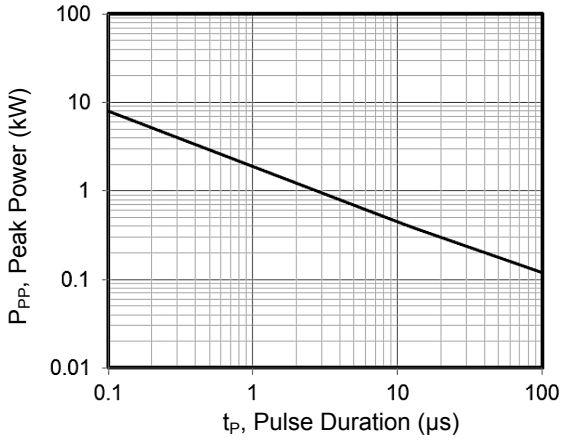


Figure 1. Peak Pulse Power vs. Pulse Time

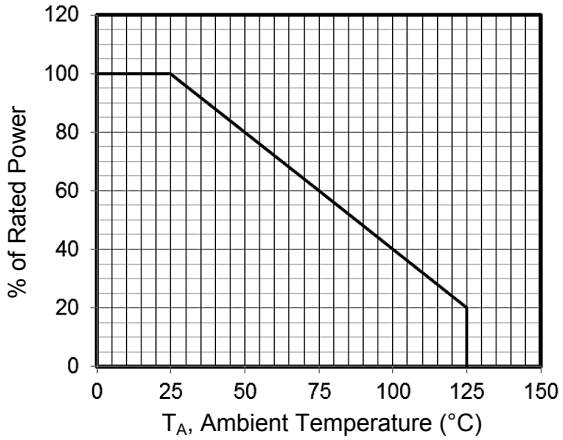


Figure 2. Power Derating Curve

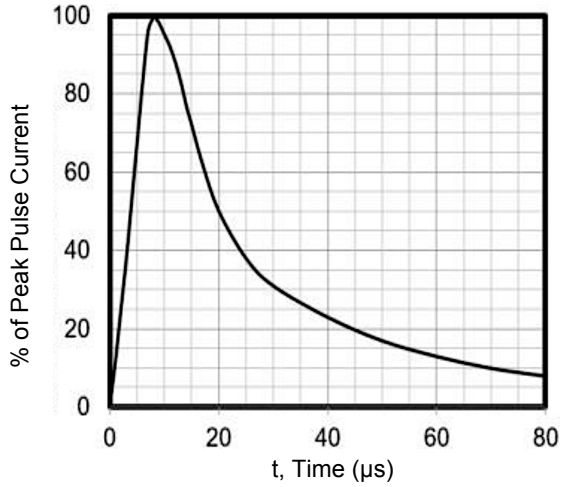
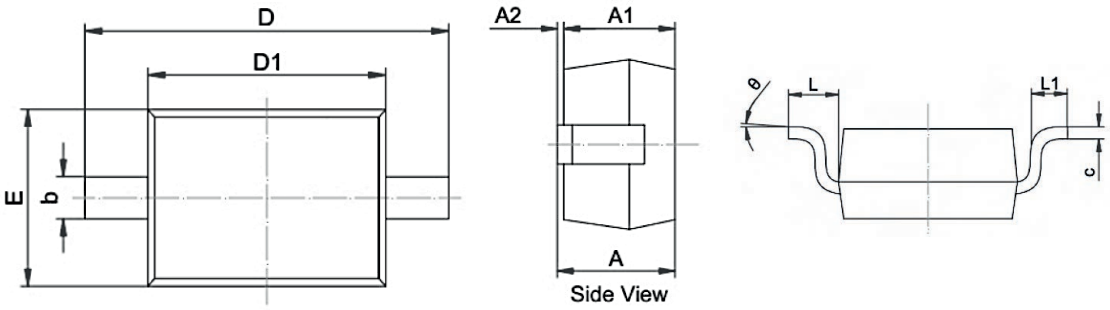


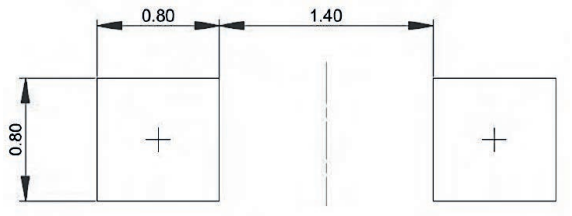
Figure 3. 8 x 20μs Pulse Waveform

Package Outline Dimension (SOD-323)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.031	0.043
A1	0.800	0.900	0.031	0.035
A2	0.000	0.100	0.000	0.004
b	0.250	0.400	0.010	0.016
c	0.080	0.177	0.003	0.007
D1	1.600	1.800	0.063	0.071
D	2.300	2.800	0.091	0.110
E	1.150	1.400	0.045	0.055
L	0.475 REF		0.019 REF	
L1	0.100	0.500	0.004	0.020
θ	0°	8°	0°	8°

Recommended Pad Layout



Unit: mm

Order Information

Device	Package	Marking	Packaging	SPQ
GSEDC3B1000	SOD-323	33L	Tape & Reel	3,000 Pcs / Reel
GSEDC5B800	SOD-323	05CL	Tape & Reel	3,000 Pcs / Reel
GSEDC8B600	SOD-323	08L	Tape & Reel	3,000 Pcs / Reel
GSEDC12B320	SOD-323	12L	Tape & Reel	3,000 Pcs / Reel
GSEDC24B150	SOD-323	24L	Tape & Reel	3,000 Pcs / Reel
GSEDC36B120	SOD-323	36L	Tape & Reel	3,000 Pcs / Reel