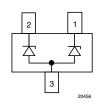


Vishay Semiconductors

Two-Line ESD-Protection in SOT-23





FEATURES

- Two-line ESD-protection device
- ESD-protection acc. IEC 61000-4-2
 - ± 30 kV contact discharge
 - ± 30 kV air discharge
- Space saving SOT-23 package
- AEC-Q101 qualified
- e3 Sn



 Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

MARKING (example only)



YYY = type code (see table below)

XX = date code

ORDERING INFO	RMATION				
DEVICE NAME	ENVIRONMENTAL ORDERING CODE STATUS		TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL)	MINIMUM ORDER QUANTITY	
GSOT03C	Standard	GSOT03C-GS08	3000	15 000	
G50103C	Green	GSOT03C-V-G-08	3000	15 000	
CSOTOAC	Standard	GSOT04C-GS08	3000	15.000	
GSOT04C	Green	GSOT04C-V-G-08	3000	15 000	
GSOT05C	Standard	GSOT05C-GS08	3000	15.000	
G50105C	Green	GSOT05C-V-G-08	3000	15 000	
GSOT08C	Standard	GSOT08C-GS08	3000	15 000	
G301000	Green	GSOT08C-V-G-08	3000	13 000	
GSOT12C	Standard	GSOT12C-GS08	3000	15 000	
G301120	Green	GSOT12C-V-G-08	3000	15 000	
GSOT15C	Standard	GSOT15C-GS08	3000	15 000	
G501150	Green	GSOT15C-V-G-08	3000	15 000	
CCCT04C	Standard	GSOT24C-GS08	3000	15.000	
GSOT24C	Green	GSOT24C-V-G-08	3000	15 000	
CCCT2CC	Standard	GSOT36C-GS08	3000	15.000	
GSOT36C	Green	GSOT36C-V-G-08	3000	15 000	

^{**} Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

GSOT03C to GSOT36C

Vishay Semiconductors Two-Line ESD-Protection in SOT-23



PACKA	GE DATA						
DEVICE NAME	PACKAGE NAME	TYPE CODE	ENVIRONMENTAL STATUS	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
GSOT03C	SOT-23	03C	Standard	8.8 mg	UL 94 V-0	MSL level 1	260 °C/10 s at terminals
G301030	301-23	C1G	Green	8.1 mg	OL 94 V-0	(according J-STD-020)	200 C/10 S at terrillials
GSOT04C	SOT-23	04C	Standard	8.8 mg	UL 94 V-0	MSL level 1	260 °C/10 s at terminals
4301040	301-23	C8G	Green	8.1 mg	OL 94 V-0	(according J-STD-020)	200 O/10 3 at terrilliais
GSOT05C	SOT-23	05C	Standard	8.8 mg	UL 94 V-0	MSL level 1	260 °C/10 s at terminals
4301030	301-23	C2C	Green	8.1 mg	OL 94 V-0	(according J-STD-020)	200 O/ TO 3 at terrilliais
GSOT08C	SOT-23	08C	Standard	8.8 mg	UL 94 V-0	MSL level 1	260 °C/10 s at terminals
4301000	301-23	C3G	Green	8.1 mg	OL 94 V-0	(according J-STD-020)	200 O/ TO 3 at terrilliais
GSOT12C	SOT-23	12C	Standard	8.8 mg	UL 94 V-0	MSL level 1	260 °C/10 s at terminals
0301120	301-23	C4G	Green	8.1 mg	OL 94 V-0	(according J-STD-020)	200 O/ TO 3 at terrilliais
GSOT15C	SOT-23	15C	Standard	8.8 mg	UL 94 V-0	MSL level 1	260 °C/10 s at terminals
4301130	301-23	C5G	Green	8.1 mg	OL 94 V-0	(according J-STD-020)	200 O/10 3 at terrilliais
GSOT24C	SOT-23	24C	Standard	8.8 mg	UL 94 V-0	MSL level 1	260 °C/10 s at terminals
G501240	301-23	C6G	Green	8.1 mg	OL 34 V-0	(according J-STD-020)	200 O/ TO 3 at terrilliais
GSOT36C	SOT-23	36C	Standard	8.8 mg	UL 94 V-0	MSL level 1	260 °C/10 s at terminals
4301300	301-23	C7G	Green	8.1 mg	OL 34 V-0	(according J-STD-020)	200 O/ TO 3 at terrilliais

ABSOLUTE MAXIMUM RATINGS GSOT03C					
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT	
5	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	lane.	30	Α	
Peak pulse current	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	Іррм	30	Α	
Peak pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	P _{PP}	369	W	
reak puise power	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	ГРР	504	W	
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	W	± 30	kV	
ESD IIIIIIdility	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV	
Operating temperature	Junction temperature	T _J	- 40 to + 125	°C	
Storage temperature		T _{STG}	- 55 to + 150	°C	

ABSOLUTE MAXIMUM RATINGS GSOT04C					
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT	
Peak pulse current	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, t _p = 8/20 μs; single shot	1	30	А	
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	Іррм	30	А	
Dook pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	P_PP	429	W	
Peak pulse power	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	ГРР	564	W	
ECD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV	
ESD immunity	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV	
Operating temperature	Junction temperature	T _J	- 40 to + 125	°C	
Storage temperature		T_{STG}	- 55 to + 150	°C	





ABSOLUTE MAXIMUM RATINGS GSOT05C				
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Bart a la const	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	l	30	А
Peak pulse current	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	ІррМ	30	А
Peak pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	P _{PP}	480	W
reak puise power	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	ГРР	612	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
ESD initiality	Air discharge acc. IEC 61000-4-2; 10 pulses	VESD	± 30	kV
Operating temperature	Junction temperature	T_J	- 40 to + 125	°C
Storage temperature		T _{STG}	- 55 to + 150	°C

ABSOLUTE MAXIMUM RATINGS GSOT08C					
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT	
Peak pulse current	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, t _p = 8/20 μs; single shot	I	18	Α	
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	ІРРМ	18	Α	
Peak pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, t _p = 8/20 μs; single shot	P _{PP}	345	W	
reak puise power	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	ГРР	400	W	
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV	
ESD initiality	Air discharge acc. IEC 61000-4-2; 10 pulses	VESD	± 30	kV	
Operating temperature	Junction temperature	T_J	- 40 to + 125	°C	
Storage temperature		T _{STG}	- 55 to + 150	°C	

ABSOLUTE MAXIMUM RATINGS GSOT12C					
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT	
Peak pulse current	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, t _p = 8/20 μs; single shot	ı	12	А	
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, t _p = 8/20 μs; single shot	Іррм	12	А	
Peak pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, t _p = 8/20 μs; single shot	P_PP	312	W	
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	ГРР	337	W	
ECD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV	
ESD immunity	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV	
Operating temperature	Junction temperature	TJ	- 40 to + 125	°C	
Storage temperature		T _{STG}	- 55 to + 150	°C	

Vishay Semiconductors Two-Line ESD-Protection in SOT-23



ABSOLUTE MAXIMUM RATINGS GSOT15C				
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Bud a law and	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, t _p = 8/20 μs; single shot	l	8	Α
Peak pulse current	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	Іррм	8	Α
Peak pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	D	345	W
reak puise power	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	P _{PP}	400	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V _{ESD}	± 30	kV
ESD ininiunity	Air discharge acc. IEC 61000-4-2; 10 pulses	VESD	± 30	kV
Operating temperature	Junction temperature	TJ	- 40 to + 125	°C
Storage temperature		T _{STG}	- 55 to + 150	°C

ABSOLUTE MAXIMUM RATINGS GSOT24C					
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT	
Peak pulse current	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, t _p = 8/20 μs; single shot	l	5	А	
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, t_p = 8/20 μ s; single shot	Іррм	5	Α	
B	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, t _p = 8/20 μs; single shot	P _{PP}	235	W	
Peak pulse power	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	ГРР	240	W	
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V	± 30	kV	
ESD immunity	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV	
Operating temperature	Junction temperature	TJ	- 40 to + 125	°C	
Storage temperature		T _{STG}	- 55 to + 150	°C	

ABSOLUTE MAXIMUI	ABSOLUTE MAXIMUM RATINGS GSOT36C					
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT		
Peak pulse current	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	l	3.5	А		
r ear puise current	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	I _{PPM}	3.5	А		
Peak pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	D.	248	W		
reak puise powei	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, $t_p = 8/20 \mu s$; single shot	P _{PP}	252	W		
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V	± 30	kV		
ESD immunity	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV		
Operating temperature	Junction temperature	TJ	- 40 to + 125	°C		
Storage temperature		T _{STG}	- 55 to + 150	°C		

BIAs-MODE (2-line bidirectional asymmetrical protection mode)

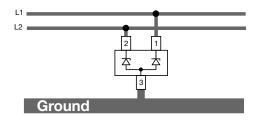
With the GSOTxx one signal- or data-lines (L1) can be protected against voltage transients. With pin 1 connected to ground and pin 3 connected to a signal- or data-line which has to be protected. As long as the voltage level on the data- or signal-line is between 0 V (ground level) and the specified maximum reverse working voltage (V_{RWM}) the protection diode between pin 1 and pin 3 offer a high isolation to the ground line. The protection device behaves like an open switch.

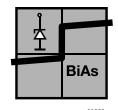
As soon as any positive transient voltage signal exceeds the break through voltage level of the protection diode, the diode becomes conductive and shorts the transient current to ground. Now the protection device behaves like a closed switch. The clamping voltage (V_C) is defined by the breakthrough voltage (V_{BR}) level plus the voltage drop at the series impedance (resistance and inductance) of the protection device.

Any negative transient signal will be clamped accordingly. The negative transient current is flowing in the forward direction of the protection diode. The low forward voltage (V_F) clamps the negative transient close to the ground level.

Due to the different clamping levels in forward and reverse direction the GSOTxx clamping behaviour is bidirectional and asymmetrical (BiAs).



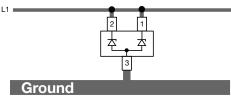




If a higher surge current or peak pulse current (I_{PP}) is needed, both protection diodes in the GSOTxxC can also be used in parallel in order to "double" the performance.

This offers:

- double surge power = double peak pulse current (2 x I_{PPM})
- half of the line inductance = reduced clamping voltage
- half of the line resistance = reduced clamping voltage
- double line capacitance (2 x C_D)
- double reverse leakage current (2 x I_B)



20359

ELECTRICAL CHARAC	TERISTICS GSOT03C					
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	=	-	2	lines
Reverse working voltage	at I _R = 100 μA	V_{RWM}	3.3	-	-	V
Reverse current	at V _R = 3.3 V	I _R	-	-	100	μΑ
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	4	4.6	-	V
Reverse clamping voltage	at I _{PP} = 1 A	V	-	5.7	7.5	V
neverse clamping voltage	at I _{PP} = I _{PPM} = 30 A	V _C	=	10	12.3	V
Forward clamping voltage	at I _{PP} = 1 A	V _F	-	1	1.2	V
Forward clamping voltage	at I _{PP} = I _{PPM} = 30 A	VF	-	4.5	-	V
Capacitance	at V _R = 0 V; f = 1 MHz	- C _D	=	420	600	pF
Сараспапсе	at V _R = 1.6 V; f = 1 MHz	OD	=	260	-	pF

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 3 or pin 2 to 3)

ELECTRICAL CHARACTERISTICS GSOT04C						
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	-	-	2	lines
Reverse working voltage	at I _R = 20 μA	V_{RWM}	4	-	-	V
Reverse current	at V _R = 4 V	I _R	-	-	20	μΑ
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	5	6.1	-	V
Reverse clamping voltage	at I _{PP} = 1 A	W	-	7.5	9	V
neverse clamping voltage	at I _{PP} = I _{PPM} = 30 A	V _C	-	11.2	14.3	V
Famusard alamaina valtaga	at I _{PP} = 1 A	V	-	1	1.2	V
Forward clamping voltage	at I _{PP} = I _{PPM} = 30 A	V _F	-	4.5	-	V
Capacitance	at V _R = 0 V; f = 1 MHz		_	310	450	pF
	at V _R = 2 V; f = 1 MHz	C _D	-	200	-	pF

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 3 or pin 2 to 3)

Document Number: 85824 Rev. 2.0, 22-Jul-10 For technical questions, contact: ESDprotection@vishay.com

GSOT03C to GSOT36C

Vishay Semiconductors Two-Line ESD-Protection in SOT-23



ELECTRICAL CHARACTERISTICS GSOT05C								
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT		
Protection paths	Number of lines which can be protected	N _{channel}	-	-	2	lines		
Reverse working voltage	at I _R = 10 μA	V_{RWM}	5	-	-	V		
Reverse current	at V _R = 5 V	I _R	-	-	10	μΑ		
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	6	6.8	-	V		
Reverse clamping voltage	at I _{PP} = 1 A	V _C	-	7	8.7	V		
heverse clamping voltage	at I _{PP} = I _{PPM} = 30 A	VC	-	12	16	V		
Forward clamping voltage	at I _{PP} = 1 A	V _F	-	1	1.2	V		
Torward clamping voltage	at I _{PP} = I _{PPM} = 30 A	VF	-	4.5	-	V		
Capacitance	at $V_R = 0 V$; $f = 1 MHz$	- C _D	-	260	350	pF		
Capacitance	at V _R = 2.5 V; f = 1 MHz		-	150	-	pF		

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 3 or pin 2 to 3)

ELECTRICAL CHARAC	TERISTICS GSOT08C					
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	-	-	2	lines
Reverse working voltage	at I _R = 5 μA	V_{RWM}	8	-	-	V
Reverse current	at V _R = 8 V	I _R	-	-	5	μΑ
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	9	10	-	V
Reverse clamping voltage	at I _{PP} = 1 A	V _C	-	10.7	13	V
neverse clamping voltage	at I _{PP} = I _{PPM} = 18 A	v _C	-	15.2	19.2	V
Forward clamping voltage	at I _{PP} = 1 A	V _F	-	1	1.2	V
Forward clamping voltage	at I _{PP} = I _{PPM} = 18 A	VF	-	3	-	V
0	at V _R = 0 V; f = 1 MHz	C _D	-	160	250	pF
Capacitance	at V _R = 4 V; f = 1 MHz		-	80	-	pF

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 3 or pin 2 to 3)

ELECTRICAL CHARAC	TERISTICS GSOT12C					
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	=	-	2	lines
Reverse working voltage	at I _R = 1 μA	V_{RWM}	12	-	-	V
Reverse current	at V _R = 12 V	I _R	-	-	1	μΑ
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	13.5	15	-	V
Reverse clamping voltage	at I _{PP} = 1 A	V _C	-	15.4	18.7	V
neverse clamping voltage	at I _{PP} = I _{PPM} = 12 A	v _C	=	21.2	26	V
Forward clamping voltage	at I _{PP} = 1 A	V _F	=	1	1.2	V
Forward clamping voltage	at I _{PP} = I _{PPM} = 12 A	V _F	=	2.2	-	V
Capacitance	at V _R = 0 V; f = 1 MHz		=	115	150	pF
Capacitarice	at V _R = 6 V; f = 1 MHz	C _D	-	50	-	pF

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 3 or pin 2 to 3)

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ELECTRICAL CHARACTERISTICS GSOT15C								
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT		
Protection paths	Number of lines which can be protected	N _{channel}	-	-	2	lines		
Reverse working voltage	at I _R = 1 μA	V_{RWM}	15	-	-	V		
Reverse current	at V _R = 15 V	I _R	-	-	1	μΑ		
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	16.5	18	-	V		
Reverse clamping voltage	at I _{PP} = 1 A	V _C	-	19.4	23.5	V		
neverse clamping voltage	at I _{PP} = I _{PPM} = 8 A	v _C	-	24.8	28.8	V		
Forward clamping voltage	at I _{PP} = 1 A	W	-	1	1.2	V		
Forward clamping voltage	at I _{PP} = I _{PPM} = 8 A	V_{F}	-	1.8	-	V		
Capacitance	at V _R = 0 V; f = 1 MHz	C _D	-	90	120	pF		
Сараспапсе	at V _R = 7.5 V; f = 1 MHz	OD	-	35	-	pF		

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 3 or pin 2 to 3)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	-	-	2	lines
Reverse working voltage	at I _R = 1 μA	V_{RWM}	24	-	-	V
Reverse current	at V _R = 24 V	I _R	-	-	1	μA
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	27	30	-	V
Poverse elemping voltage	at I _{PP} = 1 A	V	-	34	41	V
Reverse clamping voltage	at I _{PP} = I _{PPM} = 5 A	V _C	-	41	47	V
Forward alamaing valtage	at I _{PP} = 1 A	W	-	1	1.2	V
Forward clamping voltage	at I _{PP} = I _{PPM} = 5 A	V _F	-	1.4	-	V
Canacitanas	at V _R = 0 V; f = 1 MHz	- C _D	-	65	80	pF
Capacitance	at V _R = 12 V; f = 1 MHz		-	20	-	pF

Note

Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 3 or pin 2 to 3)

ELECTRICAL CHARAC	TERISTICS GSOT36C					
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	=	-	2	lines
Reverse working voltage	at I _R = 1 μA	V_{RWM}	36	-	-	V
Reverse current	at V _R = 36 V	I _R	=	-	1	μA
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	39	43	-	V
Reverse clamping voltage	at I _{PP} = 1 A	V	=	49	60	V
neverse clamping voltage	at I _{PP} = I _{PPM} = 3.5 A	V _C	=	59	71	V
Forward clamping voltage	at I _{PP} = 1 A	W	=	1	1.2	V
Forward clamping voltage	at I _{PP} = I _{PPM} = 3.5 A	V_{F}	-	1.3	-	V
Canaditanaa	at V _R = 0 V; f = 1 MHz		=	52	65	pF
Capacitance	at V _R = 18 V; f = 1 MHz	C _D	=	12	-	pF

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 3 or pin 2 to 3)

BISy-MODE (1-line bidirectional symmetrical protection mode)

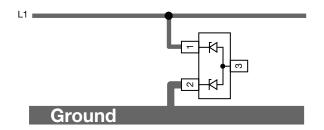
If a bipolar symmetrical protection device is needed the GSOTxxC can also be used as a single line protection device. Therefore pin 1 has to be connected to the signal- or data-line (L1) and pin 2 to ground (or vice versa). Pin 3 must not be connected. Positive and negative voltage transients will be clamped in the same way. The clamping current through the GSOTxxC passes one diode in forward direction and the other one in reverse direction. The clamping voltage (V_C) is defined by the breakthrough voltage (V_{BR}) level of one diode plus the forward voltage of the other diode plus the voltage drop at the series impedances (resistances and inductances) of the protection device.

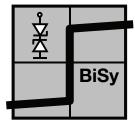
Due to the same clamping levels in positive and negative direction the GSOTxxC voltage clamping behaviour is bidirectional and symmetrical (BiSy).

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Vishay Semiconductors Two-Line ESD-Protection in SOT-23







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ELECTRICAL CHARAC	TERISTICS GSOT03C					
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	=	-	1	lines
Reverse working voltage	at I _R = 100 μA	V_{RWM}	3.8	-	-	V
Reverse current	at V _R = 3.8 V	I _R	=	-	100	μΑ
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	4.5	5.3	-	V
Doverse elemning veltage	at I _{PP} = 1 A	W	=	7	8.4	V
Reverse clamping voltage	at I _{PP} = I _{PPM} = 30 A	V _C	=	14	16.8	V
Capacitance	at V _R = 0 V; f = 1 MHz	C	=	210	300	pF
Capacitance	at V _R = 1.6 V; f = 1 MHz	C _D	=	190	-	pF

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

ELECTRICAL CHARAC	TERISTICS GSOT04C					
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	=	-	1	lines
Reverse working voltage	at I _R = 20 μA	V_{RWM}	4.5	-	-	V
Reverse current	at V _R = 4:5 V	I _R	=	-	20	μA
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	5.5	6.8	-	V
Reverse clamping voltage	at I _{PP} = 1 A	V	=	7.5	9	V
neverse clamping voltage	at I _{PP} = I _{PPM} = 30 A	─ V _C	=	15.7	18.8	V
0	at V _R = 0 V; f = 1 MHz	- C _D	=	155	225	pF
Capacitance	at V _R = 2 V; f = 1 MHz		_	135	-	pF

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

ELECTRICAL CHARAC	ELECTRICAL CHARACTERISTICS GSOT05C							
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT		
Protection paths	Number of lines which can be protected	N _{channel}	-	-	1	lines		
Reverse working voltage	at I _R = 10 μA	V_{RWM}	5.5	-	-	V		
Reverse current	at V _R = 5.5 V	I _R	-	-	10	μA		
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	6.5	7.5	-	V		
Reverse clamping voltage	at I _{PP} = 1 A	W	-	8.1	9.7	V		
heverse clamping voltage	at I _{PP} = I _{PPM} = 18 A	V _C	-	17	20.4	V		
Capacitance	at V _R = 0 V; f = 1 MHz	C _D	-	130	175	pF		
Сараснансе	at V _R = 4 V; f = 1 MHz	OD	-	100	-	pF		

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)



ELECTRICAL CHARAC	TERISTICS GSOT08C					
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	-	-	1	lines
Reverse working voltage	at I _R = 5 μA	V_{RWM}	8.5	-	-	V
Reverse current	at V _R = 8.5 V	I _R	-	-	5	μΑ
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	9.5	10.7	-	V
Reverse clamping voltage	at I _{PP} = 1 A	W	-	11.7	14	V
neverse clamping voltage	at I _{PP} = I _{PPM} = 18 A	V _C	-	18.5	22.2	V
Capacitance	at V _R = 0 V; f = 1 MHz	- C _D	-	80	125	pF
Сараспансе	at V _R = 4 V; f = 1 MHz	OD	-	60	-	pF

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

ELECTRICAL CHARACTERISTICS GSOT12C							
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Protection paths	Number of lines which can be protected	N _{channel}	-	-	1	lines	
Reverse working voltage	at I _R = 1 μA	V_{RWM}	12.5	-	-	V	
Reverse current	at V _R = 12.5 V	I _R	-	-	1	μΑ	
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	13.5	15.7	-	V	
Reverse clamping voltage	at I _{PP} = 1 A	W	-	16.4	19.7	V	
neverse clamping voltage	at I _{PP} = I _{PPM} = 12 A	V _C	-	23.4	28.1	V	
Capacitance	at V _R = 0 V; f = 1 MHz	C	-	58	75	pF	
Сараспансе	at V _R = 7.5 V; f = 1 MHz	C _D	-	36	-	pF	

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

ELECTRICAL CHARACTERISTICS GSOT15C							
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Protection paths	Number of lines which can be protected	N _{channel}	=	-	1	lines	
Reverse working voltage	at I _R = 1 μA	V_{RWM}	15.5	-	-	V	
Reverse current	at V _R = 15.5 V	I _R	=	-	1	μA	
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	17	18.7	-	V	
Deverse elemning veltage	at I _{PP} = 1 A	V	=.	20.4	24.5	V	
Reverse clamping voltage	at I _{PP} = I _{PPM} = 8 A	V _C	-	26.6	30.6	V	
Canacitanas	at V _R = 0 V; f = 1 MHz	C-	=	45	60	pF	
Capacitance	at V _R = 7.5 V; f = 1 MHz	C_D	=	25	-	pF	

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

ELECTRICAL CHARACTERISTICS GSOT24C									
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT			
Protection paths	Number of lines which can be protected	N _{channel}	=	-	1	lines			
Reverse working voltage	at I _R = 1 μA	V_{RWM}	24.5	-	-	V			
Reverse current	at V _R = 24.5 V	I _R	=	-	1	μA			
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	27.5	30.7	-	V			
Reverse clamping voltage	at I _{PP} = 1 A	V _C	=	34	41	V			
	at I _{PP} = I _{PPM} = 5 A		=	40	48	V			
Capacitance	at V _R = 0 V; f = 1 MHz	C _D	-	33	40	pF			
	at V _R = 12 V; f = 1 MHz		ı	18	-	pF			

Note

• Ratings at 25 °C, ambient temperature unless otherwise specified. BiAs mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

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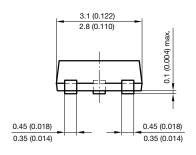


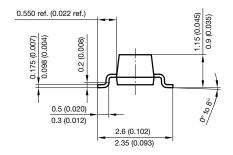
ELECTRICAL CHARACTERISTICS GSOT36C									
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT			
Protection paths	Number of lines which can be protected	N _{channel}	-	-	1	lines			
Reverse working voltage	at I _R = 1 μA	V_{RWM}	36.5	-	-	V			
Reverse current	at V _R = 36.5 V	I _R	-	-	1	μΑ			
Reverse breakdown voltage	at I _R = 1 mA	V_{BR}	39.5	43.7	-	V			
Reverse clamping voltage	at I _{PP} = 1 A	V _C	-	50	60	V			
	at I _{PP} = I _{PPM} = 3.5 A		-	60	72	V			
Capacitance	at $V_R = 0 V$; $f = 1 MHz$	C _D	-	26	33	pF			
	at V _R = 18 V; f = 1 MHz		-	10	-	pF			

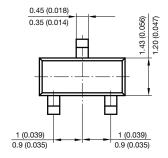
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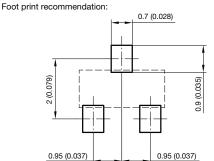
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PACKAGE DIMENSIONS in millimeters (inches): SOT-23









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