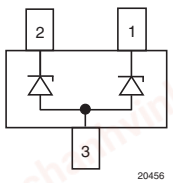
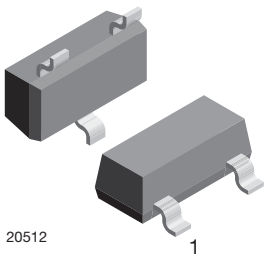
chanhvinh.com

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
- Material categorization:
  For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

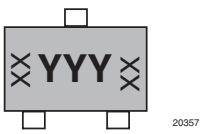
e3

RoHS COMPLIANT

HALOGEN FREE Available

GREEN (5-2008) Available

MARKING (example only)



YYY = type code (see table below)
XX = date code

ORDERING INFORMATION							
PART NUMBER (EXAMPLE)	ENVIRONMENTAL AND QUALITY CODE				PACKAGING CODE		ORDERING CODE (EXAMPLE)
	AEC-Q101 QUALIFIED	RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS		TIN PLATED	3K PER 7" REEL (8 mm TAPE), 15K/BOX = MOQ	10K PER 13" REEL (8 mm TAPE), 10K/BOX = MOQ	
		STANDARD	GREEN				
GSOT05C-		E		3	-08		GSOT05C-E3-08
GSOT05C-			G	3	-08		GSOT05C-G3-08
GSOT05C-	H	E		3	-08		GSOT05C-HE3-08
GSOT05C-	H		G	3	-08		GSOT05C-HG3-08
GSOT05C-		E		3		-18	GSOT05C-E3-18
GSOT05C-			G	3		-18	GSOT05C-G3-18
GSOT05C-	H	E		3		-18	GSOT05C-HE3-18
GSOT05C-	H		G	3		-18	GSOT05C-HG3-18

For technical questions, contact: ESDprotection@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

PACKAGE 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 (according J-STD-020)	260 °C/10 s at terminals
		C1G	Green	8.1 mg			
GSOT04C	SOT-23	04C	Standard	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
		C8G	Green	8.1 mg			
GSOT05C	SOT-23	05C	Standard	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
		C2G	Green	8.1 mg			
GSOT08C	SOT-23	08C	Standard	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
		C3G	Green	8.1 mg			
GSOT12C	SOT-23	12C	Standard	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
		C4G	Green	8.1 mg			
GSOT15C	SOT-23	15C	Standard	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
		C5G	Green	8.1 mg			
GSOT24C	SOT-23	24C	Standard	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
		C6G	Green	8.1 mg			
GSOT36C	SOT-23	36C	Standard	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
		C7G	Green	8.1 mg			

ABSOLUTE MAXIMUM RATINGS GSOT03C

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_{PPM}	30	A
	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		30	A
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}	369	W
	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		504	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV
Operating temperature	Junction temperature	T_J	- 55 to + 150	°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	I_{PPM}	30	A
	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		30	A
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}	429	W
	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		564	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV
Operating temperature	Junction temperature	T_J	- 55 to + 150	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

For technical questions, contact: ESDprotection@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

ABSOLUTE MAXIMUM RATINGS GSOT05C				
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_{PPM}	30	A
	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		30	A
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}	480	W
	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		612	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV
Operating temperature	Junction temperature	T_J	- 55 to + 150	°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_{PPM}	18	A
	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		18	A
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
	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		400	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV
Operating temperature	Junction temperature	T_J	- 55 to + 150	°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	I_{PPM}	12	A
	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		12	A
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 µs; single shot		337	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV
Operating temperature	Junction temperature	T_J	- 55 to + 150	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

For technical questions, contact: ESDprotection@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

ABSOLUTE MAXIMUM RATINGS GSOT15C				
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_{PPM}	8	A
	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		8	A
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
	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		400	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV
Operating temperature	Junction temperature	T_J	- 55 to + 150	°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	I_{PPM}	5	A
	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		5	A
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}	235	W
	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		240	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV
Operating temperature	Junction temperature	T_J	- 55 to + 150	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

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 µs; single shot	I_{PPM}	3.5	A
	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		3.5	A
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}	248	W
	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		252	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV
Operating temperature	Junction temperature	T_J	- 55 to + 150	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

For technical questions, contact: ESDprotection@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

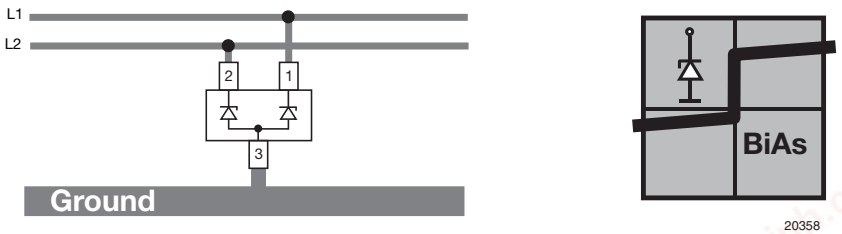
BiAs-MODE (2-line Bidirectional Asymmetrical protection mode)

With the GSOTxxC two signal- or data-lines (L1, L2) can be protected against voltage transients. With pin 3 connected to ground and pin 1 and pin 2 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 2 and pin 3 and between pin 1 and pin 3 offers 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 breakdown 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 breakdown voltage (V_{BR}) level plus the voltage drop at the series impedance (resistance and inductance) of the protection diode.

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

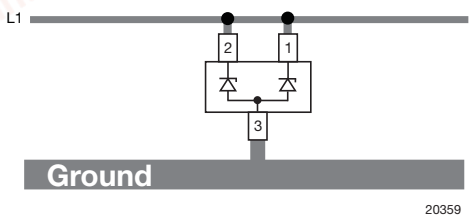
Due to the different clamping levels in forward and reverse direction the GSOTxxC clamping behavior is Bidirectional and Asymmetrical (BiAs).



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_R)



ELECTRICAL CHARACTERISTICS GSOT03C (T_{amb} = 25 °C unless otherwise specified)
between pin 1 to pin 3 or pin 2 to pin 3

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	2	lines
Reverse stand-off voltage	at I_R = 100 µA	V_{RWM}	-	-	3.3	V
Reverse current	at V_R = 3.3 V	I_R	-	-	100	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	4	4.6	-	V
Reverse clamping voltage	at I_{PP} = 1 A	V_C	-	5.7	7.5	V
	at I_{PP} = I_{PPM} = 30 A		-	10	12.3	V
Forward clamping voltage	at I_{PP} = 1 A	V_F	-	1	1.2	V
	at I_{PP} = I_{PPM} = 30 A		-	4.5	-	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	420	600	pF
	at V_R = 1.6 V; f = 1 MHz		-	260	-	pF

For technical questions, contact: ESDprotection@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

ELECTRICAL CHARACTERISTICS GSOT04C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 3 or pin 2 to pin 3						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	2	lines
Reverse stand-off voltage	at I_R = 20 µA	V_{RWM}	-	-	4	V
Reverse current	at V_R = 4 V	I_R	-	-	20	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	5	6.1	-	V
Reverse clamping voltage	at I_{PP} = 1 A	V_C	-	7.5	9	V
	at I_{PP} = I_{PPM} = 30 A		-	11.2	14.3	V
Forward clamping voltage	at I_{PP} = 1 A	V_F	-	1	1.2	V
	at I_{PP} = I_{PPM} = 30 A		-	4.5	-	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	310	450	pF
	at V_R = 2 V; f = 1 MHz		-	200	-	pF

ELECTRICAL CHARACTERISTICS GSOT05C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 3 or pin 2 to pin 3						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	2	lines
Reverse stand-off voltage	at I_R = 10 µA	V_{RWM}	-	-	5	V
Reverse current	at V_R = 5 V	I_R	-	-	10	µA
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
	at I_{PP} = I_{PPM} = 30 A		-	12	16	V
Forward clamping voltage	at I_{PP} = 1 A	V_F	-	1	1.2	V
	at I_{PP} = I_{PPM} = 30 A		-	4.5	-	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	260	350	pF
	at V_R = 2.5 V; f = 1 MHz		-	150	-	pF

ELECTRICAL CHARACTERISTICS GSOT08C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 3 or pin 2 to pin 3						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	2	lines
Reverse stand-off voltage	at I_R = 5 µA	V_{RWM}	-	-	8	V
Reverse current	at V_R = 8 V	I_R	-	-	5	µA
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
	at I_{PP} = I_{PPM} = 18 A		-	15.2	19.2	V
Forward clamping voltage	at I_{PP} = 1 A	V_F	-	1	1.2	V
	at I_{PP} = I_{PPM} = 18 A		-	3	-	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	160	250	pF
	at V_R = 4 V; f = 1 MHz		-	80	-	pF

For technical questions, contact: ESDprotection@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

ELECTRICAL CHARACTERISTICS GSOT12C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 3 or pin 2 to pin 3

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	2	lines
Reverse stand-off voltage	at I_R = 1 µA	V_{RWM}	-	-	12	V
Reverse current	at V_R = 12 V	I_R	-	-	1	µA
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
	at I_{PP} = I_{PPM} = 12 A		-	21.2	26	V
Forward clamping voltage	at I_{PP} = 1 A	V_F	-	1	1.2	V
	at I_{PP} = I_{PPM} = 12 A		-	2.2	-	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	115	150	pF
	at V_R = 6 V; f = 1 MHz		-	50	-	pF

ELECTRICAL CHARACTERISTICS GSOT15C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 3 or pin 2 to pin 3

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	2	lines
Reverse stand-off voltage	at I_R = 1 µA	V_{RWM}	-	-	15	V
Reverse current	at V_R = 15 V	I_R	-	-	1	µA
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
	at I_{PP} = I_{PPM} = 8 A		-	24.8	28.8	V
Forward clamping voltage	at I_{PP} = 1 A	V_F	-	1	1.2	V
	at I_{PP} = I_{PPM} = 8 A		-	1.8	-	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	90	120	pF
	at V_R = 7.5 V; f = 1 MHz		-	35	-	pF

ELECTRICAL CHARACTERISTICS GSOT24C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 3 or pin 2 to pin 3

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	2	lines
Reverse stand-off 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
Reverse clamping voltage	at I_{PP} = 1 A	V_C	-	34	41	V
	at I_{PP} = I_{PPM} = 5 A		-	41	47	V
Forward clamping voltage	at I_{PP} = 1 A	V_F	-	1	1.2	V
	at I_{PP} = I_{PPM} = 5 A		-	1.4	-	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	65	80	pF
	at V_R = 12 V; f = 1 MHz		-	20	-	pF

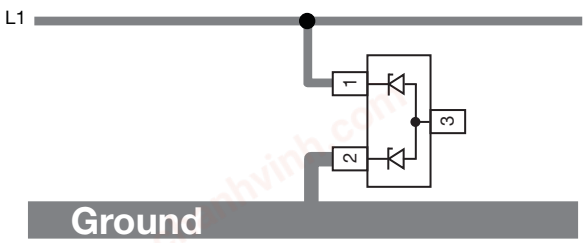
For technical questions, contact: ESDprotection@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

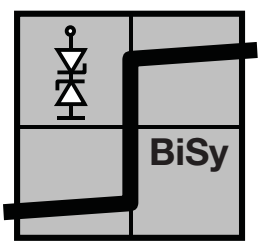
chanhvinh.com

ELECTRICAL CHARACTERISTICS GSOT36C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 3 or pin 2 to pin 3						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	2	lines
Reverse stand-off 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_C	-	49	60	V
	at I_{PP} = I_{PPM} = 3.5 A		-	59	71	V
Forward clamping voltage	at I_{PP} = 1 A	V_F	-	1	1.2	V
	at I_{PP} = I_{PPM} = 3.5 A		-	1.3	-	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	52	65	pF
	at V_R = 18 V; f = 1 MHz		-	12	-	pF

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).





20361

ELECTRICAL CHARACTERISTICS GSOT03C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand-off voltage	at I_R = 100 µA	V_{RWM}	-	-	3.8	V
Reverse current	at V_R = 3.8 V	I_R	-	-	100	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	4.5	5.3	-	V
Reverse clamping voltage	at I_{PP} = 1 A	V_C	-	7	8.4	V
	at I_{PP} = I_{PPM} = 30 A		-	14	16.8	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	210	300	pF
	at V_R = 1.6 V; f = 1 MHz		-	190	-	pF

For technical questions, contact: ESDprotection@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

ELECTRICAL CHARACTERISTICS GSOT04C (T_{amb} = 25 °C unless otherwise specified)
between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand-off 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_C	-	7.5	9	V
	at I_{PP} = I_{PPM} = 30 A		-	15.7	18.8	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	155	225	pF
	at V_R = 2 V; f = 1 MHz		-	135	-	pF

ELECTRICAL CHARACTERISTICS GSOT05C (T_{amb} = 25 °C unless otherwise specified)
between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand-off 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	V_C	-	8.1	9.7	V
	at I_{PP} = I_{PPM} = 18 A		-	17	20.4	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	130	175	pF
	at V_R = 4 V; f = 1 MHz		-	100	-	pF

ELECTRICAL CHARACTERISTICS GSOT08C (T_{amb} = 25 °C unless otherwise specified)
between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand-off voltage	at I_R = 5 µA	V_{RWM}	-	-	8.5	V
Reverse current	at V_R = 8.5 V	I_R	-	-	5	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	9.5	10.7	-	V
Reverse clamping voltage	at I_{PP} = 1 A	V_C	-	11.7	14	V
	at I_{PP} = I_{PPM} = 18 A		-	18.5	22.2	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	80	125	pF
	at V_R = 4 V; f = 1 MHz		-	60	-	pF

ELECTRICAL CHARACTERISTICS GSOT12C (T_{amb} = 25 °C unless otherwise specified)
between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand-off voltage	at I_R = 1 µA	V_{RWM}	-	-	12.5	V
Reverse current	at V_R = 12.5 V	I_R	-	-	1	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	13.5	15.7	-	V
Reverse clamping voltage	at I_{PP} = 1 A	V_C	-	16.4	19.7	V
	at I_{PP} = I_{PPM} = 12 A		-	23.4	28.1	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	58	75	pF
	at V_R = 7.5 V; f = 1 MHz		-	36	-	pF

For technical questions, contact: ESDprotection@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

ELECTRICAL CHARACTERISTICS GSOT15C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand-off 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
Reverse clamping voltage	at I_{PP} = 1 A	V_C	-	20.4	24.5	V
	at I_{PP} = I_{PPM} = 8 A		-	26.6	30.6	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	45	60	pF
	at V_R = 7.5 V; f = 1 MHz		-	25	-	pF

ELECTRICAL CHARACTERISTICS GSOT24C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand-off 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		-	18	-	pF

ELECTRICAL CHARACTERISTICS GSOT36C (T_{amb} = 25 °C unless otherwise specified) between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse stand-off voltage	at I_R = 1 µA	V_{RWM}	-	-	36.5	V
Reverse current	at V_R = 36.5 V	I_R	-	-	1	µA
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

For technical questions, contact: ESDprotection@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

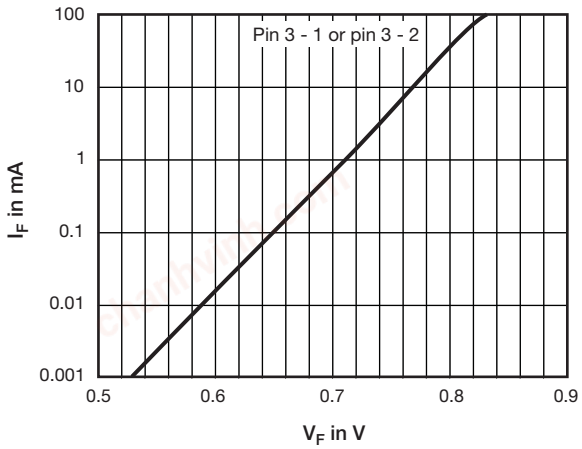


Fig. 1 - Typical Forward Current I_F vs. Forward Voltage V_F

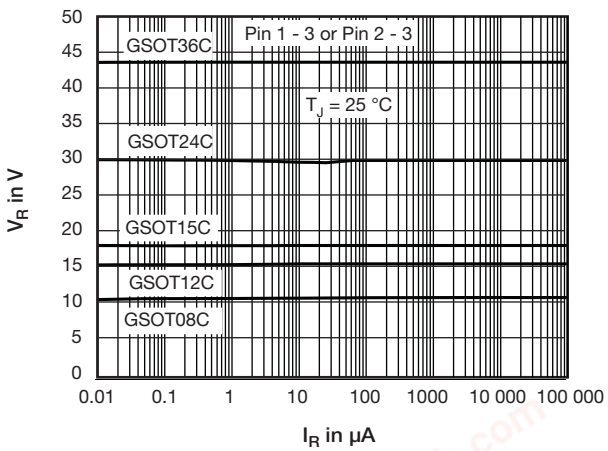


Fig. 2 - Typical Reverse Voltage V_R vs. Reverse Current I_R

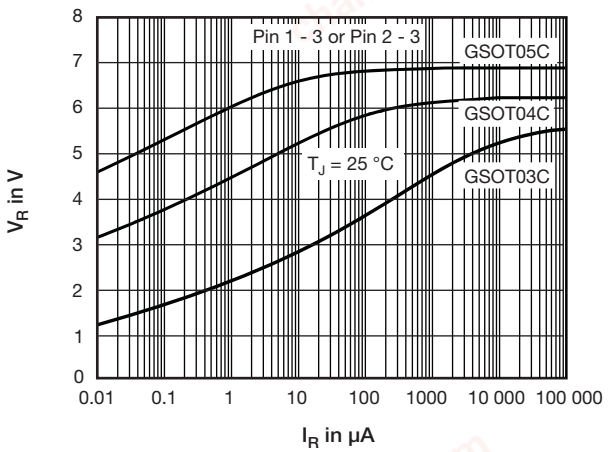


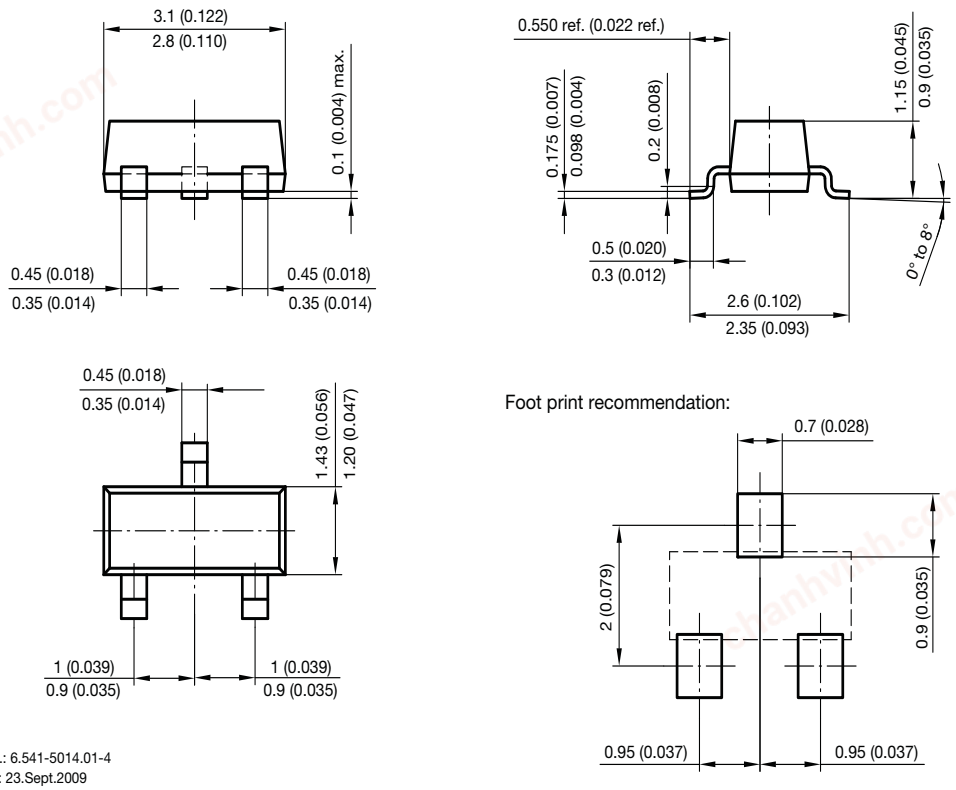
Fig. 3 - Typical Reverse Voltage V_R vs. Reverse Current I_R

For technical questions, contact: ESDprotection@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

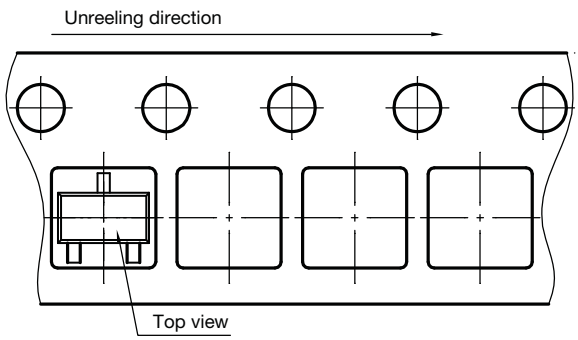
chanhvinh.com

PACKAGE DIMENSIONS in millimeters (inches): **SOT-23**



Foot print recommendation:

Document no.: 6.541-5014.01-4
Rev. 8 - Date: 23.Sept.2009
17418



SOT-23

Orientation in carrier tape
SOT-23
S8-V-3929.01-006 (4)
04.02.2010
22607

For technical questions, contact: ESDprotection@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.